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|  | NSF International |
| Global Food Division |

FSA Project FS246004

Risk MODELING of food fraud motivation - “NSF Fraud Protection Model”

scoping project

Objective 1: Literature and Internet Survey

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# 1. Executive Summary:

Documentation of food safety & defence incidents are well documented due to their consumer impact.

Some large-scale economically motivated food fraud incidents have been well documented in the scientific literature, many others have only been reports in the media if at all. Documentation where it exists is currently inconsistent and inadequate in terms of providing useful diagnostic details for risk assessment (Everstine *et al*., 2013. See Table 2 Item 1.).

Therefore, a dual approach has been taken with a systematic literature search being conducted alongside a broader internet search in order to inform the project team for the purpose of the project.

A systematic search was carried out using key words including: Adulterant(s/ation), Authenticity, Corruption, Counterfeit, Anti-Fraud, Fraud, Food fraud, Forensic, Fraud Management, Incidents, Tools, Solutions, Procurement, Reporting. The literature survey was conducted during September 2013 using these keywords with the Scopus and Science direct databases over 30 months. The outcome was 337 publications, which were refined, using the project criteria, to 14 key publications. The key reports have been summarized in tabular form.

The proposed model covers the 3 core parameters of **Profit**, **Difficulty** & **Likelihood** of Detection. This is reflective of the classic fraud triangle model as well as **Capability** in the Fraud Diamond model within the Difficulty parameter. In addition, the 6-facet model introduces **Integrity** – this is addressed through consideration of organized crime within the Profit scale.

**Impact** assessment as desired by the FSA can potentially be built on the likelihood of detection since adulterants are chosen by the fraudster specifically to avoid detection- this includes hazardous nature in the temptation analysis. This model will take into account the likely adulterant based on historical events such that impact will require consideration on a case-by-case basis. A separate NSF model has been developed for impact assessment that will need to be developed for this purpose.

Fraud tools have been identified for non-food and specifically for food fraud deterrent, mitigation and detection purposes.

A list of contact organizations has also been generated and is included in appendix 4 & 5.

# 2. Systematic Literature Review

Following a literature and Internet scoping exercise, initial results were harmonized and scrutinized in order to identify appropriate search terms and approaches for the systematic review. This led to a dual approach of a systematic literature review in parallel with a search of the Internet - including official regulatory sources. A literature search was conducted (in late September 3013) using the selected databases (Science direct and Scopus) using the terms and parameters provided in Table 1. The ensuing articles were scrutinized at the title; abstract or full document level (as appropriate) to identify if they met the remit of the review.

Table 1: Search parameters used for the literature review

|  |  |  |
| --- | --- | --- |
| Search terms (Title) | Scopus hits >2011 | Science direct >2011  (Journals) |
| Food AND Reporting | 15 | 18 |
| Food AND Procurement | 11 | 4 |
| Food AND Solutions | 56 | 21 |
| Food AND Tools | 87 | 43 |
| Food AND Incidents | 13 | 4 |
| Food AND Fraud management | 0 | 0 |
| Food AND Forensic | 3 | 1 |
| Food Fraud | 9 | 0 |
| Food AND Fraud | 9 | 0 |
| Food AND Anti-fraud | 0 | 0 |
| Food AND Counterfeit | 0 | 0 |
| Food AND Corruption | 1 | 1 |
| Food AND Authenticity | 15 | 5 |
| Food AND Adulteration | 12 | 3 |
| Food AND Adulterants | 3 | 0 |
| Food AND Adulterant | 3 | 0 |
| Total | 237 | 100 |

The outcome of the literature searches was to identify a total of 337 items, which included full articles, books, reviews, errata and duplication. These are provided in Appendices A & B under the search terms used for each database. Scrutiny of these items led to selection of 14 items relating to the focus of this project. Many articles on novel experimental methodology were excluded owing to the specific nature of their content. Likewise, several opinion pieces were omitted, as they were quite general. A summary of key content is given in Table 2, for each identified report. The origin of reports includes the USA, Europe, Taiwan and China. This material, in conjunction with the results of the Internet searches, will inform the content and direction future sections of the project.  **Table 2: Outcomes of the literature review**

| Item | Reference  [Further details appear in Appendices A & B] | Key content |
| --- | --- | --- |
| 1 | Everstine, K., Spink, J., Kennedy, S.  Economically motivated adulteration (EMA) of food: Common characteristics of EMA incidents  (2013) Journal of Food Protection, 76 (4), pp. 723-735. | A recent comprehensive review of EMA – covering incidents, health concerns, gaps in assurance testing, and providing a key challenge to regulators. 137 unique incidents are identified since 1980: fish and seafood (24 incidents), dairy products (15), fruit juices (12), oils and fats (12), grain products (11), honey and other natural sweeteners (10), spices and extracts (8), wine and other alcoholic beverages (7), infant formula (5), plant-based proteins (5), and other food products (28). |
| 2 | Ancuceanu, R., Dinu, M., Aramǎ, C.  Weight loss food supplements: Adulteration and multiple quality issues in two products of Chinese origin  (2013) Farmacia, 61 (1), pp. 28-44. | Deliberate adulteration of herbal products, used for healthcare purposes, with synthetic substances – specifically adulteration with sibutramine and phenolphthalein in two herbal food supplements of Chinese origin. |
| 3 | Čížková, H., Ševčík, R., Rajchl, A., Pivoňka, J., Voldřich, M.  Trends in food authenticity and detection of food adulteration  (2012) Chemicke Listy, 106 (10), pp. 903-910. | A brief history of food adulteration in the Czech Republic. The activities of the title Faculty in detection of food adulteration are described. The detection is based (a) on determination of selected markers or (b) on chemometric analysis, by statistical processing of analytical results for a large group of samples. New methods such as metabolomics and proteomics can also be used. |
| 4 | Moore, J.C., Spink, J., Lipp, M.  Development and Application of a Database of Food Ingredient Fraud and Economically Motivated Adulteration from 1980 to 2010  (2012) Journal of Food Science, 77 (4), pp. R118-R126. | Key paper on a database for food fraud.  The results summarized are a database that will be published in the US Pharmacopeial Convention's Food Chemicals Codex, 8th edition, and includes 1305 records, including 1000 records with analytical methods collected from 677 references. |
| 5 | Syntesa, H.L.  Communicating food safety, authenticity and consumer choice. Field experiences  (2013) Recent Patents on Food, Nutrition and Agriculture, 5 (1), pp. 19-34. | The paper reviews patented and non-patented technologies, methods and solutions in the area of food traceability; communication of food safety; authenticity and consumer choice. 28 recent patents are reviewed in (secure) identification, product freshness indicators, meat traceability, (secure) and transport of information along the supply chain, country/region/place of origin, automated authentication, and supply chain management systems, consumer interaction systems. In addition, solutions and pilot projects are described in the areas of Halal traceability, traceability of bird's nests, cold chain management, general food traceability and other areas. |
| 6 | Spink, J., Moyer, D.C.  Understanding and combating food fraud  (2013) Food Technology, 67, pp. 30-35. | Authoritative short review including EMA, public health threats, incident database research, adulteration and combating food fraud. |
| 7 | Bosmali, I., Ganopoulos, I., Madesis, P., Tsaftaris, A.  Microsatellite and DNA-barcode regions typing combined with High Resolution Melting (HRM) analysis for food forensic uses: A case study on lentils (Lens culinaris)  (2012) Food Research International, 46 (1), pp. 141-147. | High Resolution Melting (HRM) analysis, coupled with five molecular markers microsatellites (SSR) markers in parallel with rpoC1 chloroplast DNA barcode targeting region were integrated, in order to facilitate the identification of Protected Geographical Indication (PGI) lentil variety 'Eglouvi'. |
| 8 | Galimberti, A., De Mattia, F., Losa, A., Bruni, I., Federici, S., Casiraghi, M., Martellos, S., Labra, M.  DNA barcoding as a new tool for food traceability  (2013) Food Research International, 50 (1), pp. 55-63. | Critical review of the results of several studies to exploit the effectiveness of DNA barcoding in food traceability, and in the identification of commercial fraud. |
| 9 | Nepusz, T., Petróczi, A., Naughton, D.P.  Interactive network analytical tool for instantaneous bespoke interrogation of food safety notifications  (2012) PLoS ONE, 7 (4), art. no. e35652. | Development of network analysis approaches to interrogate food notifications which could supplement the intelligence gathered by regulatory authorities and inform risk based sampling protocols. |
| 10 | Mietzsch, E., Graf, W., Martini, D., Schmitz, M.  Transparent food: Requirements and solutions for tracking and tracing in the food sector  (2012) Landtechnik, 67 (1), pp. 31-33. | Development of the Transparent Food project as a blueprint proposal that provides basic and simple functionalities to enable integration of tracking and tracing systems across system boundaries and chains. After an initial requirements analysis, methods and technologies that can be used to build such a solution have been gathered, analyzed and evaluated. Reuse of existing standards and leveraging the capabilities and networks of existing organizations is a crucial factor in facilitating build-up and uptake of the envisioned backbone. |
| 11 | Jianhong Xue, Wenjing Zhang, Understanding China's food safety problem: An analysis of 2387 incidents of acute foodborne illness, Food Control, Volume 30, Issue 1, March 2013, Pages 311-317. | 99,487 illnesses and 380 deaths resulted from 2387 incidents leading to a risk-based analysis of acute foodborne illnesses and deaths corresponding to food pathogens, food location and settings, implicated food vehicles, sources of contamination and human causes – leading to recommendations for risk communication, risk management and future research in regard to foodborne illnesses in China. |
| 12 | Yu-Hsuan Chen, Shu-Ching Fu, Jhih-Kai Huang, Hwei-Fang Cheng, Jaw-Jou Kang, A review on the response and management of the plasticizer-tainted food incident in Taiwan, Journal of Food and Drug Analysis, Volume 21, Issue 3, 2013, Pages 242-246. | A probiotic product contaminated with the plasticizer di-(2-ethylhexyl) phthalate (DEHP) in Taiwan – used as a clouding agent as a substitute emulsifier. It contaminated a broad range of foods and nutraceuticals. Another plasticizer, di-isononyl phthalate (DINP), was also used. The government thus initiated emergency response actions. |
| 13 | Wen-Feng Lin, Yao-Cheng Lyu, Ya-Jung Wu, Chi-Huan Lu, Deng-Fwu Hwang, Species identification of snapper: A food poisoning incident in Taiwan, Food Control, Volume 25, Issue 2, June 2012, Pages 511-515. | Substitution of snapper with a Lutjanidae species containing ciguateric toxins. Study reports experimental analysis using both sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) and polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) techniques. |
| 14 | Keith Warriner, Case studies in food safety and authenticity: Lessons from real-life situations. J. Hoorfar. Published by: Woodhead Publishing, Inc., ISBN 978-1-84569-962-6A478. {reviewed in Food Research International, Volume 52, Issue 1, June 2013, Page 198} | Authoritative book containing sections covering: Food adulteration and authenticity: Forensic investigation of a sabotage incident in a factory manufacturing nut-free ready meals in the UK; Lessons from the large-scale incident of animal feed contamination with dioxins in Germany in 2011; Investigating the adulteration of UHT milk in Brazil; Food adulteration with melamine on an international scale: field work and troubleshooting in Africa; Investigating cases of taste disturbance caused by pine nuts in Denmark; Development and application of molecular tools to investigate the mislabelling of cod sold in Sweden; Testing for genetically modified organisms (GMOs) revealed the real source of rice imported to Norway; Documenting the ‘terroir’ aspects of award-winning Danish conserves: A model for the development of authentic food products. |

# 3. Fraud Models/ Triangulation

#### Fraud Triangle

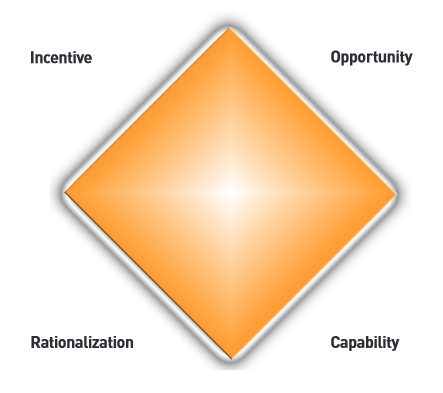
The classic fraud triangle was compiled in the 1950s by Donald Cressey's to explain the factors leading to occupational fraud by an individual.

It is composed of 1) Pressure (Incentive/Profit) , 2) Opportunity & 3) Rationalisation <http://www.acfe.com/fraud-triangle.aspx>



It has been suggested that this model is now outdated and should be replaced by a diamond <http://fraudtriangle.co.uk/the_naked_fraud_triangle/>

The Diamond includes Capability:.



<http://www.nysscpa.org/cpajournal/2004/1204/essentials/p38.htm>

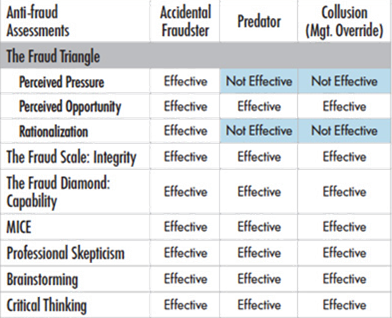
The scientific expertise and abuse thereof inherent in food fraud supports **Capability** as a highly relevant contributing factor, as otherwise described in the NSF Model as **Difficulty**.

<http://www.foodmanufacture.co.uk/Food-Safety/Think-like-criminals-to-beat-food-fraud-scientists-told>

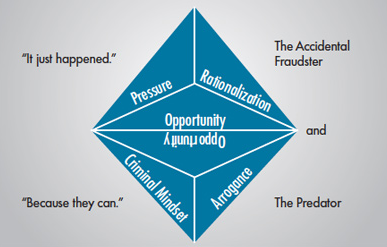
An article in food fraud magazine advises of differences between fraudster types and proposes a new fraud diamond model to reflect the Predator/criminal <http://www.fraud-magazine.com/article.aspx?id=4294970127>

The Predator/ Criminal Crime is far more deliberate and focused than accidental fraudsters for which the fraud triangle was designed to reflect; they are better organized, have better concealment schemes, and are better prepared to deal with auditors and other oversight mechanisms. All the predator seeks is opportunity; he requires no pressure and needs no rationalization.

Instead, arrogance and a criminal mindset replace the original fraud triangle's antecedents of pressure and rationalization. The differences between fraud perpetrators are summarised below:



A new fraud diamond is proposed to explain the motivators to include predators.



The Horse meat incident has rudely alerted the industry that food fraud is not merely a consequence of the individual opportunist, but is a soft target for organised crime.

<http://www.foodmanufacture.co.uk/Ingredients/Criminals-drop-drugs-for-food-fraud>

<http://www.foodqualitynews.com/Legislation/Europol-targets-organised-crime-in-second-phase-of-food-fraud-crackdown>

Food Fraud in the Global Supply chain

This article (Jim Moorhouse, Grocery manufacturers Association, 2010) describes the methodology for businesses to adopt to manage food fraud risks using a risk forecast model and essentially identified the need for development of “NSF Fraud Protection Model”.

<http://www.foodlogistics.com/article/10255691/food-fraud-in-the-global-supply-chain>

# 4. Food Fraud Databases

#### National Center for Food Protection & Defense

<http://www.foodquality.com/details/article/4885781/The_Implications_of_Food_Fraud.html?goback=.gde_4151388_member_249619130&tzcheck=1&tzcheck=1>

The National Center for Food Protection and Defense (NCFPD) has conducted an extensive literature and media search for documented incidents of food fraud since 1980. This search has resulted in over 200 isolated incidents of food fraud in many categories of products, including seafood, oils, wine, dairy products, and fruit juices .

This article gives a review & NCFPD Contact Details.

#### US Pharmacopeial Convention (USP) Food Fraud Database

The database provides information that can be useful in evaluating current and emerging risks for food fraud. In addition to providing a baseline understanding of the vulnerability of individual ingredients, the database offers information about potential adulterants that could reappear in the supply chain for particular ingredients.

<http://www.sciencedaily.com/releases/2012/04/120405144244.htm>

Jeffrey C. Moore, John Spink, Markus Lipp. **Development and Application of a Database of Food Ingredient Fraud and Economically Motivated Adulteration from 1980 to 2010**. *Journal of Food Science*, 2012; DOI: [10.1111/j.1750-3841.2012.02657.x](http://dx.doi.org/10.1111/j.1750-3841.2012.02657.x)

Publication: <http://onlinelibrary.wiley.com/doi/10.1111/j.1750-3841.2012.02657.x/full>

Food Fraud Database J Food Sci 77 (4) 2012

**Abstract:** Food ingredient fraud and economically motivated adulteration are emerging risks, but a comprehensive compilation of information about known problematic ingredients and detection methods does not currently exist. The objectives of this research were to collect such information from publicly available articles in scholarly journals and general media, organize into a database, and review and analyze the data to identify trends. The results summarized are a database that will be published in the US Pharmacopeial Convention's Food Chemicals Codex, 8th edition, and includes 1305 records, including 1000 records with analytical methods collected from 677 references. Olive oil, milk, honey, and saffron were the most common targets for adulteration reported in scholarly journals, and potentially harmful issues identified include spices diluted with lead chromate and lead tetraoxide, substitution of Chinese star anise with toxic Japanese star anise, and melamine adulteration of high protein content foods. High-performance liquid chromatography and infrared spectroscopy were the most common analytical detection procedures, and chemometrics data analysis was used in a large number of reports. Future expansion of this database will include additional publically available articles published before 1980 and in other languages, as well as data outside the public domain. **The authors recommend in-depth analyses of individual incidents**.

**Practical Application:** This report describes the development and application of a database of food ingredient fraud issues from publicly available references. The database provides baseline information and data useful to governments, agencies, and individual companies assessing the risks of specific products produced in specific regions as well as products distributed and sold in other regions. In addition, the report describes current analytical technologies for detecting food fraud and identifies trends and developments.

The database provides information that can be useful in evaluating current and emerging risks for food fraud. In addition to providing a baseline understanding of the vulnerability of individual ingredients, the database offers information about potential adulterants that could reappear in the supply chain for particular ingredients

Database: <http://www.foodfraud.org/>

Article : <http://www.foodqualitynews.com/Public-Concerns/Research-database-reveals-ingredients-most-prone-to-food-fraud/?utm_source=newsletter_daily&utm_medium=email&utm_campaign=Newsletter%2BDaily&c=lOCN1Fg0FrEVcJJgS6rskA%3D%3D>

Presentation:

<http://www.slideshare.net/Adrienna/the-emerging-risk-of-food-fraud-2012>

#### LFR/ FERA Horizon Scan

Merger between the Leatherhead Science and News data base with two FERA databases. Designed to give an enhanced Horizon Scanning capability with links to contaminants, legislation, news and science across a very broad range of product categories. The final software developments should be complete within the next few days and the product has to be ready to launch on 11th September. It will have the capacity to alert subscribers to ‘noise’ around any categories on emerging issues.

<http://services.leatherheadfood.com/foodline/displaynews.aspx?acc=615857>

<http://www.foodmanufacture.co.uk/Sectors/Meat-poultry/Market-intelligence-needed-to-avoid-next-food-scandal>

#### Chinese 'Throw out the window' Food Safety Site

<http://www.foodqualitynews.com/Public-Concerns/China-officials-back-throw-out-the-window-food-safety-site/?utm_source=newsletter_daily&utm_medium=email&utm_campaign=Newsletter%2BDaily&c=lOCN1Fg0FrFVfs9OVYsRwA%3D%3D>

zzcw (In Chinese!) <http://www.zccw.info/>

# 5. Incident Reviews

Publically available information is limited.

Melamine(Milk)

<http://www.defra.gov.uk/animalh/int-trde/imports/ovsnotes/08/pdf/0877b.pdf>

<http://www.food.gov.uk/foodindustry/farmingfood/animalfeed/melamine/>

<http://emergency.cdc.gov/agent/melamine/>

<http://en.wikipedia.org/wiki/Chinese_melamine_scandal>

<http://en.wikipedia.org/wiki/2008_Chinese_milk_scandal>

<http://www.foodproductiondaily.com/Quality-Safety/Colour-changing-nanoparticles-to-flag-up-melamine-tainted-milk?nocount>

Sudan 1(Spices)

<http://www.food.gov.uk/safereating/chemsafe/sudani/>

<http://www.food.gov.uk/foodindustry/imports/banned_restricted/spices>

<http://food.gov.uk/multimedia/pdfs/sudanreview.pdf>

<http://en.wikipedia.org/wiki/Sudan_I>

Methyl yellow (Spices)

<http://www.foodqualitynews.com/Publications/Food-Beverage-Nutrition/FoodNavigator.com/Financial-Industry/Illegal-yellow-prompts-spate-of-spice-recalls/?c=lOCN1Fg0FrGY94nzBuP%2BNg%3D%3D&utm_source=newsletter_daily&utm_medium=email&utm_campaign=Newsletter%2BDaily>

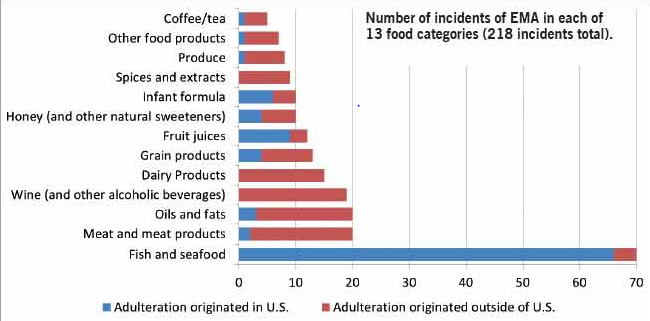
Chinese Flour

<http://www.foodnavigator.com/Publications/Food-Beverage-Nutrition/FoodProductionDaily.com/Quality-Safety/Chinese-flour-adulterated-with-pulverised-lime-reports/?c=lOCN1Fg0FrFBQM7sB1AZ4g%3D%3D&utm_source=newsletter_daily&utm_medium=email&utm_campaign=Newsletter%2BDaily>

# 6. High Risk Categories

#### National Center for Food Protection & Defense

<http://www.foodquality.com/details/article/4885781/The_Implications_of_Food_Fraud.html?goback=.gde_4151388_member_249619130&tzcheck=1&tzcheck=1>



#### Food Fraud Database- Top 10

According to the food fraud database the following are the top 10 categories at risk from food fraud:

1. Olive Oil – non-olive oils such as corn oil, hazelnut oil and palm oil.
2. Milk – whey, bovine milk protein, melamine, and cane sugar.
3. Honey – high fructose corn syrup, glucose, and fructose.
4. Saffron – sandlewood dust, starch, yellow dye, and gelatin threads.
5. Orange Juice – grapefruit juice, marigold flower extract, corn sugar and paprika extract.
6. Coffee – chicory, roasted corn, caramel, malt, glucose, leguminous plants and maltodextrins.
7. Apple Juice (Tie) – high-fructose corn syrup, raisin sweetener and synthetic malic acid.
8. Grape Wine (Tie) – apple juice and a toxic sweet chemical called diethyleneglycol.
9. Maple Syrup (Tie) – corn syrup, beet sugar, and cane sugar.
10. Vanilla Extract – synthetically-produced vanillin and maltol.

<http://blog.cncahealth.com/post/2012/04/26/Food-Fraud-The-10-Most-Adulterated-Foods.aspx>

<http://www.mnn.com/food/healthy-eating/stories/food-fraud-10-counterfeit-products-we-commonly-consume>

# 7. Science/ Detection Methods

#### Fighting Food Fraud with Science (Review)

<http://www.rsc.org/images/FightingFoodFraudWithScience_tcm18-98167.pdf>

#### Food Chemicals Codex Forum (Chemical Specifications)

<http://www.usp.org/food-ingredients/food-chemicals-codex>

<http://forum.foodchemicalscodex.org/forum/login>

The United States Pharmacopeial Convention (USP) is a scientific nonprofit organization that sets standards for the identity, strength, quality, and purity of medicines, food ingredients, and dietary supplements manufactured, distributed and consumed worldwide. USP’s drug standards are enforceable in the United States by the Food and Drug Administration, and these standards are developed and relied upon in more than 140 countries.

USP standards are developed and revised by more than 800 volunteer experts, including international participants, who work with USP under strict conflict-of-interest rules. Since its founding in 1820, USP has helped secure the quality of the American drug supply. Building on that legacy, USP today works with scientists, practitioners, and regulators of many nations to help protect public health worldwide.

To help manufacturers, suppliers, and regulators safeguard the food supply, USP provides documentary (i.e., written) and physical Reference Standards for determining food ingredient authenticity and purity. These standards help limit the introduction of potential adulterants and other problems at the ingredient level, and serve as a widely acknowledged quality benchmark in the buying and selling of food ingredients in the global marketplace.

#### USP's Relationship with Food Ingredients

USP began establishing documentary standards for food ingredients in 2006 when it acquired the Food Chemicals Codex (FCC)—a compendium of quality and purity specifications and methods—from the Institute of Medicine. USP's rich history and nearly 200 years' experience setting standards for pharmaceuticals, dietary supplements, excipients, and more made the organization well suited to undertake the task of updating and expanding FCC.

#### Profiling tools

<http://www.food.gov.uk/multimedia/pdfs/fraudseminarprof.pdf>

#### Trace Food Mapping Project

:

<http://www.food.gov.uk/multimedia/pdfs/fraudseminargerman.pdf>

<http://www.moniqa.eu/moniqa2008-conference/presentations/06-Brereton-Food%20Authenticity.pdf>

<http://www.trace.eu.org/index.php>

#### DEFRA 2012

:

<http://www.governmentchemist.org.uk/dm_documents/17.LucyFosterLGC20conference20May20201220FINAL20NO20notes_h88ro.pdf>

#### FSA /LGC

<http://www.governmentchemist.org.uk/dm_documents/LGC_talk_BtufO.pdf>

#### DNA

<http://www.foodmanufacture.co.uk/Food-Safety/Government-boosts-DNA-testing-to-fight-rising-fraud>

#### FSA/ Technology

<http://www.foodmanufacture.co.uk/Business-News/Technology-helps-to-trace-food-fraud>

#### ORITAIN Label (Origin NZ Label)

<http://www.bbc.co.uk/food/0/19829220>

<http://www.oritain.co.nz/>

#### Forensics /Fingerprinting

Fighting Food Fraud with Science (Review):

<http://www.rsc.org/chemistryworld/Issues/2007/September/FightingFoodFraudWithScience.asp>

<http://www.rsc.org/images/FightingFoodFraudWithScience_tcm18-98167.pdf>

Origin Fingerprinting (Australia)

Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LAICPMS) to detect an elemental fingerprint which allows for the pinpointing of exactly where a food is sourced from.

<http://www.sciencewa.net.au/topics/agriculture/item/170-fingerprinting-fights-food-fraud.html>

Food Forensics -Norwich Research Park ( Alison Johnson – Director)

# 8. Price & Trade Tools

<http://www.foodnavigator.com/Financial-Industry/UN-agencies-urge-action-on-rising-food-prices-to-avoid-food-crisis/?utm_source=newsletter_weekly&utm_medium=email&utm_campaign=Newsletter%2BWeekly&c=lOCN1Fg0FrEDn6naXGw2Og%3D%3D>

<http://www.foodnavigator.com/Financial-Industry/Manufacturer-price-pressures-continue-as-FAO-food-price-index-rises>

#### FAO Price Index

<http://www.fao.org/worldfoodsituation/wfs-home/en/>

<http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/>

#### Economy Watch

<http://www.economywatch.com/economic-statistics/price-index-indicators/>

#### UN Comtrade Database – Global Trade Statistics

<http://unstats.un.org/unsd/trade/imts/imts_default.htm>

#### Retail Price -BrandView

Brand View is the market-leading international price and promotions intelligence tool, enabling retailers and manufacturers to measure and manage their price position, as well as communicate their value strategy to shoppers.

<http://www.brandview.com/>

# 9. Supply Chain Fraud Risk Assessment

The following documents are a useful source for input into the fraud survey to be developed:

#### Labelling

Whether an ingredient is labelled or not at any particular point on the supply chain, the security of labels and ease of substitution are key risk criteria.

GS1- GDSN Global Data Synchronisation Network

Built around GS1 Global Registry. Provides a technology solution to allow suppliers to share and synchronise product data. This papers describes the use of GS1 for anti-counterfeiting

GS1UK: <http://www.gs1.org/docs/GS1_Anti-Counterfeiting_White_Paper.pdf>

#### Sigma- Supply Chain Vulnerability - Stakeholder Guide 0410

The Sigma Chain project demonstrates the benefits of collaborative working as the challenges faced are similar in every country. The use of case studies permits people to learn from the mistakes of others.

The development of a framework to identify and prioritise risks along the food chain is essential to target finite resources appropriately.

The guide provides enough evidence that rational combination of practice and science is essential, even if the effective food safety system seems to be effective on formal and legal grounds.

The guide specifies interestingly examples of the assessments of potential vulnerabilities of the food safety system requiring more effective measures.

The second part of the guide contains a set of eight problem-specific articles crucial for the safe food producer.

<http://www.sigmachain.eu/uploads/dateien/fp6-518451_stakeholders_guide_on_vulnerabilities_web.pdf>

#### UN Fighting Corruption Supply Chain

<http://www.unglobalcompact.org/docs/issues_doc/Anti-Corruption/Fighting_Corruption_Supply_Chain.pdf>

#### Supply Chain Fraud Risks- Deloitte Series

<http://www.deloitte.com/view/en_US/us/Services/consulting/Strategy-Operations/09e4439a0e17c310VgnVCM1000003256f70aRCRD.htm?id=us_furl_cons_general_splychnrsksrvy_012813>

#### Deloitte Supply Chain (Fraud) Risks

[http://www.deloitte.com/view/en\_XE/xe/services/enterprise-risk-services/d576c99fd38fe310VgnVCM3000003456f70aRCRD.htm#](http://www.deloitte.com/view/en_XE/xe/services/enterprise-risk-services/d576c99fd38fe310VgnVCM3000003456f70aRCRD.htm)

#### How to stop fraud

<http://www.deloitte.com/view/en_US/us/Insights/centers/centers-forensic-center/c957067d2f1ee210VgnVCM2000001b56f00aRCRD.htm>

#### Thomson Reuters - World Check

Find risk hiding in business relationships: World-Check Risk Screening reveals risk hiding in business relationships and human networks. Our solution is a comprehensive and widely adopted source of structured intelligence on Politically Exposed Persons (PEPs), heightened risk individuals and organisations.

Reputation and compliance

Reputational and brand damage is as devastating as breaching compliance legislation. Successful organisations around the world choose World-Check services to manage regulatory, financial and reputational risk. Our comprehensive screening service covers aspects such as Anti Money Laundering (AML), Know Your Customer (KYC) and Countering the Financing of Terrorism (CFT) legislation as well as PEP monitoring.

Targeted risk screening

World-Check Risk Screening minimises the cost of compliance. Meticulously structured data and innovative features ensure the highest level of accuracy, saving our clients time and money.

What we do is very different

Truly global network - more than 350 research analysts based in 11 research centres across 5 continents

Local language research - our research team speaks more than 60 languages

Unparalleled investment - 750,000 man hours of research a year

Specialist research units - including Terrorism, Insurgency and Organised Crime

Widest coverage - over 300 sanction lists and 100,000s of information sources monitored

Early warning - high-risk entities identified months or years before they appear on government lists. In 2010 alone we had identified over 200 entities before they appeared on the US Government’s OFAC list.

<http://www.world-check.com/our-services/world-check-risk-screening>

<http://www.world-check.com/?elq=a5fd8ea2e9a9497588f5840e3e4d89b0>

#### 

#### Global Corruption Index- Transparency International

<http://www.transparency.org/whatwedo/pub/corruption_perceptions_index_2012>

#### Tools

<http://www.transparency.org/whatwedo/tools>

GATEWAY Corruption Assessment Toolbox

<http://www.transparency.org/whatwedo/tools/gateway_corruption_assessment_toolbox/0/>

#### Annual Fraud Indicator 2012 & 2013 (UK National Fraud Authority ; NFA)

<https://www.gov.uk/government/publications/annual-fraud-indicator>

<https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/206552/nfa-annual-fraud-indicator-2013.pdf>

<http://data.gov.uk/dataset/nfa-afi>

#### Procurement Fraud / Supply Chain Visibility (& Best Practice)

<http://logistics.about.com/b/2012/04/04/procurement-fraud.htm>

#### AICPA Fraud Resources

<http://www.cpa2biz.com/content/media/PRODUCER_CONTENT/generic_template_content/featured_products/fraud.jsp#1>

#### Procurement Tools OECD

<http://www.oecd.org/governance/procurement/toolbox/indexoftoolsbythemeaspertheoecdintegritypillars.htm>

#### NZ Service Providers

<http://www.community.nsw.gov.au/docswr/_assets/main/documents/fraud_risk.pdf>

# 10. Fraud Organisations/Contacts

#### CRIME INVESTIGATION AND PREVENTION AGENCIES

The main sources of information provided by these agencies are press releases and reports. In terms of contacting them for survey/interview,

#### National Fraud Intelligence Bureau (UK)

Links: <http://www.cityoflondon.police.uk/CityPolice/Departments/ECD/NFIB/>

Partners : <http://www.cityoflondon.police.uk/CityPolice/Departments/ECD/NFIB/nfib-ourpartners.htm>

The NFIB give their remit as follows:

The National Fraud Intelligence Bureau, located at ECD on the fourth floor, identifies serial fraudsters, organised crime gangs and emerging and established crime threats by analysing millions of reports of fraud. These are accessed through three main channels:

Reports from individuals and small businesses, coming either directly or via a police force, made to the Action Fraud contact centre and web reporting facility.

Confirmed fraud data from industry and the public sector, including organisations in the banking sector, insurance sector and telecommunications and government departments

A variety of intelligence sources including, but not limited to, national and international police crime/intelligence systems

- See more at: http://www.cityoflondon.police.uk/CityPolice/Departments/ECD/NFIB/nfib-whyandhow.htm#sthash.U9ESfX3J.dpuf

The City of London Police were actively involved in arrests over the Horsemeat Scandal, having been brought into the investigation by the FSA:

<http://www.cityoflondon.police.uk/CityPolice/Media/News/290813-horsemeat-enquiry.htm>

General Contact: Telephone: 020 7601 2222 PO Box 36451 London EC2M 4WN - See more at: http://www.cityoflondon.police.uk/CityPolice/Departments/ECD/NFIB/nfib-whyandhow.htm#sthash.U9ESfX3J.dpuf

#### Serious Fraud Office ( SFO)

<http://www.sfo.gov.uk/about-us/what-we-do-and-who-we-work-with.aspx>

Comment: Mainly investigations of financial crime in food related businesses rather than food fraud. However, tax evasion or similar may lead to the discovery of other frauds such as counterfeiting or fraud.

General contact: Serious Fraud Office  
2-4 Cockspur Street  
London  
SW1Y 5BS

Switchboard: +44 (0)20 7239 7272

#### UK National Fraud Authority (NFA)

<https://www.gov.uk/government/organisations/national-fraud-authority>

Annual Fraud Indicator 2012 & 2013

<https://www.gov.uk/government/publications/annual-fraud-indicator>

<https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/206552/nfa-annual-fraud-indicator-2013.pdf>

<http://data.gov.uk/dataset/nfa-afi>

Food Fraud related articles

<https://www.gov.uk/government/speeches/oral-statement-to-the-house-on-food-fraud>

<https://www.gov.uk/government/news/professor-chris-elliott-to-lead-review-into-food-supply-networks>

<https://www.gov.uk/government/people/peter-wilson>

Fighting Fraud Together (FFT) is a NFA initiative. Latest newsletter is <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/118500/FFT-Update-Jan-2013.pdf>

FFT is mainly aimed at individuals and the public sector, and does not seem to have reported on food fraud issues as yet.

General Contact: National Fraud Authority  
Third Floor   
Fry Building   
2 Marsham Street   
London  
SW1P 4DF

Email [NFAcontact@nfa.gsi.gov.uk](mailto:NFAcontact@nfa.gsi.gov.uk)

Telephone 020 7035 3431

Contact the National Fraud Authority by phone and/or email.

#### SOCA Serious Organised Crime Agency (National Europol Agent in the UK/ National Control Bureau fr Interpol) :

<http://www.soca.gov.uk/threats/fraud>

SOCA are mainly targeting the activities of organised criminals rather than prevention. They investigate cash rich companies, of which family owned food businesses might be an example, to identify areas of money laundering and counterfeiting.

<http://www.soca.gov.uk/threats/organised-acquisitive-crime>

<http://www.soca.gov.uk/threats/money-laundering>

General Contact: Serious Organised Crime Agency  
PO Box 8000  
London  
SE11 5EN

The **24/7 telephone number** for SOCA is **0370 496 7622**

#### Europol

<https://www.europol.europa.eu/>

Difficult to ascertain what their work on food fraud is from the website. However, see this section in relation to counterfeiting:

**Intellectual Property Crime**

Europol is involved in support, training and awareness for the Member States in the field of intellectual property rights (IPR) infringement which covers such areas as counterfeit food and pesticides. The success of Operation Opson (10 countries) involving counterfeit food and drink is outlined in the Europol Review 2011. Operation Leatherface (Spain) was also supported by Europol. <https://www.europol.europa.eu/content/page/mandate-119>

<https://www.europol.europa.eu/content/europol-identifies-3600-organised-crime-groups-active-eu-europol-report-warns-new-breed-crim>

General Contact:

Europol  
Eisenhowerlaan 73  
2517 KK The Hague  
The Netherlands

Telephone :

+ 31 70 302 5000

#### Interpol

<http://www.interpol.int/>

Interpol mainly deal with tracing individuals. Like Europol, tend to get involved through seizure of counterfeit food stuffs:

<http://www.interpol.int/News-and-media/News-media-releases/2011/PR101>

General contact:

INTERPOL  
General Secretariat  
200, quai Charles de Gaulle  
69006 Lyon  
France

Fax: +33 (0)4 72 44 71 63

E-mail: ﻿online form (separate one for traffic in illicit goods)

# 11. Food Agencies

These agencies provide a wide range of reports and documents.

#### EFSA

Import Surveillance

<http://www.efsa.europa.eu/en/scdocs/scdoc/1531.htm?WT.mc_id=EFSAHL01&emt=1>

<http://www.efsa.europa.eu/en/scdocs/doc/1531.pdf>

Emerging risk Networking strategy 1210

<http://www.foodnavigator.com/Product-Categories/Food-safety-and-labelling/EFSA-says-networking-is-key-to-emerging-risk-monitoring/?utm_source=Newsletter_Product&utm_medium=email&utm_campaign=Newsletter%2BProduct>

Emerging Risks Unit (EMRISK)- Intelligence Approach

<http://www.efsa.europa.eu/en/events/documents/corporate081104-p12.pdf>

Proactive Identification

<http://www.efsa.europa.eu/en/events/documents/corporate081104-p13.pdf>

Process <http://www.efsa.europa.eu/en/press/news/120731.htm?utm_source=newsletter&utm_medium=email&utm_content=hl&utm_campaign=20120731&emt=1>

Pilot

<http://www.efsa.europa.eu/en/supporting/pub/310e.htm>

<http://www.efsa.europa.eu/en/supporting/doc/310e.pdf>

EFSA Emerging Risks

<http://www.efsa.europa.eu/en/press/news/120731.htm?utm_source=newsletter&utm_medium=email&utm_content=hl&utm_campaign=20120731&emt=1>

<http://www.efsa.europa.eu/en/supporting/pub/310e.htm>

<http://www.efsa.europa.eu/en/supporting/doc/310e.pdf>

#### FSA

Future Food Risks

<http://www.food.gov.uk/multimedia/pdfs/board/fsa110109.pdf>

“a vital tool in preventing future incidents is adequate horizon scanning and early warning activities involving all stakeholders. We recommend that these activities should be more intensive and far reaching and that the FSA should take a central role in ensuring more co-ordinated attention to intelligence gathering and horizon scanning and implementing early warning systems as well as proactively sharing this information with the food industry. The food industry should seek ways to share information based on its ingredient sourcing practices and experience of hazards”.

FSA Intelligent Software

<http://www.foodmanufacture.co.uk/Food-Safety/Intelligent-software-won-t-predict-next-Sudan-1-experts-warn-FSA/?c=3eYffeo0PvoBLDnqPxwXug%3D%3D&utm_source=newsletter_daily&utm_medium=email&utm_campaign=Newsletter%2BDaily>

<http://www.foodmanufacture.co.uk/Food-Safety/FSA-to-use-intelligent-systems-to-manage-food-safety>

<http://www.food.gov.uk/enforcement/enforcework/foodfraud/#.UGrbHvXF0po>

Food Fraud Database

<http://www.food.gov.uk/enforcement/enforcework/foodfraud/#.UGrbHvXF0po>

<http://www.food.gov.uk/enforcement/enforcework/foodfraud/foodfrauddatabase#.Ue0uEG2Iank>

FSA Intelligent software

<http://www.foodmanufacture.co.uk/Food-Safety/Intelligent-software-won-t-predict-next-Sudan-1-experts-warn-FSA/?c=3eYffeo0PvoBLDnqPxwXug%3D%3D&utm_source=newsletter_daily&utm_medium=email&utm_campaign=Newsletter%2BDaily>

Memex patriarch

<http://www.itproportal.com/2007/04/19/memex-launches-new-intelligence-management-tools/>

Guide to Intelligence reports

<http://www.food.gov.uk/multimedia/pdfs/foodfraudguide.pdf>

Food Fraud Advisory Unit

<http://www.food.gov.uk/enforcement/enforcework/foodfraud/ffau#.UGrco_XF0po>

FFFAU Membership: The Food Fraud Advisory Unit (FFAU) provides advice to local authorities carrying out investigations into fraud including any illegal activity relating to food or animal feed.

 Local authorities can seek assistance from the FFAU via:

The Food Standards Agency

Tel: 0207 276 8364, 0207 276 8077 or 0207 276 8397

email: foodfraud@foodstandards.gsi.gov.uk

Authenticity Programme

<http://webarchive.nationalarchives.gov.uk/20100907111047/http://www.food.gov.uk/science/research/choiceandstandardsresearch/authenticityresearch/>

Combatting Food Fraud Conference 2008

<http://webarchive.nationalarchives.gov.uk/20100907111047/http://www.food.gov.uk/news/newsarchive/2008/feb/seminar>

#### FERA

<http://www.fera.defra.gov.uk/index.cfm>

Contaminants & Authenticity

<http://www.fera.defra.gov.uk/scienceResearch/science/contaminants/index.cfm>

<http://www.fera.defra.gov.uk/events/pastConferences/documents/jifsanSymposium/aCharlton.pdf>

# 12. Trade Associations And Professional Associations

#### Wine & Spirits Trade Association (WSTA)

<http://www.wsta.co.uk/>

<http://www.foodmanufacture.co.uk/Business-News/Spirits-rise-as-new-prevention-unit-fights-fraud>

WSTA have established a fraud prevention unit (May 2011). However, there appears to be little specific information or reports from this unit and no contact is given on site.

General Contact: International Wine & Spirit Centre  
39-45 Bermondsey Street  
LONDON SE1 3XF

+44 (0) 20 7089 3877

#### Institute for Fraud Protection

<http://www.theifp.org/>

**http://www.fraud-magazine.com/article.aspx?id=319**

Little useful information on food fraud at present: not worth including in the survey.

#### Association of Certified Fraud Examiners

[**http://www.acfe.com/**](http://www.acfe.com/)

If we need reports etc from ACFE then we can go through colleagues who are members at University of Portsmouth.

Not worth including in the survey at present.

#### Fraud Magazine

**http://www.fraud-magazine.com/default.aspx**

#### Transparency International- Anti-Corruption

[www.transparency.org](http://www.transparency.org)

Little involvement with food fraud at present.

# Appendix A: Literature Retrieved Using Scopus Search Engine

#### Food & Adulterant

Xue, F.a b , Li, Y.a c , Wang, Y.a , Xue, Y.a , Sun, C.-J.a

Simultaneous determination of six adulterants in functional foods by high performance liquid chromatography with diode array detection

(2013) Journal of Sichuan University (Medical Science Edition), 44 (1), pp. 135-138.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873573781&partnerID=40&md5=6b7e1eb9906ebb2283993246c27835ab

AFFILIATIONS: Department of Sanitary Technology, West China School of Public Health, Sichuan University, Chengdu 610041, China;

Yuzhong District Center for Disease Control and Prevention, Chongqing 400010, China;

Department of Sanitary Technology, College of Medical Technology, Chengdu University of Traditional Chinese Medicine, Chengdu 610041, China

ABSTRACT: Objective To establish a method for simultaneous determination of six adulterants including norpseudoephedrine (NPE), pseudoephedrine (PSE), amfepramone (AMF), strychnine (STR), fenfluramine (FEN) and sildenafil (SIL) in functional foods by high performance liquid chromatography with diode array detection (HPLC-DAD). Methods Food samples were treated with 2% formic acid ultrasonically, and then the extracts were cleaned-up with solid phase extraction (SPE) with strong cation exchange cartridges (SCX). The sample solution was separated on a Ci8 column with the mobile phase composed of 0. 05 mol/L potassium dihydrogen phosphate (pH3.0) and acetonitrile. The qualitative analysis was accomplished with spectral and retention times of the chromatographic peaks. The external standard curves were established for quantification of the adulterants. Results The linear correlation coefficients of the 6 chemicals were greater than 0. 999. The intraday RSDs were 6. 25%-8. 19% and the interday RSDs were 6. 61%-10. 8% with the average recoveries of 80. 5%-110. 0%. The detection limits of the method were 15. 9-66. 5 ^g/kg. Conclusion The method is simple, sensitive and inexpensive and is suitable to the determination of the 6 chemicals in functional foods.

AUTHOR KEYWORDS: Adulterant; Diode array detection; Functional foods; High performance liquid chromatography

DOCUMENT TYPE: Article

SOURCE: Scopus

Li, Y.a , Zhang, H.b , Hu, J.c , Xue, F.a , Li, Y.a , Sun, C.a

A GC-EI-MS-MS Method for simultaneous determination of seven adulterants in slimming functional foods

(2012) Journal of Chromatographic Science, 50 (10), pp. 928-933. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84868542392&partnerID=40&md5=1a22268cf0db1d8a58a508a8acd8a448

AFFILIATIONS: West China School of Public Health, Sichuan University, No. 17, Section 3, Chengdu 610041, Sichuan, China;

Municipal Center for Disease Control and Prevention, No. 19, Likang Street, Shijiazhuang 050019, Hebei, China;

Sichuan Entry-Exit Inspection and Quarantine Bureau, No. 28, Fourth Section, Chengdu 610041, Sichuan, China

ABSTRACT: A gas chromatography-electron impact-tandem mass spectrometric method was established for the simultaneous determination of seven adulterants, including fenfluramine (FEN), norpseudoephedrine (NPE), pseudoephedrine (PSE), ephedrine (EPH), amfepramone (AMF), sibutramine (SIB) and strychnine (STR) in slimming functional foods. The target chemicals were extracted with 2 formic acid solution and then cleaned-up with solid-phase extraction using a strong cation exchange cartridge from tablet, liquid, mixed plant powder and capsule formulations. Chromatographic separation was accomplished on a VF-5MS column within 23 min. Leucomalachite green was employed as an internal standard. The recoveries of seven target chemicals in two formulations ranged from 80.1 to 106. Limits of detection of the method were from 7.5 to 375 g/kg with relative standard deviations of 1.6 to 13.9. The linearity of the method ranged from 90 to 1500 ng/mL for NPE, 150 to 1500 ng/mL for STR, 10 to 500 ng/mL for AMF, 5.0 to 500 ng/mL for PSE and EPH and 3.0 to 500 ng/mL for FEN and SIB. This method was applied to the determination of six brands of slimming functional foods. SIB was detected in five of the samples with the contents in the range of 10.3 - 8.55 × 105 μg/kg. © 2012 The Author [2012]. Published by Oxford University Press. All rights reserved. For Permissions, please email: journals.permissionsoup.com.

DOCUMENT TYPE: Article

SOURCE: Scopus

Ren, Y.a , Wu, C.a , Zhang, J.a b

Simultaneous screening and determination of 18 illegal adulterants in herbal medicines and health foods for male sexual potency by ultra-fast liquid chromatography-electrospray ionization tandem mass spectrometry

(2012) Journal of Separation Science, 35 (21), pp. 2847-2857. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867851625&partnerID=40&md5=adca5fd676f3f0d5333bc6fefb3acdf3

AFFILIATIONS: State Key Laboratory of Bioactive Substance and Function of Natural Medicines, Peking Union Medical College, Chinese Academy of Medical Sciences, Beijing, China;

Institute of Materia Medica, Chinese Academy of Medical Sciences, Peking Union Medical College, Beijing 100050, China

ABSTRACT: An ultra-fast liquid chromatography-electrospray ionization tandem mass spectrometry method was developed and validated to simultaneously screen, confirm, and determine 18 illegal adulterants in herbal medicines and health foods for male sexual potency. The separation was achieved on a Shim-Pack XR-ODS II column (2.0 × 100 mm, 2.2 μm) with acetonitrile and aqueous solution (12 mmol/L ammonium formate, 0.01% acetic acid) as mobile phase at a flow rate of 0.4 mL/min with a gradient elution. The column temperature was maintained at 40°C and the run time was within 18 min. The 18 illegal adulterants were detected in electrospray ionization positive mode by multiple-reaction monitoring. All the calibration curves showed good linearity with correlation coefficient (r) higher than 0.996 within the tested concentration ranges. The extraction recoveries and relative recoveries were in the range of 79.5-114% and 82.0-120%, respectively. The RSD of repeatability and intermediate precision was all less than 18% and the accuracy was in the range of 81.7-118%. The intra-day and inter-day stability was in the range of 86.8-110%. The validated method was successfully applied to screen, confirm, and determine 16 samples. Nine products were confirmed to contain illegal adulterants and the contents of adulterants were related to the therapeutic dosages. © 2012 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

AUTHOR KEYWORDS: Health food; Herbal medicine; Illegal adulterant; Male sexual potency; UFLC-ESI-MS/MS

DOCUMENT TYPE: Article

SOURCE: Scopus

#### Food & Adulteration

Dai, C., Jiang, M.

Adulteration of the food chain: Fake meat scandals add to Chinese food fears

(2013) BMJ (Online), 346 (7910), art. no. f3385, .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878575240&partnerID=40&md5=f08f71d0d4a70af7b304a6bbf0b9ffba

AFFILIATIONS: First Affiliated Hospital, China Medical University, Heping District, Shenyang City, Liaoning Province, China

DOCUMENT TYPE: Letter

SOURCE: Scopus

Everstine, K., Spink, J., Kennedy, S.

Economically motivated adulteration (EMA) of food: Common characteristics of EMA incidents

(2013) Journal of Food Protection, 76 (4), pp. 723-735.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876939945&partnerID=40&md5=9f49aa7ed8f98185b49ae7bd8d5abc44

AFFILIATIONS: National Center for Food Protection and Defense, University of Minnesota, 1954 Buford Avenue, St. Paul, MN 55108, United States;

Michigan State University, 436 Baker Hall, 655 Auditorium Drive, East Lansing, MI 48824, United States

ABSTRACT: Economically motivated adulteration (EMA) of food, also known as food fraud, is the intentional adulteration of food for financial advantage. A common form of EMA, undeclared substitution with alternative ingredients, is usually a health concern because of allergen labeling requirements. As demonstrated by the nearly 300,000 illnesses in China from melamine adulteration of infant formula, EMA also has the potential to result in serious public health consequences. Furthermore, EMA incidents reveal gaps in quality assurance testing methodologies that could be exploited for intentional harm. In contrast to foodborne disease outbreaks, EMA incidents present a particular challenge to the food industry and regulators because they are deliberate acts that are intended to evade detection. Large-scale EMA incidents have been described in the scientific literature, but smaller incidents have been documented only in media sources. We reviewed journal articles and media reports of EMA since 1980. We identified 137 unique incidents in 11 food categories: fish and seafood (24 incidents), dairy products (15), fruit juices (12), oils and fats (12), grain products (11), honey and other natural sweeteners (10), spices and extracts (8), wine and other alcoholic beverages (7), infant formula (5), plant-based proteins (5), and other food products (28). We identified common characteristics among the incidents that may help us better evaluate and reduce the risk of EMA. These characteristics reflect the ways in which existing regulatory systems or testing methodologies were inadequate for detecting EMA and how novel detection methods and other deterrence strategies can be deployed. Prevention and detection of EMA cannot depend on traditional food safety strategies. Comprehensive food protection, as outlined by the Food Safety Modernization Act, will require innovative methods for detecting EMA and for targeting crucial resources toward the riskiest food products. © International Association for Food Protection.

DOCUMENT TYPE: Article

SOURCE: Scopus

Scally, G.

Adulteration of food: What it doesn't say on the tin

(2013) BMJ (Online), 346 (7898), art. no. f1463, .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874831050&partnerID=40&md5=a77d24736f6cfc16102a8dca98f27b3e

AFFILIATIONS: WHO Collaborating Centre for Healthy Urban Environments, University of the West of England, United Kingdom

DOCUMENT TYPE: Note

SOURCE: Scopus

Ancuceanu, R., Dinu, M., Aramǎ, C.

Weight loss food supplements: Adulteration and multiple quality issues in two products of Chinese origin

(2013) Farmacia, 61 (1), pp. 28-44.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874104136&partnerID=40&md5=b25e4d07ba18ebe18e9a3ecbee7661d8

AFFILIATIONS: Faculty of Pharmacy, University of Medicine and Pharmacy Carol Davila, Bucharest, Romania

ABSTRACT: One of the most serious quality issues associated with herbal products used for healthcare purposes is the deliberate adulteration with synthetic substances, meant to increase the efficacy of respective products in the claimed indications. Here we report on adulteration with sibutramine and phenolphthalein in two herbal food supplements of Chinese origin, widely distributed through internet in various countries, promoted for weight loss. An HPLC method developed and validated by the authors was used for the separation and assay of the two substances. The average content per capsule for one of the two products, determined through this method was 24.71 mg sibutramine and 48.20 mg phenolphthalein. We also determined flavonoids (through a spectrophotometric method), uniformity of mass (according to European Pharmacopoeia, 6th edition) and performed a microscopical examination of the capsule content. The results raised concerns regarding the quality of the two products. Furthermore, an analysis of the clinical and non-clinical data available in the scientific literature for the herbal ingredients of the two products has shown that it is very unlikely that, in the amounts of the current formulations and posology, the products have weight loss inducing effects.

AUTHOR KEYWORDS: Food supplements; Phenolphthalein; Sibutramine

DOCUMENT TYPE: Article

SOURCE: Scopus

Cheng, C.-Y., Shi, Y.-C., Lin, S.-R., Chou, C.-C., Huang, C.-C.

Use of real-time PCR to detect surimi adulteration in vegetarian foods

(2012) Journal of Marine Science and Technology (Taiwan), 20 (5), pp. 570-574.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84872336247&partnerID=40&md5=36ef57da457116200759dfaa74662195

AFFILIATIONS: Food Industry Research and Development Institute, Hsinchu, Taiwan

ABSTRACT: Vegetarian foods are abundant in the domestic market. It is found that animal ingredients have been added into vegetarian products to improve the texture and taste. Surimi adulteration in vegetarian food is an area of concern for vegetarians. The α-skeletal actin gene of aquatic animals as novel specific primers and probe of Actinopterygii in 36 fish species are tested using real-time PCR method. It was found that all of the 36 fish species of Actinopterygii showed positive results. The 10 surimi products, 10 surimi-based products containing fish components showed positive results. All of the 10 fresh foods containing no fish component showed negative results. It indicates that this novel specific primers and probe in Actinopterygii is feasible when applied in quantitative detection.

AUTHOR KEYWORDS: Actinopterygii; Real-time PCR; Surimi adulteration; Vegetarian adulteration

DOCUMENT TYPE: Article

SOURCE: Scopus

Xu, L., Ye, Z.-H., Yan, S.-M., Shi, P.-T., Cui, H.-F., Fu, X.-S., Yu, X.-P.

Combining local wavelength information and ensemble learning to enhance the specificity of class modeling techniques: Identification of food geographical origins and adulteration

(2012) Analytica Chimica Acta, 754, pp. 31-38.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84868688510&partnerID=40&md5=08d8b01194ddb3f108703d3f479fb726

AFFILIATIONS: Zhejiang Provincial Key Laboratory of Biometrology and Inspection and Quarantine, College of Life Sciences, China Jiliang University, Hangzhou 310018, China

ABSTRACT: Class modeling techniques are required to tackle various one-class problems. Because the training of class models is based on the target class and the origins of future test objects usually cannot be exactly predefined, the criteria for feature selection of class models are not very straightforward. Although feature reduction can be expected to improve class models performance, more features retained can provide a sufficient description of the sought-for class. This paper suggests a strategy to balance class description and model specificity by ensemble learning of sub-models based on separate local wavelength intervals. The acceptance or rejection of a future object can be explicitly determined by examining its acceptance frequency by sub-models. Considering the lack of information about sub-model independence, we propose to use a data-driven method to control the sensitivity of the ensemble model by cross validation. In this way, all the wavelength intervals are used for class description and the local wavelength intervals are highlighted to enhance the ability to detect out-of-class objects. The proposed strategy was performed on one-class partial least squares (OCPLS) and soft independent modeling of class analogy (SIMCA). By analysis of two infrared spectral data sets, one for geographical origin identification of white tea and the other for discrimination of adulterations in pure sesame oil, the proposed ensemble class modeling method was demonstrated to have similar sensitivity and better specificity compared with total-spectrum SIMCA and OCPLS models. The results indicate local spectral information can be extracted to enhance class model specificity. © 2012 Elsevier B.V.

AUTHOR KEYWORDS: Ensemble class models; Infrared spectroscopy; One-class partial least squares; Soft independent modeling of class analogy; Spectral interval selection

DOCUMENT TYPE: Article

SOURCE: Scopus

Di Anibal, C.V.a , Ruisánchez, I.a , Fernández, M.b , Forteza, R.b , Cerdà, V.b , Pilar Callao, M.a

Standardization of UV-visible data in a food adulteration classification problem

(2012) Food Chemistry, 134 (4), pp. 2326-2331.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861575558&partnerID=40&md5=17c2f512950e87fd38989b5d5de44a9a

AFFILIATIONS: Department of Analytical and Organic Chemistry, Rovira i Virgili University, Campus Sescelades, Marcellí Domingo s/n, E-43007 Tarragona, Spain;

Department of Chemistry, Faculty of Sciences, University of the Balearic Islands, Carretera de Valldemossa, Km 7.5., E-07122 Palma de Mallorca, Spain

ABSTRACT: This study evaluates the performance of multivariate calibration transfer methods in a classification context. The spectral variation caused by some experimental conditions can worsen the performance of the initial multivariate classification model but this situation can be solved by implementing standardization methods such as Piecewise Direct Standardization (PDS). This study looks at the adulteration of culinary spices with banned dyes such as Sudan I, II, III and IV. The samples are characterised by their UV-visible spectra and Partial Least Squares-Discriminant Analysis (PLS-DA) is used to discriminate between unadulterated samples and samples adulterated with any of the four Sudan dyes. Two different datasets that need to be standardised are presented. The standardization process yields positive classification results comparable to those obtained from the initial PLS-DA model, in which high classification performance was achieved. © 2012 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Food adulteration; Multivariate standardization; PDS; PLS-DA; Sudan dyes

DOCUMENT TYPE: Article

SOURCE: Scopus

Čížková, H., Ševčík, R., Rajchl, A., Pivoňka, J., Voldřich, M.

Trends in food authenticity and detection of food adulteration [Trendy v autenticitě potravin a v přístupech k detekci falšování]

(2012) Chemicke Listy, 106 (10), pp. 903-910. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84868349902&partnerID=40&md5=6a1f89170f7465aa450845908a6a3a1b

AFFILIATIONS: Ústav konzervace potravin, Fakulta potravinářské a biochemické technologie, Vysoká škola chemickotechnologická v Praze, Technická 5, 166 28 Praha 6, Czech Republic

ABSTRACT: The brief history of food adulteration in Czech towns from the Middle Ages, from the beginning of systematic approach (F. Accum, A. H. Hassall), to recent situation in the Czech Republic, is given. The examples of health consequences in some recent cases are summarized. The activities of the title Faculty in detection of food adulteration are described. The detection is based (a) on determination of selected markers or (b) on chemometric analysis, by statistical processing of analytical results for a large group of samples. New methods such as metabolomics and proteomics can also be used. The trends in food adulteration are described using the respective databases. The most important methods of food adulteration detection are described including the recent trends. The following methods are used: stable isotope analysis, DNA analysis, proteomics, spectroscopic and chromatographic methods.

DOCUMENT TYPE: Article

SOURCE: Scopus

Ellis, D.I.a , Brewster, V.L.a , Dunn, W.B.a b , Allwood, J.W.a , Golovanov, A.P.c , Goodacre, R.a b

Fingerprinting food: Current technologies for the detection of food adulteration and contamination

(2012) Chemical Society Reviews, 41 (17), pp. 5706-5727. Cited 8 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871831660&partnerID=40&md5=4dccf42ac30521b79e7f531172cc1368

AFFILIATIONS: School of Chemistry, Manchester Institute of Biotechnology, University of Manchester, 131 Princess Street, Manchester M1 7ND, United Kingdom;

Manchester Centre for Integrative Systems Biology, Manchester Institute of Biotechnology, University of Manchester, 131 Princess Street, Manchester M1 7ND, United Kingdom;

Faculty of Life Sciences, Manchester Institute of Biotechnology, University of Manchester, 131 Princess Street, Manchester M1 7ND, United Kingdom

ABSTRACT: Major food adulteration and contamination events seem to occur with some regularity, such as the widely publicised adulteration of milk products with melamine and the recent microbial contamination of vegetables across Europe for example. With globalisation and rapid distribution systems, these can have international impacts with far-reaching and sometimes lethal consequences. These events, though potentially global in the modern era, are in fact far from contemporary, and deliberate adulteration of food products is probably as old as the food processing and production systems themselves. This review first introduces some background into these practices, both historically and contemporary, before introducing a range of the technologies currently available for the detection of food adulteration and contamination. These methods include the vibrational spectroscopies: near-infrared, mid-infrared, Raman; NMR spectroscopy, as well as a range of mass spectrometry (MS) techniques, amongst others. This subject area is particularly relevant at this time, as it not only concerns the continuous engagement with food adulterers, but also more recent issues such as food security, bioterrorism and climate change. It is hoped that this introductory overview acts as a springboard for researchers in science, technology, engineering, and industry, in this era of systems-level thinking and interdisciplinary approaches to new and contemporary problems. © The Royal Society of Chemistry 2012.

DOCUMENT TYPE: Review

SOURCE: Scopus

Moore, J.C., Spink, J., Lipp, M.

Development and Application of a Database of Food Ingredient Fraud and Economically Motivated Adulteration from 1980 to 2010

(2012) Journal of Food Science, 77 (4), pp. R118-R126. Cited 8 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859944202&partnerID=40&md5=374dc40fbf6b8c650f036447be6e7c30

AFFILIATIONS: US Pharmacopeial Convention, 12601 Twinbrook Parkway, Rockville, MD 20852, United States;

Michigan State Univ., United States;

US Pharmacopeial Convention's Food Ingredients Intentional Adulterants Expert Panel, United States

ABSTRACT: Food ingredient fraud and economically motivated adulteration are emerging risks, but a comprehensive compilation of information about known problematic ingredients and detection methods does not currently exist. The objectives of this research were to collect such information from publicly available articles in scholarly journals and general media, organize into a database, and review and analyze the data to identify trends. The results summarized are a database that will be published in the US Pharmacopeial Convention's Food Chemicals Codex, 8th edition, and includes 1305 records, including 1000 records with analytical methods collected from 677 references. Olive oil, milk, honey, and saffron were the most common targets for adulteration reported in scholarly journals, and potentially harmful issues identified include spices diluted with lead chromate and lead tetraoxide, substitution of Chinese star anise with toxic Japanese star anise, and melamine adulteration of high protein content foods. High-performance liquid chromatography and infrared spectroscopy were the most common analytical detection procedures, and chemometrics data analysis was used in a large number of reports. Future expansion of this database will include additional publically available articles published before 1980 and in other languages, as well as data outside the public domain. The authors recommend in-depth analyses of individual incidents. © 2012 US Pharmacupia Journal of Food Science © 2012 Institute of Food Technologists ®.

AUTHOR KEYWORDS: Analytical procedures; Economically motivated adulteration; Food Chemicals Codex; Food fraud; Food ingredients

DOCUMENT TYPE: Review

SOURCE: Scopus

Schell, L.M., Gallo, M.V., Cook, K.

What's NOT to eat-food adulteration in the context of human biology

(2012) American Journal of Human Biology, 24 (2), pp. 139-148. Cited 3 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84856752348&partnerID=40&md5=12c79d769c01d09c3c8a7a96eaaf1685

AFFILIATIONS: Center for the Elimination of Minority Health Disparities, University at Albany, A and S 237, Albany, NY, United States;

Department of Anthropology, University at Albany, A and S 237, Albany, NY, United States;

Department of Epidemiology and Biostatistics, University at Albany, School of Public Health, Rensselaer, NY, United States;

Department of Obstetrics and Gynecology, University of California San Francisco, Program on Reproductive Health and the Environment, San Francisco, CA, United States

ABSTRACT: Food has nutritional and non-nutritional components. The latter are not well-studied despite the fact that food adulteration has been common. Food adulteration may have reached its peak in cities of Western Europe and the US in the 18th and 19th centuries when foods were often purposely contaminated with additives to increase bulk, attractiveness, disguise spoilage, and increase profit. Effective regulation of food began in the late 19th and 20th centuries. Nevertheless, today food recalls for bacterial contamination are common, while pesticides and compounds from manufacturing are detected in many foods. Foods with strong reputations for healthiness, such as salmon, may have sizable contaminant contents. The contaminant content of many foods varies by origin and season. Nearly all commercially raised salmon has higher contaminant levels than wild caught salmon. Opting out of the commercial food distribution system is an option, but the value depends on the habitat in which the food is obtained. Traditionally, the Akwesasne Mohawk Nation has depended on local fish and wildlife for their diet. Now pollution of local waterways has led to the contamination of many local foods, and levels of the contaminant polychlorinated biphenyls in the Akwesasne Mohawk people reflect current or past dietary patterns. Many other communities in nonurban settings are exposed to contaminants through long-trail distribution of contaminants in food, air, and/or water. Human biologists considering nutrition, disease, growth, reproduction, aging, to name a few areas, may consider the non-nutritional components of food as many have the ability to alter physiological functioning. © 2012 Wiley Periodicals, Inc.

DOCUMENT TYPE: Article

SOURCE: Scopus

MacMahon, S., Begley, T.H., Diachenko, G.W., Stromgren, S.A.

A liquid chromatography-tandem mass spectrometry method for the detection of economically motivated adulteration in protein-containing foods

(2012) Journal of Chromatography A, 1220, pp. 101-107. Cited 10 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84855347122&partnerID=40&md5=f357fa387859f344ce49c83df4b76654

AFFILIATIONS: United States Food and Drug Administration, Center for Food Safety and Applied Nutrition, College Park, MD, United States;

United States Food and Drug Administration, Office of Regional Operations, Division of Field Sciences, Rockville, MD, United States

ABSTRACT: A new analytical method was developed to determine the presence of six (6) compounds with the potential to be used in economic adulteration to enhance the nitrogen content in milk products and bulk proteins. Residues were extracted from the matrix with 2% formic acid, after which acetonitrile (ACN) was added to induce precipitation of the proteins. Extracts were analyzed by liquid chromatography using a ZIC-HILIC column with tandem mass spectrometry (LC-MS/MS) using electrospray ionization (ESI). Single-laboratory method validation data was collected in six matrices fortified at concentrations down to 1.0 μg/g (ppm). Average recoveries and average relative standard deviations (RSD) using spiked matrix calibration standard curves were the following: cyromazine (CY) 95.9% (7.5% RSD), dicyandiamide (DC) 98.1% (5.6% RSD), urea 102.5% (8.6% RSD), biuret (BU) 97.2% (6.6% RSD), triuret (TU) 97.7% (5.7% RSD), and amidinourea (AU) 93.4% (7.4% RSD). This method provides a rapid and effective approach to proactively combat economically motivated adulteration in protein-containing products. © 2011.

AUTHOR KEYWORDS: Economic adulteration; Mass spectrometry; Melamine; Protein

DOCUMENT TYPE: Article

SOURCE: Scopus

#### Food & Authenticity

Pegels, N., González, I., García, T., Martín, R.

Avian-specific real-time PCR assay for authenticity control in farm animal feeds and pet foods

(2013) Food Chemistry, 142, pp. 39-47. Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84880898546&partnerID=40&md5=1e357e4d0bac78acf3ad094ebf7c7237

AFFILIATIONS: Departamento de Nutrición, Bromatología y Tecnología de los Alimentos, Facultad de Veterinaria, Universidad Complutense de Madrid, 28040 Madrid, Spain

ABSTRACT: A highly sensitive TaqMan real-time PCR assay targeting the mitochondrial 12S rRNA gene was developed for detection of an avian-specific DNA fragment (68. bp) in farm animal and pet feeds. The specificity of the assay was verified against a wide representation of animal and plant species. Applicability assessment of the avian real-time PCR was conducted through representative analysis of two types of compound feeds: industrial farm animal feeds (n= 60) subjected to extreme temperatures, and commercial dog and cat feeds (n= 210). Results obtained demonstrated the suitability of the real-time PCR assay to detect the presence of low percentages of highly processed avian material in the feed samples analysed. Although quantification results were well reproducible under the experimental conditions tested, an accurate estimation of the target content in feeds is impossible in practice. Nevertheless, the method may be useful as an alternative tool for traceability purposes within the framework of feed control. © 2013 Elsevier Ltd.

AUTHOR KEYWORDS: 12S rRNA gene; Avian; Farm animal feeds; Pet feeds; TaqMan real-time PCR; Traceability

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Woolfe, M., Gurung, T., Walker, M.J.

Can analytical chemists do molecular biology? A survey of the up-skilling of the UK official food control system in DNA food authenticity techniques

(2013) Food Control, 33 (2), pp. 385-392.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876703483&partnerID=40&md5=08bd3e773f5a9db562a08746327926c5

AFFILIATIONS: Thames Ditton, Surrey KT7 0UJ, United Kingdom;

Food and Farming Science Team, Defra, Nobel House, 17 Smith Square, London SW1P 3JR, United Kingdom;

LGC, Queens Road, Teddington TW11 0LY, United Kingdom

ABSTRACT: That food accurately matches its description or labelling (food authenticity) is increasingly important to consumers and the agrifood sector. Its converse - mislabelling or misdescription or food fraud (when carried out for financial gain), is detrimental to both. A range of activities is used by enforcement authorities to establish authenticity and detect fraud including sampling and analysis. The UK Government, in a 20 year programme, has developed many novel analytical authenticity approaches including high resolution NMR, carbon isotope ratio analysis and DNA techniques. The flexibility, relatively lower costs and probative value of DNA methods render them particularly effective. However their deployment in the forensic environment of UK Official Food Control Laboratories (OCLs), staffed mainly by analytical chemists, required knowledge transfer (KT) of molecular biology techniques. The KT was carried out by the Food Standards Agency's Food Authenticity Programme (now transferred to Defra), and we present here the results of an assessment of its effectiveness. The findings highlight that the KT was well planned and highly effective. Competence in molecular biology in OCLs rose from 22% prior to the KT, based on qualifications and experience, to 69% after the KT based on embedding a suite of DNA methods in 11 out of 16 eligible laboratories. The transfer of 5 DNA methods (fish species, meat and exotic meat species, bushmeat species, Basmati rice, and orange juice adulteration with mandarin juice) have given OCLs an increased range of effectiveness with fish species identification having been particularly successfully applied and resulting in successful prosecutions of fraudulent activity. Given the current financial constraints in UK OCLs, a beneficial outcome has been a strategic refocussing of effort boosting enthusiasm and excitement for food authenticity issues. A further outcome of the transfer and evidence of the uptake of DNA technology has been the adoption of Real Time Polymerase Chain Reaction techniques by a critical mass (31.3%) of OCLs, permitting their advanced application to problematic authenticity issues such as the detection of adulteration of durum wheat pasta with common wheat, detection of meat ingredients in vegetarian foods, and the quantitative determination of GMOs in single ingredient foods such as pasta, rice and soya. Other recommendations arising out of the study are to adapt, to a lab-on-a-chip platform, DNA methods for pig and cattle breed authentication including wild boar, and an improved Basmati rice authentication. Finally, sustainable deployment of DNA methods to address food authenticity and fraud hinges on regulatory salience of the need for it and this, along with future priorities, should be kept under regular review. © 2013.

AUTHOR KEYWORDS: DNA; Enforcement; Food authenticity; Food fraud

DOCUMENT TYPE: Article

SOURCE: Scopus

Autio, M., Collins, R., Wahlen, S., Anttila, M.

Consuming nostalgia? The appreciation of authenticity in local food production

(2013) International Journal of Consumer Studies, 37 (5), pp. 564-568.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84881367269&partnerID=40&md5=c936d4d910156b568e52273d035fe1e2

AFFILIATIONS: Department of Economics and Management, University of Helsinki, Helsinki, Finland;

Department of Geography, University College London, London, United Kingdom;

Sociology of Consumption and Households, Wageningen University, Wageningen, Netherlands

ABSTRACT: Many consumers consider local food a more sustainable choice than conventional food because of the shorter transport distances involved as well as the support provided to local economies. In addition, consumers value the perceived safety benefits, ethical associations and improved taste of local food. In this study, we focus on the cultural meanings of locally produced food among Finnish consumers. Based on interviews with 22 consumers, our analysis suggests that, besides consumers valuing sustainable, healthy and tasty locally produced food, they perceived self-produced, self-processed items, including those they have gathered, hunted and fished themselves, as the most authentic local food. Furthermore, local food is associated with craftsmanship and artisan production. We also found that interviewees tended to historicize their relationship to food through local production. Thus, consumers seem to be in search of 'real' or 'true' food that is embedded in their personal and shared social histories. © 2013 John Wiley & Sons Ltd.

AUTHOR KEYWORDS: Authenticity; Local food; Nostalgia; Self-production; Self-sufficiency; The origin of food

DOCUMENT TYPE: Article

SOURCE: Scopus

Steliopoulos, P.

PCA shorn analysis methods to the Authenticity control of food [Validierung PCA-gestützter Analysemethoden zur Authentizitätskontrolle von Lebensmitteln]

(2013) Journal fur Verbraucherschutz und Lebensmittelsicherheit, 8 (1-2), pp. 71-77.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878309357&partnerID=40&md5=1244795045a69b8a71a9aee08760251b

AFFILIATIONS: CVUA Karlsruhe, Weißenburgerstraße 3, 76187 Karlsruhe, Germany

ABSTRACT: Application of principal components analysis to process spectrometric, chromatographic and mass spectrometric data is becoming increasingly important in food authenticity control. This paper is focussed on the validation of such test methods and describes an approach to establishing the decision border and the detection capability. By way of illustration, an example case from the laboratory routine is presented. © 2013 Bundesamt für Verbraucherschutz und Lebensmittelsicherheit (BVL).

AUTHOR KEYWORDS: Authentizitätskontrolle; Hauptkomponentenanalyse; Validierung

DOCUMENT TYPE: Article

SOURCE: Scopus

Syntesa, H.L.

Communicating food safety, authenticity and consumer choice. field experiences

(2013) Recent Patents on Food, Nutrition and Agriculture, 5 (1), pp. 19-34.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878285554&partnerID=40&md5=0d0d68e2d6840658c59ad22b71f71836

AFFILIATIONS: Rambla Exposició 89 1r 1a, E-08800 Vilanova i la Geltrú, Spain

ABSTRACT: The paper reviews patented and non-patented technologies, methods and solutions in the area of food traceability. It pays special attention to the communication of food safety, authenticity and consumer choice. Twenty eight recent patents are reviewed in the areas of (secure) identification, product freshness indicators, meat traceability, (secure) transport of information along the supply chain, country/region/place of origin, automated authentication, supply chain management systems, consumer interaction systems. In addition, solutions and pilot projects are described in the areas of Halal traceability, traceability of bird's nests, cold chain management, general food traceability and other areas. © 2013 Bentham Science Publishers.

AUTHOR KEYWORDS: Consumer information; Food information management; Food traceability; Fraud protection; Meat traceability

DOCUMENT TYPE: Article

SOURCE: Scopus

Vinci, G., Preti, R., Tieri, A., Vieri, S.

Authenticity and quality of animal origin food investigated by stable-isotope ratio analysis

(2013) Journal of the Science of Food and Agriculture, 93 (3), pp. 439-448.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873084189&partnerID=40&md5=847553c60df4fd64b7dadd339adcb455

AFFILIATIONS: Department of Management, Sapienza University of Rome, Via del Castro Laurenziano 9, 00161 Rome, Italy

ABSTRACT: Authentication of a food product is the procedure by which it is verified that the product matches the statements on the label, and that it conforms to what is established by regulations. This testing process includes analysis of the ingredients, determination of the geographical origin, and examination of the production methods. In particular, the use of rapid, effective and reliable analytical methods, when correctly applied to verify the authenticity and the traceability of the product, represents a valuable and irreplaceable tool for the authorities to carry out control functions. Tools and methodologies from scientific innovation and technological evolution can help to quickly locate particularly sophisticated frauds and adulterations. The feeding regime of livestock is a fundamental issue for the properties and safety of animal origin food, but this regime is often hidden from the consumer, making the zootechnical sector more prone to fraudulent practices. This review reports the results recently obtained in authentication of animal origin food by the application of stable-isotope ratio analysis, the most promising analytical technique in this field. © 2012 Society of Chemical Industry.

AUTHOR KEYWORDS: Authentication; Feeding regime; Food; Geographical origin; Isotope techniques

DOCUMENT TYPE: Review

SOURCE: Scopus

Nader, W.a , Brendel, T.b , Schubbert, R.b

DNA-analysis: Enhancing the control of food authenticity through emerging technologies

(2013) Agro Food Industry Hi-Tech, 24 (1), pp. 42-46.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84875409719&partnerID=40&md5=347f766526c524ecdc36e42173cb3fdb

AFFILIATIONS: Eurofins Global Control GmbH, Grossmoorbogen 25, 21079 Hamburg, Germany;

Eurofins Medigenomix GmbH, Anzinger Str. 7a, 85560 Ebersberg, Germany

ABSTRACT: DNA-analysis is one of the tools used for verifying the safety and authenticity of food. This is demonstrated with two examples - DNA-fragment length analysis to detect pine nuts causing taste disturbances and microsatellite or STR (short tandem repeat) analysis to check Basmati rice authenticity. Pine nuts from Pinus armandii caused dysgeusia (taste distortion) among consumers and triggered 39 biotoxin notifications in the EU Rapid Alert System for Food and Feed. Two analytical methods - DNA-fragment length analysis and chemical fingerprinting - were developed to detect Pinus armandii nuts and notifications have decreased rapidly after the implementation of routine controls. Microsatellite analysis became the standard method for authenticity testing in the Code of Practice for Basmati rice, defined by the retailers, traders and rice millers in the United Kingdom. As a consequence the quality of Basmati rice improved measurably. In this article the development of these DNA based methods and the impact on food safety and authenticity are described. Further applications of these technologies are discussed, e.g. for the detection of undeclared horsemeat in ready-made foods during the current food scandal hitting the European Union.

AUTHOR KEYWORDS: Basmati rice; DNA-fingerprinting; DNA-fragment length analysis; Food authenticity; Horsemeat scandal; Microsatellite analysis; Pine nuts; Pinus armandii; Short tandem repeats (STR)

DOCUMENT TYPE: Article

SOURCE: Scopus

Karoui, R.

Food Authenticity and Fraud

(2012) Chemical Analysis of Food: Techniques and Applications, pp. 499-517.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84882778309&partnerID=40&md5=0937397341838e070f47fd4d0f33773d

AFFILIATIONS: Université d'Artois, Faculté des Sciences Jean Perrin, Rue Jean Souvraz, Lens Cedex, France

DOCUMENT TYPE: Chapter

SOURCE: Scopus

Čížková, H., Ševčík, R., Rajchl, A., Pivoňka, J., Voldřich, M.

Trends in food authenticity and detection of food adulteration [Trendy v autenticitě potravin a v přístupech k detekci falšování]

(2012) Chemicke Listy, 106 (10), pp. 903-910. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84868349902&partnerID=40&md5=6a1f89170f7465aa450845908a6a3a1b

AFFILIATIONS: Ústav konzervace potravin, Fakulta potravinářské a biochemické technologie, Vysoká škola chemickotechnologická v Praze, Technická 5, 166 28 Praha 6, Czech Republic

ABSTRACT: The brief history of food adulteration in Czech towns from the Middle Ages, from the beginning of systematic approach (F. Accum, A. H. Hassall), to recent situation in the Czech Republic, is given. The examples of health consequences in some recent cases are summarized. The activities of the title Faculty in detection of food adulteration are described. The detection is based (a) on determination of selected markers or (b) on chemometric analysis, by statistical processing of analytical results for a large group of samples. New methods such as metabolomics and proteomics can also be used. The trends in food adulteration are described using the respective databases. The most important methods of food adulteration detection are described including the recent trends. The following methods are used: stable isotope analysis, DNA analysis, proteomics, spectroscopic and chromatographic methods.

DOCUMENT TYPE: Article

SOURCE: Scopus

Oliveri, P.a , Downey, G.b

Multivariate class modeling for the verification of food-authenticity claims

(2012) TrAC - Trends in Analytical Chemistry, 35, pp. 74-86. Cited 7 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859731462&partnerID=40&md5=f6f53898cf08ac27d01cf0859e15d183

AFFILIATIONS: University of Genoa, Department of Drug and Food Chemistry and Technology, Via Brigata Salerno, 13, I-16147 Genoa, Italy;

Teagasc Food Research Centre, Ashtown, Dublin 15, Ireland

ABSTRACT: Food authenticity is a challenging analytical problem normally addressed using sophisticated laboratory methods that produce large data sets. Multivariate mathematical methods are required to process such data sets, typically to answer a question such as " Is sample X, which claims to be of type A, compatible with type-A samples on the basis of its analytical measurements?" .We recommend class-modeling methods to answer this type of question and discuss the principles, the practice and the results of several types of such methods. We also compare them, in terms of advantages and short-comings, with the discriminant-classification approach. © 2012 Elsevier Ltd.

AUTHOR KEYWORDS: Chemometrics; Class modeling; Class space; Discriminant classification; Food authenticity; Fraud detection; Multivariate quality control; Pattern recognition; Performance evaluation; Verification

DOCUMENT TYPE: Review

SOURCE: Scopus

Murphy, T.B., Dean, N., Raftery, A.E.

Variable selection and updating in model-based discriminant analysis for high dimensional data with food authenticity applications

(2012) Annals of Applied Statistics, 6 (1), pp. 396-421.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84870288143&partnerID=40&md5=cda5b44b56735c2c626a0da0473016f5

AFFILIATIONS: University College Dublin, Ireland;

University of Glasgow, United Kingdom;

University of Washington, Seattle, United States

ABSTRACT: Food authenticity studies are concerned with determining if food samples have been correctly labeled or not. Discriminant analysis methods are an integral part of the methodology for food authentication. Motivated by food authenticity applications, a model-based discriminant analysis method that includes variable selection is presented. The discriminant analysis model is fitted in a semi-supervised manner using both labeled and unlabeled data. The method is shown to give excellent classification performance on several high-dimensional multiclass food authenticity data sets with more variables than observations. The variables selected by the proposed method provide information about which variables are meaningful for classification purposes. A headlong search strategy for variable selection is shown to be efficient in terms of computation and achieves excellent classification performance. In applications to several food authenticity data sets, our proposed method outperformed default implementations of Random Forests, AdaBoost, transductive SVMs and Bayesian Multinomial Regression by substantial margins. © 2010 Institute of Mathematical Statistics.

AUTHOR KEYWORDS: Food authenticity studies; Headlong search; Model-based discriminant analysis; Normal mixture models; Semi-supervised learning; Updating classification rules; Variable selection

DOCUMENT TYPE: Article

SOURCE: Scopus

Mihailova, A., Kelly, S.

Organic food authenticity - Recent advances in isotope ratio mass spectrometry

(2012) Food Science and Technology, 26 (1), pp. 35-37.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859469435&partnerID=40&md5=256455ce391a81df46774dabf4098ba8

AFFILIATIONS: School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, United Kingdom;

Contaminants and Authenticity Programme, Food and Environment Research Agency, FERA, Sand Hutton, York YO41 1LZ, United Kingdom

ABSTRACT: Growing demand for organically-grown food has resulted in the establishment of multiple standards, certification and labeling of organic products. Isotopes are atoms of a chemical element with different number of neutrons in the nucleus, and consequently, have slightly different masses. Stable sulfur isotopes can provide additional information about regional agricultural practices and fertilization strategy. A new promising tool for distinguishing between crops grown with synthetic and organic fertilizers could be compound specific 180 analysis of plant-derived nitrate. Another novel approach which could potentially be used in organic food authenticity is stable magnesium isotope analysis which can be performed using recently introduced multicollector-inductively coupled-plasma mass spectrometry (MC-ICP-MS).

DOCUMENT TYPE: Article

SOURCE: Scopus

Kim, S.-H., Cruz, G.D., Fadel, J.G., Clifford, A.J.

Food authenticity using natural carbon isotopes (12C, 13C, 14C) in grass-fed and grain-fed beef

(2012) Food Science and Biotechnology, 21 (1), pp. 295-298.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84862883219&partnerID=40&md5=a835b77982048f7c2c51e94c2bc9eaf2

AFFILIATIONS: Department of Nutrition, University of California Davis, Davis, CA 95616, United States;

Department of Animal Science, University of California Davis, Davis, CA 95616, United States;

Center for Analytical Chemistry, Division of Metrology for Quality of Life, Korea Research Institute of Standards and Science, P.O. Box 102, Yuseong, Daejeon 305-600, South Korea

ABSTRACT: Natural carbon isotopes, 12C, 13C, and 14C, help to authenticate/trace foods and beverages. Levels of total carbon (TC), 13C (δ13C), and 14C in muscle and lipid tissues from grass-fed versus grain-fed steers are reported. The δ13C in muscle versus lipid of steaks were around 5‰ higher in grain over grass-fed (p&lt;0. 05). The δ13C and 14C levels were higher in muscle over lipid tissues while the opposite was true for TC (p&lt;0. 05). TC content was around 20% higher in lipid over muscle due to different elemental compositions, lipid versus muscle, not carbon isotopes discrimination. © 2012 The Korean Society of Food Science and Technology and Springer Netherlands.

AUTHOR KEYWORDS: carbon isotope; food authenticity; grain-fed beef; grass-fed beef

DOCUMENT TYPE: Article

SOURCE: Scopus

Trantakis, I.A., Christopoulos, T.K., Spaniolas, S., Kalaitzis, P., Ioannou, P.C., Tucker, G.A.

Quantitative bioluminometric method for DNA-based species/varietal identification in food authenticity assessment

(2012) Journal of Agricultural and Food Chemistry, 60 (4), pp. 912-916.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84856541284&partnerID=40&md5=5189eb18ae42d7bd3f3219663aacca0c

AFFILIATIONS: Department of Chemistry, University of Patras, Patras, 26504, Greece;

Department of Horticultural Genetics and Biotechnology, Mediterranean Agronomic Institute, Chania, 73100, Greece;

Department of Chemistry, University of Athens, Athens, 15771, Greece;

Division of Nutritional Sciences, University of Nottingham, Nottingham, LE12 5RD, United Kingdom;

Foundation for Research and Technology Hellas, Institute of Chemical Engineering and High Temperature Chemical Processes (FORTH/ICE-HT), Patras 26504, Greece;

Department of Laboratory Tests, Hellenic Food Authority, Regional Division of Northern Aegean, 12 Kavetsou, 81100 Mytilini, Greece

ABSTRACT: A method is reported for species quantification by exploiting single-nucleotide polymorphisms (SNPs). These single-base changes in DNA are particularly useful because they enable discrimination of closely related species and/or varieties. As a model, quantitative authentication studies were performed on coffee. These involved the determination of the percentage of Arabica and Robusta species based on a SNP in the chloroplastic trnL(UAA)-trnF(GAA) intraspacer region. Following polymerase chain reaction (PCR), the Robusta-specific and Arabica-specific fragments were subjected to 15 min extension reactions by DNA polymerase using species-specific primers carrying oligo(dA) tags. Biotin was incorporated into the extended strands. The products were captured in streptavidin-coated microtiter wells and quantified by using oligo(dT)-conjugated photoprotein aequorin. Aequorin was measured within 3 s via its characteristic flash-type bioluminescent reaction that was triggered by the addition of Ca 2+. Because of the close resemblance between the two DNA fragments, during PCR one species serves as an internal standard for the other. The percentage of the total luminescence signal obtained from a certain species was linearly related to the percent content of the sample with respect to this species. The method is accurate and reproducible. The microtiter well-based assay configuration allows high sample throughput and facilitates greatly the automation. © 2011 American Chemical Society.

AUTHOR KEYWORDS: authenticity; bioluminescence; coffee; food authentication; photoprotein aequorin; quantitative

DOCUMENT TYPE: Article

SOURCE: Scopus

Trantakis, I.A., Spaniolas, S., Kalaitzis, P., Ioannou, P.C., Tucker, G.A., Christopoulos, T.K.

Dipstick test for DNA-based food authentication. Application to coffee authenticity assessment

(2012) Journal of Agricultural and Food Chemistry, 60 (3), pp. 713-717.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84856253079&partnerID=40&md5=71f3609167cedb24ffd21fcc1c338694

AFFILIATIONS: Department of Chemistry, University of Patras, Patras, 26504, Greece;

Department of Horticultural Genetics and Biotechnology, Mediterranean Agronomic Institute, Chania, 73100, Greece;

Department of Chemistry, University of Athens, Athens, 15771, Greece;

Division of Nutritional Sciences, University of Nottingham, Nottingham, LE12 5RD, United Kingdom;

Hellenic Food Authority, Regional Division of Northern Aegean, Department of Laboratory Tests, 12 Kavetsou, 81100 Mytilini, Greece

ABSTRACT: This paper reports DNA-based food authenticity assays, in which species identification is accomplished by the naked eye without the need of specialized instruments. Strongly colored nanoparticles (gold nanoparticles) are employed as reporters that enable visual detection. Furthermore, detection is performed in a low-cost, disposable, dipstick-type device that incorporates the required reagents in dry form, thereby avoiding multiple pipetting and incubation steps. Due to its simplicity, the method does not require highly qualified personnel. The procedure comprises the following steps: (i) PCR amplification of the DNA segment that flanks the unique SNP (species marker); (ii) a 15 min extension reaction in which DNA polymerase extends an allele-specific primer only if it is perfectly complementary with the target sequence; (iii) detection of the products of the extension reaction within a few minutes by the naked eye employing the dipstick. No purification is required prior to application of the extension products to the dipstick. The method is general and requires only a unique DNA sequence for species discrimination. The only instrument needed is a conventional thermocycler for PCR, which is common equipment in every DNA laboratory. As a model, the method was applied to the discrimination of Coffea robusta and arabica species in coffee authenticity assessment. As low as 5% of Robusta coffee can be detected in the presence of Arabica coffee. © 2011 American Chemical Society.

AUTHOR KEYWORDS: coffee authenticity; Dipstick; food authentication; single-nucleotide polymorphisms

DOCUMENT TYPE: Article

SOURCE: Scopus

#### Food & Corruption

Scopus

EXPORT DATE:25 Sep 2013

Mehta, A., Jh, S.

Corruption, food subsidies, and opacity: Evidence from the Philippines

(2012) Economics Letters, 117 (3), pp. 708-711. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84865964693&partnerID=40&md5=d0605c8bf816000ff88140de6f2d71a5

AFFILIATIONS: University of California-Santa Barbara, 2111 SS and MS Building, CA 93106-7065, United States;

Asian Development Bank, 6 ADB Avenue, Mandaluyong City, Philippines

ABSTRACT: We argue that subsidized food distribution systems that fail to publicize how much food has been allocated to each local market will experience high rates of theft on the margin as they are expanded. We provide the first comparable cross-section of estimates of subsidized food theft. As predicted, in regions of the Philippines that were allocated more subsidized rice to distribute, a larger percentage of the rice went missing. © 2012 Elsevier B.V.

AUTHOR KEYWORDS: Food subsidy; Opacity; Pilferage; Transfer program; Transparency

DOCUMENT TYPE: Article

SOURCE: Scopus

Food & Fraud

Lawley, R.

Does fish mislabelling herald a new wave of food fraud scandals?

(2013) Food Engineering and Ingredients, 38 (5-6), p. 20.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84880102013&partnerID=40&md5=df9c3dd5ecdaf06b2b5d519dfa744506

DOCUMENT TYPE: Article

SOURCE: Scopus

Gibbons, L.

New food fingerprinting to fight food fraud

(2013) Food Manufacture, (17), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878918351&partnerID=40&md5=99eabcc32bc8e00870f27b324a7fac2d

AUTHOR KEYWORDS: Country of origin; Food Forensics; Stable isotope ratio analysis

DOCUMENT TYPE: Note

SOURCE: Scopus

Stones, M.

Food scientists agree - Think like criminals to beat food fraud

(2013) Food Manufacture, (17), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878889010&partnerID=40&md5=ac1b267429a64de5847cf9c158a88651

AUTHOR KEYWORDS: Horsemeat; Institute of food science and technology; Leatherhead food research

DOCUMENT TYPE: Note

SOURCE: Scopus

Farrell, I.

Detective work and food fraud

(2013) Education in Chemistry, 50 (3), p. 9.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878158255&partnerID=40&md5=06aa73c61ba4f16b461db77fb5d600a5

DOCUMENT TYPE: Note

SOURCE: Scopus

Spink, J., Moyer, D.C.

Understanding and combating food fraud

(2013) Food Technology, 67 (1), pp. 30-35.

<http://foodfraud.msu.edu/wp-content/uploads/2013/03/Article-Understanding-and-Combating-Food-Fraud-FT-Food-Technology-2013-01-b.pdf>

AFFILIATIONS: School of Criminal Justice, Michigan State University, United States;

Program in Public Health, College of Human Medicine, Michigan State University, United States

DOCUMENT TYPE: Article

SOURCE: Scopus

Karoui, R.

Food Authenticity and Fraud

(2012) Chemical Analysis of Food: Techniques and Applications, pp. 499-517.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84882778309&partnerID=40&md5=0937397341838e070f47fd4d0f33773d

AFFILIATIONS: Université d'Artois, Faculté des Sciences Jean Perrin, Rue Jean Souvraz, Lens Cedex, France

DOCUMENT TYPE: Chapter

SOURCE: Scopus

Pendrous, R.

Think like criminals to beat food fraud, scientists told

(2012) Food Manufacture, (6), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874764330&partnerID=40&md5=18a64356229ee91b51b2f5b60bdb4191

AUTHOR KEYWORDS: Food fraud; Food safety; Food technologists; FSA

DOCUMENT TYPE: Note

SOURCE: Scopus

Moore, J.C.a , Spink, J.b c , Lipp, M.a

Development and Application of a Database of Food Ingredient Fraud and Economically Motivated Adulteration from 1980 to 2010

(2012) Journal of Food Science, 77 (4), pp. R118-R126. Cited 8 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859944202&partnerID=40&md5=374dc40fbf6b8c650f036447be6e7c30

AFFILIATIONS: US Pharmacopeial Convention, 12601 Twinbrook Parkway, Rockville, MD 20852, United States;

Michigan State Univ., United States;

US Pharmacopeial Convention's Food Ingredients Intentional Adulterants Expert Panel, United States

ABSTRACT: Food ingredient fraud and economically motivated adulteration are emerging risks, but a comprehensive compilation of information about known problematic ingredients and detection methods does not currently exist. The objectives of this research were to collect such information from publicly available articles in scholarly journals and general media, organize into a database, and review and analyze the data to identify trends. The results summarized are a database that will be published in the US Pharmacopeial Convention's Food Chemicals Codex, 8th edition, and includes 1305 records, including 1000 records with analytical methods collected from 677 references. Olive oil, milk, honey, and saffron were the most common targets for adulteration reported in scholarly journals, and potentially harmful issues identified include spices diluted with lead chromate and lead tetraoxide, substitution of Chinese star anise with toxic Japanese star anise, and melamine adulteration of high protein content foods. High-performance liquid chromatography and infrared spectroscopy were the most common analytical detection procedures, and chemometrics data analysis was used in a large number of reports. Future expansion of this database will include additional publically available articles published before 1980 and in other languages, as well as data outside the public domain. The authors recommend in-depth analyses of individual incidents. © 2012 US Pharmacupia Journal of Food Science © 2012 Institute of Food Technologists ®.

AUTHOR KEYWORDS: Analytical procedures; Economically motivated adulteration; Food Chemicals Codex; Food fraud; Food ingredients

DOCUMENT TYPE: Review

SOURCE: Scopus

Colombini, D.

Food manufacturers warned of GMO rice fraud

(2012) Food Manufacture, (4), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871711299&partnerID=40&md5=d6692f64ab9c582442564e771d9ef88d

AUTHOR KEYWORDS: Cert ID; GMOs; RASFF; Rice

DOCUMENT TYPE: Note

SOURCE: Scopus

#### Food Fraud

Lawley, R.

Does fish mislabelling herald a new wave of food fraud scandals?

(2013) Food Engineering and Ingredients, 38 (5-6), p. 20.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84880102013&partnerID=40&md5=df9c3dd5ecdaf06b2b5d519dfa744506

DOCUMENT TYPE: Article

SOURCE: Scopus

Gibbons, L.

New food fingerprinting to fight food fraud

(2013) Food Manufacture, (17), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878918351&partnerID=40&md5=99eabcc32bc8e00870f27b324a7fac2d

AUTHOR KEYWORDS: Country of origin; Food Forensics; Stable isotope ratio analysis

DOCUMENT TYPE: Note

SOURCE: Scopus

Stones, M.

Food scientists agree - Think like criminals to beat food fraud

(2013) Food Manufacture, (17), .

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AUTHOR KEYWORDS: Horsemeat; Institute of food science and technology; Leatherhead food research

DOCUMENT TYPE: Note

SOURCE: Scopus

Farrell, I.

Detective work and food fraud

(2013) Education in Chemistry, 50 (3), p. 9.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878158255&partnerID=40&md5=06aa73c61ba4f16b461db77fb5d600a5

DOCUMENT TYPE: Note

SOURCE: Scopus

Spink, J.a , Moyer, D.C.b

Understanding and combating food fraud

(2013) Food Technology, 67 (1), pp. 30-35.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873912214&partnerID=40&md5=42448ea113773c345a3ee50a3d40df0e

AFFILIATIONS: School of Criminal Justice, Michigan State University, United States;

Program in Public Health, College of Human Medicine, Michigan State University, United States

DOCUMENT TYPE: Article

SOURCE: Scopus

Karoui, R.

Food Authenticity and Fraud

(2012) Chemical Analysis of Food: Techniques and Applications, pp. 499-517.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84882778309&partnerID=40&md5=0937397341838e070f47fd4d0f33773d

AFFILIATIONS: Université d'Artois, Faculté des Sciences Jean Perrin, Rue Jean Souvraz, Lens Cedex, France

DOCUMENT TYPE: Chapter

SOURCE: Scopus

Pendrous, R.

Think like criminals to beat food fraud, scientists told

(2012) Food Manufacture, (6), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874764330&partnerID=40&md5=18a64356229ee91b51b2f5b60bdb4191

AUTHOR KEYWORDS: Food fraud; Food safety; Food technologists; FSA

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(2012) Journal of Food Science, 77 (4), pp. R118-R126. Cited 8 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859944202&partnerID=40&md5=374dc40fbf6b8c650f036447be6e7c30

AFFILIATIONS: US Pharmacopeial Convention, 12601 Twinbrook Parkway, Rockville, MD 20852, United States;

Michigan State Univ., United States;

US Pharmacopeial Convention's Food Ingredients Intentional Adulterants Expert Panel, United States

ABSTRACT: Food ingredient fraud and economically motivated adulteration are emerging risks, but a comprehensive compilation of information about known problematic ingredients and detection methods does not currently exist. The objectives of this research were to collect such information from publicly available articles in scholarly journals and general media, organize into a database, and review and analyze the data to identify trends. The results summarized are a database that will be published in the US Pharmacopeial Convention's Food Chemicals Codex, 8th edition, and includes 1305 records, including 1000 records with analytical methods collected from 677 references. Olive oil, milk, honey, and saffron were the most common targets for adulteration reported in scholarly journals, and potentially harmful issues identified include spices diluted with lead chromate and lead tetraoxide, substitution of Chinese star anise with toxic Japanese star anise, and melamine adulteration of high protein content foods. High-performance liquid chromatography and infrared spectroscopy were the most common analytical detection procedures, and chemometrics data analysis was used in a large number of reports. Future expansion of this database will include additional publically available articles published before 1980 and in other languages, as well as data outside the public domain. The authors recommend in-depth analyses of individual incidents. © 2012 US Pharmacupia Journal of Food Science © 2012 Institute of Food Technologists ®.

AUTHOR KEYWORDS: Analytical procedures; Economically motivated adulteration; Food Chemicals Codex; Food fraud; Food ingredients

DOCUMENT TYPE: Review

SOURCE: Scopus

Colombini, D.

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http://www.scopus.com/inward/record.url?eid=2-s2.0-84871711299&partnerID=40&md5=d6692f64ab9c582442564e771d9ef88d

AUTHOR KEYWORDS: Cert ID; GMOs; RASFF; Rice

DOCUMENT TYPE: Note

SOURCE: Scopus

#### Food & Forensic

Ryan, C.

FAKE food products are put under the Forensic microscope

(2012) Food Manufacture, (1), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871080146&partnerID=40&md5=a4816983f1c2ad824e47d40eb7f0af81

AUTHOR KEYWORDS: Cert-ID; Food testing; FoodChain Europe; Genetic testing

DOCUMENT TYPE: Note

SOURCE: Scopus

Ali, M.E., Kashif, M., Uddin, K., Hashim, U., Mustafa, S, Che Man, Y.B.

Species Authentication Methods in Foods and Feeds: The Present, Past, and Future of Halal Forensics

(2012) Food Analytical Methods, 5 (5), pp. 935-955. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84866038092&partnerID=40&md5=2a78c2278ad0b9cfab307b240a9735d4

AFFILIATIONS: Institute of Nano Electronic Engineering, Universiti Malaysia Perlis, 01000 Kangar, Perlis, Malaysia;

Institute of Tropical Agriculture, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia;

Halal Products Research Institute, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

ABSTRACT: We extensively reviewed the existing as well as the potentials of the molecular biology and nanotechnology methods for the identification of animal-derived materials in foods and feeds. The verification of animal-derived materials in foods and feeds is mandatory by several religious as well as regional and state laws. It is also essential to limit the transmission of food-borne pathogens and allergens. Verification of declared components further helps prevent unfair trades and protect consumers' trusts, religious faiths, and hard-earned fortunes. In this review, special emphasis is given to the molecular markers and their tracing tools in biology and nanotechnology. Among the four types of biomolecules, known as proteins, lipids, carbohydrates, and nucleic acids, DNA has been reported as the most appropriate biomarker to identify the source of animal-derived materials. While PCR has got enormous attention as the most effective molecular identification tool, PCR-based methods are not suitable for the unambiguous identification of very short DNA targets (15-30 bp) which can survive even in the harsh conditions of food and feed processing. Nanotechnology-based approaches using nanogap electrodes, quantum dots (QDs), and SERS-active nanoparticle shells are highly sensitive and can detect very short oligo targets almost at single-molecule sensitivity. However, nanogap fabrication has remained a challenging task and also involves complicated surface modification and immobilization chemistries. QD and SERS-based techniques also demand surface modifications and immobilization chemistries. On the other hand, gold nanoparticle (GNP)-based hybridization detection is label-free, sensitive, and does not involve any modification chemistry and expensive instrumentations. GNP-based biosensors offer a low-cost platform to detect and quantify short-length DNA markers in mixed biological and processed commercial foods. © 2012 Springer Science+Business Media, LLC.

AUTHOR KEYWORDS: Halal and Kosher Foods; Headspace volatiles; Nanogap electrodes; Quantum dots; SERS-active substrates; Single-molecule sensitivity; Solid phase micro-extraction; Vaporprint

DOCUMENT TYPE: Article

SOURCE: Scopus

Bosmali, I., Ganopoulos, I., Madesis, P., Tsaftaris, A.

Microsatellite and DNA-barcode regions typing combined with High Resolution Melting (HRM) analysis for food forensic uses: A case study on lentils (Lens culinaris)

(2012) Food Research International, 46 (1), pp. 141-147. Cited 6 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84855780775&partnerID=40&md5=66754b1cfe6dfe16e963698e0888a11e

AFFILIATIONS: Department of Food Technology, Technological Educational Institution (T.E.I.) of Larissa (Karditsa Annex), Karditsa, Greece;

Department of Genetics and Plant Breeding, School of Agriculture, Aristotle University of Thessaloniki, Thessaloniki 54 124, Greece;

Institute of Agrobiotechnology, CERTH, 6th km Charilaou-Thermis Road, Thermi, Thessaloniki, 57001, Greece

ABSTRACT: Lentil (Lens culinaris) is an important legume crop worldwide, consumed as dried seeds. Correct identification of lentil varieties is important in order to ensure food quality, safety, authenticity and health for consumers as well as high price from elite varieties for farmers and industry. Recently, DNA-based methods like the molecular markers microsatellites (SSRs) for nuclear DNA or the DNA barcoding which uses chloroplast or nuclear DNA have been developed for plant species or variety identification, for genotyping and for identification of their ingredients in the final food products. Here we have integrated High Resolution Melting (HRM) analysis, coupled with five SSR markers in parallel with rpoC1 chloroplast DNA barcode targeting region, in order to facilitate the identification of Protected Geographical Indication (PGI) lentil variety 'Eglouvi'. The five SSR loci used were informative and generated a unique melting curve profile of microsatellites for each of the ten varieties tested. SSRs enabled the distinction and identification of the "Eglouvi" lentil PGI variety and furthermore they allowed the traceability of "Eglouvi" and the identification of lentil varieties admixtures of 50%. In addition, the application of the Barcode DNA High Resolution Melting (Bar-HRM) method on the species specific plant DNA barcoding region rpoC1, allowed not only the identification of adulterations but also the quantification of the most common lentil admixture. Bar-HRM detected Vicia sativa adulterants in Lens esculentum pure seed mix as low as 1:100. Hence, these assays provided flexible, cost-effective, and closed-tube SSR-HRM and Bar-HRM genotyping methods, well suited to identify adulterants in variety and species level and to food forensic uses in food products. © 2011 Elsevier Ltd.

AUTHOR KEYWORDS: Adulteration; Authentication; Bar-HRM; Eglouvi; Lentil; Microsatellites

DOCUMENT TYPE: Article

SOURCE: Scopus

#### Food & Incidents

Dai, Y., Kong, D., Wang, M.

Investor reactions to food safety incidents: Evidence from the Chinese milk industry

(2013) Food Policy, 43, pp. 23-31.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84883610879&partnerID=40&md5=6003042ae247240177f04e1a307165dc

AFFILIATIONS: School of Economics, Huazhong University of Science and Technology, Wuhan 430074, China;

School of Banking and Finance, University of International Business and Economics, Beijing 100029, China

ABSTRACT: Using a natural experiment in the Chinese milk industry as background, this paper investigates the reactions of individual and institutional investors to food safety incidents. By classifying firms as either honest or dishonest, we find that: First, honest firms significantly outperform dishonest ones and receive more investment flow. Second, individual investors react to incidents more negatively and intensely, especially toward dishonest firms, compared with institutional investors. This study offers important policy implications: First, our findings directly suggest that the government should enact appropriate policies to strengthen food safety and protect consumers' health. Second, the government should implement efficient mechanisms to strengthen firms' incentives to participate in social responsibility activities. Third, having institutional investors as corporate monitors is not a sufficient substitute for legal penalties. © 2013 Elsevier Ltd.

AUTHOR KEYWORDS: Difference-in-differences; Event study; Firm values; Food safety incidents; Investor reaction

DOCUMENT TYPE: Article

SOURCE: Scopus

Shan, L., Zhong, Y., Wu, L.

Public panic behavior based on food safety incidents: A case of additive

(2013) LISS 2012 - Proceedings of 2nd International Conference on Logistics, Informatics and Service Science, pp. 1411-1417.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84883090644&partnerID=40&md5=6b482be5b20d43b1892ac1a3fd68ee22

AFFILIATIONS: Jiangsu Province Research Base of Food Safety, Jiangnan University, Wuxi Jiangsu 214122, China;

School of Business, Jiangnan University, Wuxi Jiangsu 214122, China

ABSTRACT: The risk of food additive has become one of the most prominent food safety risks. Based on the practical research data collecting from 657 consumers from the three areas of Southern Jiangsu (Sunan), Middle Jiangsu (Suzhong) and Northern Jiangsu (Subei), this paper uses Theory of Planned Behavior (TPB) and structural equation modeling (SEM) as the major analyzing tools, researching into the key factors influenced the public's risk perception and panic behavior towards food additive. © Springer-Verlag Berlin Heidelberg 2013.

AUTHOR KEYWORDS: Food additive; Panic behavior; Risk perception; Structural equation modeling (SEM); Theory of Planned Behavior (TPB)

DOCUMENT TYPE: Conference Paper

SOURCE: Scopus

Hosono, H., Kumagai, Y., Sekizaki, T.

Consumer awareness and attitude on Radiocesium food contamination following Fukushima incident

(2013) Journal of Disaster Research, 8 (SPL.EDN), pp. 762-772.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84883800145&partnerID=40&md5=8f20f40304ff97ca14b68989eb34bf45

AFFILIATIONS: Graduate School of Agricultural and Life Sciences, The University of Tokyo, 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113-8657, Japan

ABSTRACT: Concerns about radioactive contamination are spreading among consumers after the nuclear power plant incident at Fukushima, Japan in 2011. This study is an attempt to understand how Japanese consumer recognize the risk of radioactive substances in food based on web-based-questionnaire conducted in October 2011, March 2012, and January 2013. Results showed mixed awareness both willing to support radiation-affected areas and willing to avoid the risk of radioactive substances. And deteriorating trust on the radioactive substance management by the stakeholders, and insufficient information provided on risk and management of radioactive substances also were indicated. Among the respondents, those revealed higher satisfaction about risk management measures showed the lower perceived level of risk and their knowledge level were higher.

AUTHOR KEYWORDS: Attitude; Consumer behavior; Food; Radioactive substances; Trust

DOCUMENT TYPE: Article

SOURCE: Scopus

Masayama, A., Murakami, T., Sakuma, D., Ki, M., Yamano, T., Shimizu, M.

Erratum: Discrimination of mushrooms causing food-poisoning incidents by using DNA sequence analysis (Food Hygine and Safety Science (2012) 53 (237-242))

(2013) Journal of the Food Hygienic Society of Japan, 54 (2), p. 172.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878028873&partnerID=40&md5=d6553a40a558e7e4cb36a0909ffeca66

DOCUMENT TYPE: Erratum

SOURCE: Scopus

Everstine, K., Spink, J., Kennedy, S.

Economically motivated adulteration (EMA) of food: Common characteristics of EMA incidents

(2013) Journal of Food Protection, 76 (4), pp. 723-735.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876939945&partnerID=40&md5=9f49aa7ed8f98185b49ae7bd8d5abc44

AFFILIATIONS: National Center for Food Protection and Defense, University of Minnesota, 1954 Buford Avenue, St. Paul, MN 55108, United States;

Michigan State University, 436 Baker Hall, 655 Auditorium Drive, East Lansing, MI 48824, United States

ABSTRACT: Economically motivated adulteration (EMA) of food, also known as food fraud, is the intentional adulteration of food for financial advantage. A common form of EMA, undeclared substitution with alternative ingredients, is usually a health concern because of allergen labeling requirements. As demonstrated by the nearly 300,000 illnesses in China from melamine adulteration of infant formula, EMA also has the potential to result in serious public health consequences. Furthermore, EMA incidents reveal gaps in quality assurance testing methodologies that could be exploited for intentional harm. In contrast to foodborne disease outbreaks, EMA incidents present a particular challenge to the food industry and regulators because they are deliberate acts that are intended to evade detection. Large-scale EMA incidents have been described in the scientific literature, but smaller incidents have been documented only in media sources. We reviewed journal articles and media reports of EMA since 1980. We identified 137 unique incidents in 11 food categories: fish and seafood (24 incidents), dairy products (15), fruit juices (12), oils and fats (12), grain products (11), honey and other natural sweeteners (10), spices and extracts (8), wine and other alcoholic beverages (7), infant formula (5), plant-based proteins (5), and other food products (28). We identified common characteristics among the incidents that may help us better evaluate and reduce the risk of EMA. These characteristics reflect the ways in which existing regulatory systems or testing methodologies were inadequate for detecting EMA and how novel detection methods and other deterrence strategies can be deployed. Prevention and detection of EMA cannot depend on traditional food safety strategies. Comprehensive food protection, as outlined by the Food Safety Modernization Act, will require innovative methods for detecting EMA and for targeting crucial resources toward the riskiest food products. © International Association for Food Protection.

DOCUMENT TYPE: Article

SOURCE: Scopus

Xue, J., Zhang, W.

Understanding China's food safety problem: An analysis of 2387 incidents of acute foodborne illness

(2013) Food Control, 30 (1), pp. 311-317. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867619170&partnerID=40&md5=57a542620e2098c401d0d166fac8ded6

AFFILIATIONS: Department of Agricultural Economics, College of Economics and Management, Northwest A and F University, 3 Taicheng Road, Yangling 712100, China

ABSTRACT: To understand the general trends and status of China's food safety, we analyzed 2387 individual incidents of acute foodborne illnesses that had been reported by medical professionals in published journal papers during the last decade. As a result, 99,487 illnesses and 380 deaths were found in these 2387 incidents. In our analysis, we tried to understand the risks of acute foodborne illnesses and deaths corresponding to food pathogens, food location and settings, implicated food vehicles, sources of contamination and human causes. Based on our analysis, we made recommendations for risk communication, risk management and future research in regard to foodborne illnesses in China. © 2012 Elsevier Ltd.

AUTHOR KEYWORDS: China; Food safety; Foodborne illness

DOCUMENT TYPE: Article

SOURCE: Scopus

De Oliveira Otto, M.C., Mozaffarian, D., Kromhout, D., Bertoni, A.G., Sibley, C.T., Jacobs Jr., D.R., Nettleton, J.A.

Erratum: Dietary intake of saturated fat by food source and incident cardiovascular disease: the Multi-Ethnic Study of Atherosclerosis (American Journal of Clinical Nutrition (2012) 96 (397-404))

(2013) American Journal of Clinical Nutrition, 97 (2), p. 449.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873398825&partnerID=40&md5=3d634213ed958a077f26f81b18faefeb

DOCUMENT TYPE: Erratum

SOURCE: Scopus

Masayama, A., Murakami, T., Sakuma, D., Ki, M., Yamano, T., Shimizu, M.

Discrimination of mushrooms causing food-poisoning incidents by using DNA sequence analysis

(2012) Journal of the Food Hygienic Society of Japan, 53 (5), pp. 237-242.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84869449840&partnerID=40&md5=8df888a47453ffe3711b586f39144002

AFFILIATIONS: Osaka City Institute of Public Health and Environmental Sciences, 8-34 Tojo-cho, Tennoji-ku, Osaka 543-0026, Japan;

Osaka Museum of National History, 1-23 Nagai Park, Higashisumiyoshi-ku, Osaka 546-0034, Japan

ABSTRACT: In this study, the identification of mushrooms by using DNA analysis was investigated. Our analysis of internal transcribed spacer (ITS) regions revealed that a DNA-based method could be applicable for samples that are difficult to distinguish in terms of the morphological characteristics. PCR amplification using templates extracted from cooked samples gave sufficient fragments to analyze the sequence. However, treatment with simulated gastric fluid (SGF) for more than 30 min affected the analysis of the ITS region. Application to samples of vomit is also discussed.

AUTHOR KEYWORDS: Dnadna analysis; Food-poisoning incident; Mushroom; Simulated gastric fluid

DOCUMENT TYPE: Article

SOURCE: Scopus

Stones, M.

Food safety incidents up by 200+ cases: FSA

(2012) Food Manufacture, (5).

http://www.scopus.com/inward/record.url?eid=2-s2.0-84865221175&partnerID=40&md5=dd960df4f9f696248ffffc7f56883058

AUTHOR KEYWORDS: Food safety; Food standards agency

DOCUMENT TYPE: Note

SOURCE: Scopus

De Oliveira Otto, M.C., Mozaffarian, D., Kromhout, D., Bertoni, A.G., Sibley, C.T., Jacobs Jr., D.R., Nettleton, J.A.

Dietary intake of saturated fat by food source and incident cardiovascular disease: The multi-ethnic study of atherosclerosis

(2012) American Journal of Clinical Nutrition, 96 (2), pp. 397-404. Cited 10 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84864333840&partnerID=40&md5=6e13c502b4d4ff0e15f4329c2aff2dd9

AFFILIATIONS: Division of Epidemiology, Human Genetics and Environmental Sciences, University of Texas School of Public Health, Houston, TX, United States;

Department of Epidemiology, Harvard School of Public Health, Kresge Building, 677 Huntington Avenue, Boston, MA 02115, United States;

Division of Human Nutrition, Wageningen University, Wageningen, Netherlands;

Department of Public Health Sciences, Wake Forest University, Winston-Salem, NC, United States;

NIH, Bethesda, MD, United States;

Division of Epidemiology and Community Health, School of Public Health, University of Minnesota, Minneapolis, MN, United States;

Department of Nutrition, University of Oslo, Oslo, Norway

ABSTRACT: Background: Although dietary recommendations have focused on restricting saturated fat (SF) consumption to reduce cardiovascular disease (CVD) risk, evidence from prospective studies has not supported a strong link between total SF intake and CVD events. An understanding of whether food sources of SF influence these relations may provide new insights. Objective: We investigated the association of SF consumption from different food sources and the incidence of CVD events in a multi-ethnic population. Design: Participants who were 45-84 y old at baseline (n = 5209) were followed from 2000 to 2010. Diet was assessed by using a 120- item food-frequency questionnaire. CVD incidence (316 cases) was assessed during follow-up visits. Results: After adjustment for demographics, lifestyle, and dietary confounders, a higher intake of dairy SF was associated with lower CVD risk [HR (95% CI) for +5 g/d and +5% of energy from dairy SF: 0.79 (0.68, 0.92) and 0.62 (0.47, 0.82), respectively]. In contrast, a higher intake of meat SF was associated with greater CVD risk [HR (95% CI) for +5 g/d and a +5% of energy from meat SF: 1.26 (1.02, 1.54) and 1.48 (0.98, 2.23), respectively]. The substitution of 2% of energy from meat SF with energy from dairy SF was associated with a 25% lower CVD risk [HR (95% CI): 0.75 (0.63, 0.91)]. No associations were observed between plant or butter SF and CVD risk, but ranges of intakes were narrow. Conclusion: Associations of SF with health may depend on food-specific fatty acids or other nutrient constituents in foods that contain SF, in addition to SF. © 2012 American Society for Nutrition.

DOCUMENT TYPE: Article

SOURCE: Scopus

Thomson, B., Poms, R., Rose, M.

Incidents and impacts of unwanted chemicals in food and feeds

(2012) Quality Assurance and Safety of Crops and Foods, 4 (2), pp. 77-92. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867347843&partnerID=40&md5=a827bc33ff3f5af21457abe01079fe1e

AFFILIATIONS: Food Safety Programme, Institute of Environmental Science and Research Ltd (ESR), Christchurch, New Zealand;

Headquarters, International Association for Cereal Science and Technology (ICC), Vienna, Austria;

Environmental Contaminants and Food Integrity, Food and Environment Research Agency (FERA), Sand Hutton, York, United Kingdom

ABSTRACT: Introduction: Assessing the significance of unwanted chemicals in food is problematic. The evaluation of cause and effect of many unwanted chemicals in foods and feed is complicated by cumulative low doses and the delayed onset of symptoms. Objectives: This paper reviews incidents of unwanted chemicals in food and feed where people were adversely affected, or where an unusually high level was found and traced to a particular event and for which some socio-economic impact information was available. Methods: Incidents and impacts were identified from the peer-reviewed scientific literature, from governmental websites, from Internet searches, from trades and consumer associations and media releases. Results: Some 44 major events were identified from 1888 to date. Information on the impacts of these incidents is fragmentary and unsystematic, ranging from thousands of Euros to meet the cost of monitoring analysis, to many millions of Euros due to court prosecutions, bankruptcy, product disposal, revenue loss compensation, damage to brand or reputation, or loss of life. Conclusion: An evolution is apparent from the evidence of human health effects/toxicity data, igniting legal action and legislative changes, to the implementation of monitoring and surveillance alerts to ensure that risks are identified and managed - if possible - before they reach the consumer. © 2012 Blackwell Publishing Ltd.

AUTHOR KEYWORDS: Contaminants; Feed; Food; Incidents; Residues; Socio-economic impact; Unwanted chemicals

DOCUMENT TYPE: Article

SOURCE: Scopus

Lin, W.-F., Lyu, Y.-C., Wu, Y.-J., Lu, C.-H., Hwang, D.-F.

Species identification of snapper: A food poisoning incident in Taiwan

(2012) Food Control, 25 (2), pp. 511-515. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-83455220524&partnerID=40&md5=d72a065dc0a6170952e2f75a4c20b5b2

AFFILIATIONS: Department of Food Science and Center of Excellence for Marine Bioenvironment and Biotechnology, National Taiwan Ocean University, 2 Pei-Ning Road, Keelung 202, Taiwan

ABSTRACT: A snapper (Lutjanidae fish) is a carnivorous coral reef fish that is distributed in sea areas around Taiwan. In December 2008 in southern Taiwan, a food poisoning incident occurred due to the ingestion of snapper, and the causative residue of ciguatera was investigated using a toxicity assay. To identify the species of the causative sample, six suspected species of Lutjanidae fish commonly found in Taiwan were analyzed using both sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) and polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) techniques. According to the low molecular weight region (<30.0kD) of species-specific patterns extracted from myofibrillar and sarcoplasmic proteins, the 6 snapper species could be clearly differentiated by the SDS-PAGE method. Furthermore, a consistent 465bp sequence of the mitochondrial cytochrome b gene from the 6 snapper species was amplified by the PCR method and was rapidly distinguished by the analysis of restriction enzymes. According to both SDS-PAGE and PCR-RFLP methods, the poisonous sample was identified as Lutjanus bohar, which is also a notorious Lutjanidae species containing ciguateric toxins. © 2011.

AUTHOR KEYWORDS: PCR-RFLP; SDS-PAGE; Snapper; Species identification

DOCUMENT TYPE: Article

SOURCE: Scopus

Liu, H., Kerr, W.A., Hobbs, J.E.

A review of Chinese food safety strategies implemented after several food safety incidents involving export of Chinese aquatic products

(2012) British Food Journal, 114 (3), pp. 372-386. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84863376604&partnerID=40&md5=0c958fa7e2d79e17e9c70daab6579cae

AFFILIATIONS: Department of Food Economics and Management, Shanghai Ocean University, Shanghai, China;

Department of Bioresource Policy, Business and Economics, University of Saskatchewan, Saskatoon, Canada

ABSTRACT: Purpose: The rapid transition from a command to market-based economy in China has required the development of a food safety system for aquatic products where one did not previously exist. The pace of change has meant that food safety systems have struggled to keep up. In 2007 food safety incidents damaged the reputation of aquatic products in export markets. The Chinese Government has moved quickly to strengthen the safety regime for aquatic products. The purpose of this paper is to assess these initiatives in the context of their potential to regain international acceptance of Chinese aquatic products. Design/methodology/approach: A regulatory assessment approach is used. Findings: The findings are that increased government oversight alone is not likely to lead to a fully effective food safety system for aquatic products. The development of private sector-based incentives to encourage investment in food safety is an essential co-requisite to increased government oversight if China's access to international markets is to be assured. Originality/value: The value of this study lies in the light it sheds on the efforts of a major player in the international market for aquatic products to improve the efficacy of its food safety system. China's regulatory regimes are often opaque, limiting the ability of those wishing to assess the advisability of importing food products from China. © Emerald Group Publishing Limited.

AUTHOR KEYWORDS: Aquatic; China; Fish (food); Food controls; Food safety; Foreign trade; Quality systems; Traceability; Trade; Water pollutants

DOCUMENT TYPE: Article

SOURCE: Scopus

#### Food & Tools

Hogsden, K.L., Harding, J.S.

Isotopic metrics as a tool for assessing the effects of mine pollution on stream food webs

(2014) Ecological Indicators, 36, pp. 339-347.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84883791653&partnerID=40&md5=84a0bc7f2121724ec4683d49078bd37c

AFFILIATIONS: School of Biological Sciences, University of Canterbury, Private Bag 4800, Christchurch, New Zealand

ABSTRACT: Most tools used to assess pollution impacts are based on structural, or less frequently, functional aspects of biotic communities. However, the application of measures that take a food web approach to understand the effects of stress on stream ecosystems offers a new perspective and promising insights. We assessed quantitative isotopic metrics, which describe characteristics of food web structure, as indicators of acid mine drainage (AMD) in 12 streams along a stress gradient and compared these metrics with traditional structural and functional metrics. The gradient ranged from highly stressed (pH < 3) streams with elevated concentrations of dissolved metals (Fe and Al) to moderately acidic streams (pH 3.6-4.9) with substrata coated in metal hydroxide precipitates and circumneutral reference streams. Key differences in food web structure were detected by the isotopic metrics. Specifically, fewer trophic levels and reduced trophic diversity characterized food webs in all mining impacted streams but the differences were not significant along the gradient. In contrast, most structural and functional metrics were significant predictors of AMD as stress increased. Therefore, our results suggest that isotopic metrics offer little advantage over traditional metrics in terms of detecting impacts for biomonitoring purposes. However, they do provide additional insights into how whole food webs are disrupted, and are likely to be more useful for guiding stream management and rehabilitation strategies. © 2013 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Acid mine drainage (AMD); Food web; Gradient; Metrics; Stable isotopes

DOCUMENT TYPE: Article

SOURCE: Scopus

Trematerra, P.

Aspects related to decision support tools and Integrated Pest Management in food chains

(2013) Food Control, 34 (2), pp. 733-742.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84880354142&partnerID=40&md5=ff73acb30f1db81240f4cbc40aaab798

AFFILIATIONS: Department Agricultural, Environmental and Food Sciences, University of Molise, Via De Sanctis, 86100 Campobasso, Italy

ABSTRACT: There are a number of tools available for pest management in stored product protection and in the food industry, but often the effectiveness of these approaches and how best to integrate them into a coherent and effective Integrated Pest Management (IPM) programme are not well understood. Many questions remain about the use of these tools, from the very practical issues such as how many traps are needed and which types work best, to fundamental issues concerning the relationship between trap captures and pest population density, distribution and level of product infestation. Limited acceptance of IPM in food facilities is partially explained by a combination of: costs of responsive pest control interventions; difficulty in sampling properly, combined with unreliable sampling data; calculations of action thresholds being too simplistic. In operational practice precise treatment thresholds and economic injury levels have not been developed, and standards and rejection criteria are inconsistent and difficult to apply. As a result, treatments based on an economic threshold are not typically performed and control strategies are often applied preventively, even when using tactics that do not have any residual effect. In current practice, many locations still rely on calendar-based pesticide applications and have little understanding of the basis of pest management. © 2013 Elsevier Ltd.

AUTHOR KEYWORDS: Decision support tools; Food industry; IPM; Pests; Practical application; Stored products

DOCUMENT TYPE: Review

SOURCE: Scopus

Santini, A., Novellino, E., Armini, V., Ritieni, A.

State of the art of ready-to-use therapeutic food: A tool for nutraceuticals addition to foodstuff

(2013) Food Chemistry, 140 (4), pp. 843-849.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878017835&partnerID=40&md5=de0cec4615f642615e33c86bf6d273e8

AFFILIATIONS: Department of Food Science, University of Napoli federico II, Via Università 100, 80055 Portici (Napoli), Italy;

Department of Pharmaceutical and Toxicological Chemistry, University of Napoli federico II, Via D. Montesano 49, 80131 Napoli, Italy

ABSTRACT: Therapeutic foodstuff are a challenge for the use of food and functional food ingredients in the therapy of different pathologies. Ready-to-Use Therapeutic Food (RUTF) are a mixture of nutrients designed and primarily addressed to the therapy of the severe acute malnutrition. The main ingredients of the formulation are powdered milk, peanuts butter, vegetal oil, sugar, and a mix of vitamins, salts, and minerals. The potential of this food are the low percentage of free water and the high energy and nutritional density. The high cost of the powdered milk, and the food safety problems connected to the onset of toxigenic moulds on the peanuts butter, slowed down considerably the widespread and homogenous diffusion of this product. This paper presents the state of the art of RUTF, reviews the different proposed recipes, suggests some possible new formulations as an alternative of novel recipes for this promising food. © 2012 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Foodstuff; Functional food; Nutraceuticals; Nutrients; Ready-to-Use; RUTF; Severe acute malnutrition; Therapeutic food

DOCUMENT TYPE: Conference Paper

SOURCE: Scopus

Ryckembusch, D., Frega, R., Silva, M.G., Gentilini, U., Sanogo, I., Grede, N., Brown, L.

Enhancing nutrition: A new tool for ex-ante comparison of commodity-based vouchers and food transfers

(2013) World Development, 49, pp. 58-67. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879606221&partnerID=40&md5=8567a51a13e5a0446761cd8fc96f53e5

AFFILIATIONS: WFP, Rome, Italy;

Harvard Business School, Boston, United States;

Accenture, Rio de Janeiro, Brazil;

World Bank, Washington DC, United States

ABSTRACT: This article presents a new analytical tool for ex-ante comparison of the cost-effectiveness of two transfer modalities in pursuing specific nutritional objectives. It does so by introducing a metric to score the nutrient value of a food basket-the Nutrient Value Score (NVS)-and explains how this metric can be combined with full supply chain analysis and costing to generate a new tool, the Omega Value. The use of the Omega Value allows policy-makers who design a program with nutrition objectives to compare direct food transfers and commodity-based food vouchers in terms of both cost efficiency and cost effectiveness. © 2013 Elsevier Ltd.

AUTHOR KEYWORDS: Cost effectiveness; Food; Nutrient access; Response analysis; Transfers; Vouchers

DOCUMENT TYPE: Article

SOURCE: Scopus

Klöckner, H., Langen, N., Hartmann, M.

COO labeling as a tool for pepper differentiation in Germany: Insights into the taste perception of organic food shoppers

(2013) British Food Journal, 115 (8), pp. 1149-1168.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84881569696&partnerID=40&md5=2f7185596d7f7fb11a76a086dc2086fc

AFFILIATIONS: Institute for Food and Resource Economics, University of Bonn, Bonn, Germany

ABSTRACT: Purpose: Country of Origin (COO) labeling has been shown in several studies to be an important extrinsic cue for consumers in their quality evaluation of food products such as olive oil, wine or tea. COO has not been discussed in the context of pepper; however pepper's quality highly depends on the heritage. This paper aims to explore this aspect. Design/methodology/approach: The study was conducted in an organic grocery store in Bonn, Germany. The first part of the face to face interviews at the point-of-sale were carried out for understanding consumers' attitudes towards different extrinsic quality cues. The second part covered the product-country-image of pepper as well as consumers' knowledge regarding COO and pepper quality. Third, the contingent valuation method is used to analyze organic consumers' willingness to pay (WTP). Fourth a blind-tasting of black pepper from different origins and production methods was conducted. Findings: The study reveals that organic consumers are able to experience taste differences due to COO though only a minority expects those taste differences. Thus, also concerned and involved consumers are not sufficiently informed on COO information to rely on their purchase decision of pepper. As a result consumers are not willing to pay a significant higher price for COO labeled pepper. Originality/value: This study is the first which combines face-to-face interviews regarding attitudes, image and knowledge with a blind tasting of pepper and an investigation of consumers' WTP for pepper from different origins and processing characteristics. © Emerald Group Publishing Limited.

AUTHOR KEYWORDS: Consumer behaviour; Country of origin; Food products; Germany; Organic consumer; Organic foods; Pepper; Taste perception; Willingness to pay

DOCUMENT TYPE: Article

SOURCE: Scopus

Werkheiser, I., Noll, S.

From Food Justice to a Tool of the Status Quo: Three Sub-movements Within Local Food

(2013) Journal of Agricultural and Environmental Ethics, pp. 1-10. Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84881363639&partnerID=40&md5=be5d055689df7efc9a1eb0091480baf7

AFFILIATIONS: Department of Philosophy, Michigan State University, East Lansing, United States

ABSTRACT: The local food movement has been touted by some as a profoundly effective way to make our food system become more healthy, just, and sustainable. Others have criticized the movement as being less a challenge to the status quo and more an easily co-opted support offering just another set of choices for affluent consumers. In this paper, we analyze three distinct sub-movements within the local food movement, the individual-focused sub-movement, the systems-focused sub-movement, and the community-focused sub-movement. These movements can be combined within any particular campaign or within the goals of any particular organization or individual activist, but they are nevertheless quite different from each other, and come out of different conceptualizations of what food, people, and locality are. We argue that most of the critiques leveled against local food are actually directed against the individual-focused sub-movement, which is most compatible with the current industrial food system, and perhaps not surprisingly receives the most mainstream attention. Further, we argue that while each movement has its own strengths and weaknesses, it is the community-focused sub-movement that has the most potential to radically transform the global food system. © 2013 Springer Science+Business Media Dordrecht.

AUTHOR KEYWORDS: Ethical consumption; Food justice; Food security; Food sovereignty; Local food

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Stella, P., Cerf, O., Hugas, M., Koutsoumanis, K.P., Nguyen-The, C., Sofos, J.N., Valero, A., Zwietering, M.H.

Ranking the microbiological safety of foods: A new tool and its application to composite products

(2013) Trends in Food Science and Technology, . Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84881305143&partnerID=40&md5=4b652366f942f6ef6bc037c7cc865ac3

AFFILIATIONS: European Food Safety Authority (EFSA), Via Carlo Magno 1/A, 43126 Parma, Italy;

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Colorado State University, Department of Animal Sciences, Fort Collins, CO 80523-1171, USA;

University of Cordoba, International Campus of Excellence in the AgriFood Sector (ceiA3), Campus de Rabanales s/n Edif. Darwin-C1, 14014 Córdoba, Spain;

Wageningen University, Laboratory of Food Microbiology, PO Box 17, 6700 AA Wageningen, The Netherlands

ABSTRACT: A methodology based on the combination of two complementary approaches to rank microbiological risks in foods is presented. In the forward approach data on the pathogenicity of hazards and their behaviour in food during processing and following steps, up to consumption, are used in decision trees to qualitatively estimate the risk associated with foods. In the backward approach risks are evaluated based on the analysis of data available on the past occurrence of hazards and foodborne outbreaks. The categorisation of foods using the forward approach should prevail, and whenever it leads to a likely risk for a given food, the risk can be further qualified with the results from the backward approach. The methodology developed was applied to rank the public health risk posed by certain composite products, which contain both processed products of animal origin and products of plant origin (e.g., bread, cakes, chocolate). Despite limitations in the data available for these foods, valuable results were obtained. The method is therefore considered suitable for application with success to other types of food, and is proposed as a tool for risk managers to rank foods based on their potential food safety risks. © 2013 Elsevier Ltd. All rights reserved.

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Ghidouche, S., Rey, B., Michel, M., Galaffu, N.

A Rapid tool for the stability assessment of natural food colours

(2013) Food Chemistry, 139 (1-4), pp. 978-985.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876067250&partnerID=40&md5=26a9c57d6a43bf05f76457e1d4e70407

AFFILIATIONS: Nestlé Research Centre, Vers-chez-les-Blanc, P.O. Box 44, CH-1000 Lausanne 26, Switzerland

ABSTRACT: Natural food colours lack stability under a number of conditions such as pH variation, oxidation, hydration, heat treatment and, most importantly, exposure to daylight. Stability tests to assess shelf life of natural colours under light irradiation can be time consuming. Thus, an accelerated test carried out under high light intensity irradiation that can be related to normal daylight irradiation conditions is highly desirable. Samples of various natural colouring solutions were prepared in aqueous model matrices at a range of pH values to mimic the majority of food matrices, pasteurised and irradiated under normal D65 light (0.2 W/m2) at 25 °C, and in parallel under high light intensity irradiation (30 W/m2) at 3 different temperatures (25, 35 and 45 °C). Similarly to the already known Q10 parameters for temperature, acceleration factors QL for irradiation, were determined and used for the first time to obtain a link between colour degradation under normal and accelerated conditions. It was possible, using these acceleration factors, to greatly reduce the time required to predict and compare the shelf life stability for a series of natural colours in aqueous model systems. © 2013 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Accelerated tests; Anthocyanins; Carmine; Chlophyllins; Colour stablity; Daylight irradiation; Genipin; Natural colours; Shelf life prediction

DOCUMENT TYPE: Article

SOURCE: Scopus

Momosaki, R., Abo, M., Kakuda, W., Kobayashi, K.

Applicability of the two-step thickened water test in patients with poststroke dysphagia: A novel assessment tool for paste food aspiration

(2013) Journal of Stroke and Cerebrovascular Diseases, 22 (6), pp. 817-821.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84881168461&partnerID=40&md5=340ae855e07bbe61e7b3991b6585135f

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ABSTRACT: This study evaluated the clinical usefulness of the newly developed Two-Step Thickened Water Test (TTWT) in identifying patients with poststroke dysphagia at risk of aspiration of paste food. The study subjects were 110 poststroke patients (mean age, 73 ± 10 years). The TTWT comprises a bedside pretest (tongue protrusion, vocalization, voluntary cough, and dry swallow) and a direct swallowing test using 4 mL of thickened water. Fiberoptic endoscopic evaluation of swallowing determined the subject's ability to swallow the paste food. Based on the test results and endoscopic evaluation, we calculated the TTWT's sensitivity and specificity in identifying paste food aspiration. We also calculated these values when normal water was used instead of thickened water in a direct swallowing test. The prevalence of dysphagia for paste food was 41% in our study group. The sensitivity and specificity of the TTWT in identifying dysphagia for paste food was 93% and 88%, respectively. The specificity decreased to 78.5% when normal water was used, with no decrease in sensitivity. The test was completed in less than 10 minutes, with no adverse events in any subject. Our data suggest that the TTWT might be a useful assessment tool for evaluating the risk of paste food aspiration in patients with poststroke dysphagia.© 2013 by National Stroke Association.

AUTHOR KEYWORDS: cerebrovascular diseases; oral intake; Swallowing disorder

DOCUMENT TYPE: Article

SOURCE: Scopus

Rönnqvist, M., Rättö, M., Tuominen, P., Salo, S., Maunula, L.

Swabs as a tool for monitoring the presence of norovirus on environmental surfaces in the food industry

(2013) Journal of Food Protection, 76 (8), pp. 1421-1428.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84882280638&partnerID=40&md5=0f9452e33d1aa2cc1e5a6fb10f237ca7

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ABSTRACT: Human norovirus (HuNoV), which causes gastroenteritis, can be transmitted to food and food contact surfaces via viruscontaminated hands. To investigate this transmission in food processing environments, we developed a swabbing protocol for environmental samples, evaluated the stability of HuNoV in the swabs, and applied the method in the food industry. Swabs made of polyester, flocked nylon, cotton wool, and microfiber were moistened in either phosphate-buffered saline (PBS) or glycine buffer (pH 9.5) and used to swab four surfaces (latex, plastic, stainless steel, and cucumber) inoculated with HuNoV. HuNoV was eluted with either PBS or glycine buffer and detected with quantitative reverse transcription PCR. HuNoV recoveries were generally higher with an inoculation dose of 100 PCR units than 1,000 PCR units. The highest recoveries were obtained when surfaces were swabbed with microfiber cloth moistened in and eluted with glycine buffer after a HuNoV inoculation dose of 100 PCR units: 66%±18% on latex, 89%±2% on plastic, and 79%±10% on stainless steel. The highest recovery for cucumber, 45% ± 5%, was obtained when swabbing the surface with microfiber cloth and PBS. The stability of HuNoV was tested in microfiber cloths moistened in PBS or glycine buffer. HuNoV RNA was detected from swabs after 3 days at 4 and 22°C, although the RNA levels decreased more rapidly in swabs moistened with glycine buffer than in those moistened with PBS at 22°C. In the field study, 172 microfiber and 45 cotton wool swab samples were taken from environmental surfaces at three food processing companies. Five (5.6%) of 90 swabs collected in 2010 and 7 (8.5%) of 82 swabs collected in 2012 were positive for HuNoV genogroup II; all positive samples were collected with microfiber swabs. Three positive results were obtained from the production line and nine were obtained from the food workers' break room and restroom areas. Swabbing is a powerful tool for HuNoV RNA detection from environmental surfaces and enables investigation of virus transmission during food processing. Copyright © International Association for Food Protection.

DOCUMENT TYPE: Article

SOURCE: Scopus

Steenbeek, J., Coll, M., Gurney, L., Mélin, F., Hoepffner, N., Buszowski, J., Christensen, V.

Bridging the gap between ecosystem modeling tools and geographic information systems: Driving a food web model with external spatial-temporal data

(2013) Ecological Modelling, 263, pp. 139-151.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879352707&partnerID=40&md5=8edb6a5c27b32bb72f12a488ea916717

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European Commission - Joint Research Centre, Institute for Environment and Sustainability, Water Resources Unit, Via E. Fermi, 2749, TP 272, I-21027 Ispra, VA, Italy

ABSTRACT: Research toward the impacts of climate change and human activities on marine ecosystems is challenged by the limitations of present-day ecosystem models to address the interrelated spatial dynamics between climate, ocean chemistry, marine food webs, and human systems. The work presented here, the spatial-temporal data framework, is part of a larger study, the NF-UBC Nereus Program, to develop a new approach to model interoperability for closing the gap between marine ecosystem modeling tools via geographic information systems (GIS) technology. The approach we present simplifies interdisciplinary model interoperability by separating technical and scientific challenges into a flexible and modular software approach. To illustrate capabilities of the new framework, we use a remote-sensing derived spatial and temporal time series to drive the primary production dynamics in an existing food web model of the North-Central Adriatic using the Ecospace module of the Ecopath with Ecosim approach. In general, the predictive capabilities of the food web model to hind-cast ecosystem dynamics are enhanced when applying the new framework by better reflecting observed species population trends and distributions. Results show that changes at the phytoplankton level due to changes in primary production are realistically reproduced and cascade up the pelagic food web. The dynamics of zooplankton and small and large pelagic fish are impacted. Highly exploited demersal species such as European hake do, however, not show clear signs of cascading. This may be due to the high fishing pressure on this species and the resulting strong historical decline in the area. In general, the development of the new framework offers ecosystem modelers with unprecedented capabilities to include spatial-temporal time series into food web analysis with a minimal set of required steps. It is a promising step toward integrating species distribution models and food web dynamics, and future implementations of interdisciplinary model interoperability. © 2013 Elsevier B.V.

AUTHOR KEYWORDS: Adriatic Sea; Ecospace; EwE approach; Food web model; GIS; Mediterranean Sea

DOCUMENT TYPE: Article

SOURCE: Scopus

Kunieda, K., Ohno, T., Fujishima, I., Hojo, K., Morita, T.

Reliability and validity of a tool to measure the severity of dysphagia: The food intake LEVEL scale

(2013) Journal of Pain and Symptom Management, 46 (2), pp. 201-206.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84882456632&partnerID=40&md5=05c33310a4304cace75304930a0467bb

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ABSTRACT: Context: Dysphagia is one of the most prevalent and distressing symptoms among palliative care patients, and a practical assessment tool is required. Objectives: The aim of this study was to examine the reliability and validity of a tool to measure the severity of dysphagia: the Food Intake LEVEL Scale (FILS), a 10-point observer-rating scale. Methods: The inter- and intrarater reliability was evaluated by three clinicians in 30 patients using weighted kappa statistics. The convergent validity was evaluated by examining correlations of FILS with the Functional Oral Intake Scale (FOIS) and patient-reported satisfaction levels with oral intake. Results: Weighted kappa coefficients for interrater reliability ranged from 0.70 to 0.90 and those for intrarater reliability ranged from 0.83 to 0.90. The FILS score was highly associated with the FOIS (ρ = 0.96-0.99) and patient-reported satisfaction (ρ = 0.89). Conclusion: The FILS seems to have fair reliability and validity as a practical tool for assessing the severity of dysphagia. Further study on the reliability, validity, and sensitivity of the FILS compared with the FOIS is needed. © 2013 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.

AUTHOR KEYWORDS: Dysphagia; food intake; measurement tool; validation

DOCUMENT TYPE: Article

SOURCE: Scopus

Salvá, M., Jones, S., Marshall, R.J., Bishop, C.F.H.

An audit tool for environmental measurement in the UK food sector

(2013) International Journal of Food Science and Technology, 48 (7), pp. 1509-1518.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879605645&partnerID=40&md5=68fd8c84c876d73e15953ba5b08fd577

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ABSTRACT: An audit toolkit was developed to enable food companies to measure their suppliers in terms of environmental management. Environmental practices and performance metrics were audited using a customised survey that enabled the quantification of best practice, common practice and areas for improvement. It was tested on six suppliers to a major fresh food company. Key areas of best practice included separation and recycling of waste streams, efforts to reduce use of raw materials, energy, water, pesticides, herbicides and fertilisers. Some suppliers were working with stakeholders to reduce environmental impacts. The supplier with the best environmental performance had developed and implemented an Environmental Management Policy and was working towards ISO 14001 accreditation. The study identified four areas for improvement by the suppliers. These were the implementation of an Environmental Management System, the sourcing of more renewable materials and energy, the systematic measurement of the food miles of products and carbon and water footprinting. © 2013 The Authors. International Journal of Food Science and Technology © 2013 Institute of Food Science and Technology.

AUTHOR KEYWORDS: Environmental management systems; Environmental measurement; Food sector; Stakeholder engagement; Supply value chain; Sustainability performance metrics

DOCUMENT TYPE: Article

SOURCE: Scopus

Selsøe Sørensen, H., Holm, L., Møgelvang-Hansen, P., Barratt, D., Qvistgaard, F, Smith, V.

Consumer understanding of food labels: toward a generic tool for identifying the average consumer: Report from a Danish exploration

(2013) International Review of Retail, Distribution and Consumer Research, 23 (3), pp. 291-304.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84880038840&partnerID=40&md5=f3d4dd7bdac04ca122d9312956409652

AFFILIATIONS: FairSpeak, Copenhagen Business School (CBS), Frederiksberg, Denmark;

KU Life, Copenhagen University, Copenhagen, Denmark

ABSTRACT: The 'average consumer' is referred to as a standard in regulatory contexts when attempts are made to benchmark how consumers are expected to reason while decoding food labels. An attempt is made to operationalize this hypothetical 'average consumer' by proposing a tool for measuring the level of informedness of an individual consumer against the national median at any time. Informedness, i.e. the individual consumer's ability to interpret correctly the meaning of the words and signs on a food label is isolated as one essential dimension for dividing consumers into three groups: less-informed, informed, and highly informed consumers. Consumer informedness is assessed using a 60-question test related to information found on a variety of Danish everyday food products and divided into factual questions and informedness about signpost labels. A test was made with 407 respondents who participated in four independent studies on fairness in consumer communication, and the average score for all was 57.6% of correct answers. A score of 64% and beyond would place a consumer in the upper quartile (the group of highly informed consumers), whereas a score of 52% or below would place the individual in the lower quartile (the group of less-informed consumers). Female respondents performed better than males on label recognition, and those around 40 years of age irrespective of gender performed best on factual knowledge, whereas those aged around 30 performed best on label recognition. It is foreseen that independent future studies of consumer behavior and decision making in relation to food products in different contexts could benefit from this type of benchmarking tool. © 2013 Copyright Taylor and Francis Group, LLC.

AUTHOR KEYWORDS: average consumer; consumer benchmarking; consumer understanding of food labels; fair food label communication; less-informed consumers

DOCUMENT TYPE: Article

SOURCE: Scopus

Saavedra, J., Córdova, A., Gálvez, L., Quezada, C., Navarro, R.

Principal Component Analysis as an exploration tool for kinetic modeling of food quality: A case study of a dried apple cluster snack

(2013) Journal of Food Engineering, 119 (2), pp. 229-235.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879284762&partnerID=40&md5=084db68062db47434997e0e08393f563

AFFILIATIONS: DATACHEM AgroFood: Applied Chemometrics Research Group, Department of Food Engineering, Pontificia Universidad Católica de Valparaíso, Waddington 716 Playa Ancha, Valparaíso 2360100, Chile;

Department of Food Engineering, Pontificia Universidad Católica de Valparaíso, Waddington 716 Playa Ancha, Valparaíso 2360100, Chile

ABSTRACT: A Multivariate Accelerated shelf-life Testing (MALST) study of a dried apple cereal-like snack (commercially known as cluster) stored at 18 C, 25 C or 35 C for 17.5 months was conducted. The measured attributes were water activity (Aw), color DE, moisture and sensory properties (aroma, taste, texture and color). The data were deployed to adjust the multivariate kinetics (including the interactions of the attributes) using Principal Component Analysis (PCA), and the results were compared to those obtained using a univariate kinetic model. The predicted shelf-life for the reference storage condition obtained using the multivariate model was 18.3 months, whereas a predicted shelf-life of 15.6 months was obtained using the univariate model. Thus, although the results of both methods are similar, the multivariate kinetic model revealed all of the product shelf-life attributes and their interactions. Finally, the multivariate model reflected the variability of the biochemical phenomena underlying product degradation. © 2013 Elsevier Inc. All rights reserved.

AUTHOR KEYWORDS: Accelerated; Chemometrics; Multivariate kinetics; PCA; Shelf-life; Storage

DOCUMENT TYPE: Article

SOURCE: Scopus

Midey, A.J., Krueger, C.A., Osgood, M.A., Wu, J., Wu, C.

High-performance ion mobility spectrometry: A tool for rapid food safety screening

(2013) American Laboratory, 45 (6), pp. 10-15.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879391106&partnerID=40&md5=e2646025bba32a1b1243c4ce2af0d02b

AFFILIATIONS: Excelllms Corp., 20 Main St., Acton, MA 01720, United States

ABSTRACT: Electrospray-ionization High performance ion mobility spectrometry (ESI-HPIMS) is a sensitive and selective method for analyzing compounds relevant to current food safety priorities. HPIMS has two key components, a source for introducing and ionizing samples and the HPIMS analyzer for separating them. The instrument operates at atmospheric pressure, eliminating vacuum pumps needed for low pressures, and uses air as the mobility drift medium. The ions from the ESI source have desolvation region prior to injection into the drift region using a Bradbury-Nielsen gate. After the mobility based separation in the drift region, the ions are detected at a Faraday plate detector. HPIMS supports advances in ion mobility instrument construction to provide the speed and simplicity of IMS with figures-of-merit comparable to high-performance and ultra-high-performance liquid chromatography methods used in food screening.

DOCUMENT TYPE: Article

SOURCE: Scopus

Cordebar, V., Anton, M., Bocquel, N., Castelain-Hacquet, C., Hoppé, A., Karila, C., Le Pabic, F., Magar, Y., Ridray, C., Mollé Le Vaillant, I., Rolland, C., Sabouraud, D.

Therapeutic education in food allergy: Criteria and evaluation tools [Éducation thérapeutique en allergie alimentaire: Critères et outils d'évaluation]

(2013) Revue Francaise d'Allergologie, 53 (4), pp. 424-428.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879174260&partnerID=40&md5=114f8af02cb60c5bd0171831dd0753e0

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ABSTRACT: The prevalence of severe food allergies in children has increased in recent years. The importance of therapeutic education (TE) in the management of food allergies is already proven and several TE programs in this field, validated by Regional Health Agencies, exist in France today. Based on recommendations of the HAS concerning TE, the French think tank concerned with food allergy (GRETAA) is helping to organize the educational process in food allergy in order to harmonize these procedures. After writing a manual of skills providing various educational curricula for patients and their families, GRETAA questioned how to assess TE in food allergy. It proposed criteria on which to base an evaluation and it validated specific tools to assess each of these criteria with the aim of providing a common approach to all teams involved in TE in food allergy. © 2013 Elsevier Masson SAS.

AUTHOR KEYWORDS: Criteria; Evaluation; Food allergy; Management; Therapeutic education

DOCUMENT TYPE: Short Survey

SOURCE: Scopus

Magrone, T., de Heredia, F.P., Jirillo, E., Morabito, G., Marcos, A., Serafini, M.

Functional foods and nutraceuticals as therapeutic tools for the treatment of diet-related diseases

(2013) Canadian Journal of Physiology and Pharmacology, 91 (6), pp. 387-396.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878845892&partnerID=40&md5=aadf459b7b13d70b025fa20c47ecc92a

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ABSTRACT: In Western societies, the incidence of diet-related diseases is progressively increasing due to greater availability of hypercaloric food and a sedentary lifestyle. Obesity, diabetes, atherosclerosis, and neurodegeneration are major diet-related pathologies that share a common pathogenic denominator of low-grade inflammation. Functional foods and nutraceuticals may represent a novel therapeutic approach to prevent or attenuate diet-related disease in view of their ability to exert antiinflammatory responses. In particular, activation of intestinal T regulatory cells and homeostatic regulation of the gut microbiota have the potential to reduce low-grade inflammation in diet-related diseases. In this review, clinical applications of polyphenol-rich functional foods and nutraceuticals in postprandial inflammation, obesity, and ageing will be discussed. We have placed special emphasis on polyphenols since they are broadly distributed in plants.

AUTHOR KEYWORDS: Ageing; Diet; Functional foods; Immunity; Inflammation; Nutraceuticals; Obesity; Post-prandial stress

DOCUMENT TYPE: Review

SOURCE: Scopus

Tavano, O.L.

Protein hydrolysis using proteases: An important tool for food biotechnology

(2013) Journal of Molecular Catalysis B: Enzymatic, 90, pp. 1-11.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873727878&partnerID=40&md5=8c72ba32e5d867eaed3291496f1f8e73

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ABSTRACT: This review intended to give a brief idea of the importance of proteases applications. Processes that involve protein hydrolysis steps find wide ranging utilizations, such as cleaning process, proteomic studies, or food biotechnology process. Many positive effects hoped for with food processing can be achieved by protein hydrolysis using specific proteases, changing nutritional, bioactive and functional properties of food proteins, which include improved digestibility, modifications of sensory quality (such as texture or taste), improvement of antioxidant capability or reduction in allergenic compounds. Protease applications in industrial processes are constantly being introduced and can be advantageous compared to chemical processes, by increasing hydrolysis specificity, product preservation and purity, and reducing environmental impact. Differences in specificity between proteases are very important to take in to consideration as a guide for the choice of protease according to the protein source to be hydrolyzed or predicted products. In this present review, some aspects of the processes that involve protein hydrolysis steps are discussed, especially considering the application of specific proteases as a tool on food biotechnology. © 2012 Elsevier B.V. All rights reserved.

AUTHOR KEYWORDS: Food biotechnology; Hydrolysates; Proteases; Proteases stabilization; Protein hydrolysis

DOCUMENT TYPE: Review

SOURCE: Scopus

Kafel, P., Sikora, T.

Utilisation of quality management methods and tools in food sector organizations [Wykorzystanie metod i narze{ogonek}dzi zarza{ogonek}dzania jakościa{ogonek} w przedsie{ogonek}biorstwach branży spożywczej]

(2013) Zywnosc. Nauka. Technologia. Jakosc/Food. Science Technology. Quality, 20 (1), pp. 204-216.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876909916&partnerID=40&md5=fd6914117f22e2216352de8e37e54177

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ABSTRACT: In the paper the results of the survey were presented regarding the utilisation of selected quality management methods and tools by small and medium enterprises (SME) from the food sector, as well as the correlation between the utilisation thereof and the achieved financial results. The survey sample covered 29 questionnaires correctly filled in by the companies from SE Poland. The organisations surveyed constituted 4 % of the total number of enterprises, which met the survey criteria assumed. It was found that the more employees the organization employed the more frequently this organization used various types of quality management methods and tools. Larger companies more often utilised more complex methods and tools, which required a more profound knowledge and a better commitment of the employees. Furthermore, the effect was assessed of the management systems implementation and certification on the utilisation of quality management methods and tools in the organization. The more various management systems the organization implemented and certified the higher the utilisation activity of the available quality management methods and tools. The organizations that underwent certification procedures as regards their complying with the standards of retail networks used the quality management methods and tools more frequently than the organizations that did not implement those standards. The analysis of the selected quality management tools and methods proved that, considering the financial results achieved by the organisation surveyed, those organisations most clearly varied as regards the utilisation of the 5S and Just in Time methods.

AUTHOR KEYWORDS: 5s; Just in time; Management systems; Quality management methods; Quality management tools; Sme

DOCUMENT TYPE: Article

SOURCE: Scopus

Campos, A., Puerto, M., Prieto, A., Cameán, A., Almeida, A.M., Coelho, A.V., Vasconcelos, V.

Protein extraction and two-dimensional gel electrophoresis of proteins in the marine mussel Mytilus galloprovincialis: An important tool for protein expression studies, food quality and safety assessment

(2013) Journal of the Science of Food and Agriculture, 93 (7), pp. 1779-1787.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876313274&partnerID=40&md5=2d1b2329e664a920a93154956bd16cf9

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ABSTRACT: Background: Shellfish farming is an important economic activity that provides society with a valuable source of food. Analyses of the protein content and metabolism of shellfish are therefore of utmost importance to monitor the presence and effects of environmental contaminants in these organisms and also to assess food quality and authenticity. The aim of the present study was to compare different protein extraction protocols commonly used in two-dimensional gel electrophoresis (2DE) research and select the most suitable for the analysis of gill and digestive gland proteomes from the marine mussel Mytilus galloprovincialis. Results: High-resolution protein separation was achieved by direct solubilisation of proteins from M. galloprovincialis tissues with urea (7 mol L-1), thiourea (2 mol L-1), CHAPS (40 g L-1), DTT (65 mmol L-1) and ampholytes (pH 4-7, 8 mL L-1). Subsequent protein identification from 2DE gels by MALDI-TOF/TOF mass spectrometry revealed a high number of proteins with functions in cytoskeleton structure, dynamics and maintenance. Other proteins identified in the 2DE gels are involved in energy production and carbohydrate metabolism, metal transport, chaperones and stress response, cell signalling and regulation, proteolysis and protein transduction. Conclusion: Important protein markers for contaminant and quality assessment of shellfish food products can be analysed using 2DE. © 2012 Society of Chemical Industry.

AUTHOR KEYWORDS: Food safety; Mytilus galloprovincialis; Proteomics

DOCUMENT TYPE: Article

SOURCE: Scopus

Pinheiro, A.C.M., Nunes, C.A., Vietoris, V.

Sensomaker: A tool for sensorial characterization of food products [Sensomaker: Uma ferramenta para caracterização sensorial de produtos alimentícios]

(2013) Ciencia e Agrotecnologia, 37 (3), pp. 199-201.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879306581&partnerID=40&md5=c3fdbeae090675d54c5418f5285e3d47

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Universidade Federal de Lavras/UFLA, Lavras, Brazil;

Slovak University of Agriculture, Nitra, Slovakia

ABSTRACT: SensoMaker is a free software for data analysis from sensory studies, which has modules with user-friendly interface. Data acquisition can be performed using different methods, such as category scale, linear scale, temporal dominance of sensations (TDS), and time-intensity (TI). Results can be analyzed by a variety of methods, such as conventional internal and external preference mapping, three-way internal and external preference mapping, principal component analysis, hierarchical cluster analysis, TDS and TI curves, in addition to Tukey and Dunnett tests. High quality graphics are easily obtained and exported to several formats. The software is useful during the development or improvement of products, when it is important to carefully note consumer preferences and to relate it to descriptive characteristics in order to ensure good product acceptance.

AUTHOR KEYWORDS: Consumer; Sensory analysis; Software

DOCUMENT TYPE: Review

SOURCE: Scopus

Nakatsuka, H., Shimbo, S., Watanabe, T., Yaginuma-Sakurai, K., Ikeda, M.

Applicability of food composition tables as a tool to estimate mineral and trace element intake of pre-school children in Japan: A validation study

(2013) Journal of Trace Elements in Medicine and Biology, . Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84875926167&partnerID=40&md5=27b11f7359735e604df32dc86bcff628

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ABSTRACT: Because dietary intakes of some minerals (including trace elements), especially iron (Fe), are insufficient for the needs of the general Japanese population, accurate estimation of mineral intake is important. This capability is especially necessary to preserve the health of Japanese children. Therefore, the current version of food composition tables (FCT) in Japan was evaluated for validity as tools to estimate dietary intake of minerals for children. For this purpose, 24 h food duplicate samples were collected from 292 pre-school children in Miyagi prefecture, Japan. From the weights of items and food codes, intakes of nine minerals were estimated taking advantage of the FCT. In parallel, amounts of minerals in each duplicate samples were instrumentally measured by ICP-AES for Ca, Cu, Fe, Mg, Mn, P and Zn, and by flame AAS for K and Na, both after wet-ashing. The distributions of the mineral amounts were essentially normal. The comparison of the FCT-based estimates (E) and instrumental measures (M) showed that the E/M ratio was close to 1 for Ca, K, Mn, P and Zn, suggesting that E may be a surrogate of M for Ca, K, Mn, P and Zn on a group basis. The ratio being larger than 1.2 for Cu, Fe, Mg and Na indicates that a risk of over-estimation exists when E is relied upon in place of M. On an individual basis, significant differences were detected for all 9 minerals suggesting that the use of E as a surrogate for M should be practiced with care for the estimation of mineral intake. © 2013 Elsevier GmbH. All rights reserved.

AUTHOR KEYWORDS: Estimates; Food composition tables; Japan; Measures; Minerals; Pre-school children

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Torres, C., Valero, A., Valero, A.

Exergoecology as a tool for ecological modelling. The case of the US food production chain

(2013) Ecological Modelling, 255, pp. 21-28.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874521578&partnerID=40&md5=7e0637c151526663b243bffbb5c1f2a4

AFFILIATIONS: CIRCE - Research Centre for Energy Resources and Consumption, Universidad de Zaragoza, Mariano Esquillor 15, 50018 Zaragoza, Spain

ABSTRACT: Exergoecology and in particular, thermoeconomic analysis is used to understand the process of cost formation and to improve the design and the operation of extensive energy consumption systems such as power and chemical plants. This paper shows the capabilities for using the thermoeconomic analysis in environmental systems, and demonstrates that it could become a useful tool for identifying the ways for improving the energy resources cost and the efficiency of a macroeconomic system such as the US food production chain. The environmental impact associated with each process in the food production chain can be quantified through a thermoeconomic approach as a cost function, which represents the required natural resources to obtain a final product. In the example provided, several simulations such as the impact of the change of meat diet basis for a vegetarian diet, and reusing the residual biomass are analyzed. © 2013 Elsevier B.V.

AUTHOR KEYWORDS: Ecological modelling; Exergoecology; Food production chain; Second Law; Thermoeconomics

DOCUMENT TYPE: Article

SOURCE: Scopus

Manso, S., Cacho-Nerin, F., Becerril, R., Nerín, C.

Combined analytical and microbiological tools to study the effect on Aspergillus flavus of cinnamon essential oil contained in food packaging

(2012) Food Control, 30 (2), pp. 370-378. Article in Press. Cited 3 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867619290&partnerID=40&md5=47b10c91c4ed094fc6038b5891824e7b

AFFILIATIONS: Departamento de Química Analítica, Instituto de Investigación en Ingeniería de Aragón (I3A), Universidad de Zaragoza, María de Luna 3, E-50018 Zaragoza, Spain;

Institute of Biophysics and Nanosystems Research, Austrian Academy of Sciences, Schmiedlstrasse 6, 8042 Graz, Austria

ABSTRACT: Cinnamon essential oil has been used for centuries to protect food from microbiological infection, and in the last ten years cinnamon essential oil is also incorporated into food packaging materials as antimicrobial agent. However, very little is known about the real effect that it has on the microorganism cells. This study combines analytical and microbiological tools to elucidate cell damage produced on Aspergillus flavus. First, antifungal activity of cinnamon essential oil was evaluated at 10 3,10 4, 10 5 and 10 6 CFU/mL. Minimal Inhibitory Concentration (MIC) and Minimal Fungicidal Concentration (MFC) were determined by macrodilution in direct contact with the mold. A strong activity was obtained, with a MIC of 0.05-0.1 mg/mL, and a MFC of 0.05-0.2 mg/mL, both ranges depending on the initial fungal suspensions.Polyethylene terephthalate films containing cinnamon essential oil were tested in vapor phase, without direct contact with the mold. Active PET started showing activity at 2% CIN EO load and produced total inhibition at 4% CIN EO. SEM and FTIR were used to study the cell damage on the mold exposed to the cinnamon essential oil. Evident damage and a strong decrease in sporulation were found by SEM, while biochemical changes in conidia could be suggested from the FTIR spectra analysis. Two deposition techniques were used to prepare the samples for FTIR. The results obtained are shown and discussed. © 2012 Elsevier Ltd.

AUTHOR KEYWORDS: Active packaging; Antifungal activity; Aspergillus flavus; Cinnamon essential oil; FTIR; SEM

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Ferreira, C.S., Cherchiglia, M.L., César, C.C.

The Food and Nutrition Surveillance System as a tool for monitoring the National Strategy for Healthy Complementary Nutrition [O Sistema de Vigilância Alimentar e Nutricional como instrumento de monitoramento da Estratégia Nacional para Alimentação Complementar Saudável]

(2013) Revista Brasileira de Saude Materno Infantil, 13 (2), pp. 167-177.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84880713319&partnerID=40&md5=f3327d6fc1c8a16505a50bffbb80daa5

AFFILIATIONS: Universidade Federal de Minas Gerais, Av. Antônio Carlos, 6627, Pampulha. Belo Horizonte, MG. CEP: 31.270-901, Brazil

ABSTRACT: Objectives:to examine the Food and Nutrition Surveillance System (Sisvan) as a tool for monitoring the National Strategy for Healthy Complementary Nutrition (ENPACS) in the 40 municipalities overseen by the Belo Horizonte regional superintendent for health (SRS-BH). Methods: a descriptive study was carried out involving all children aged under two being accompanied by the Sisvan Web between 2008 and 2011. The coverage of the Sisvan Web was calculated by dividing the number of children aged under two years accompanied by the Sisvan Web by the total population for the same age group. A questionnaire relating to the technical references of the Sisvan of the municipalities under investigation was sent to collect information on the functioning of the Sisvan. Results: the coverage of the Sisvan Web, in all municipalities, varied from 4.3% (2008) to 10.7% (2011). The questionnaire was answered by 38 municipalities in the SRS-BH, 31.6% of whom reported using data from the Sisvan Web system as a basis for nutritional interventions. Conclusions: the study identified low coverage, poor utilization of data and the need to improve the Sisvan, in order to generate consistent information on nutrition and food among children aged under two years, thereby making it appropriate for monitoring of the ENPACS.

AUTHOR KEYWORDS: Food consumption; Infant; Information systems; Nutrition assessment; Nutritional surveillance

DOCUMENT TYPE: Article

SOURCE: Scopus

Juzwiak, C.R.

Once upon a time... an insight on the use of fairy tales as a tool for food and nutrition education [Era uma vez...: Um olhar sobre o uso dos contos de fada como ferramenta de educação alimentar e nutricional]

(2013) Interface: Communication, Health, Education, 17 (45), pp. 473-484.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879746094&partnerID=40&md5=f9973a3631bdbd5bea51a508c2891893

AFFILIATIONS: Departamento de Ciências do Movimento Humano, Universidade Federal de São Paulo (Unifesp), Campus Baixada Santista, Av. Silva Jardim, 136, Vila Mathias, Santos, SP 11.015-020, Brazil

ABSTRACT: The text presents a reflection on the importance of incorporating food and nutrition themes transversally in the school curricula, related to the child's quotidian and guaranteeing the school-family integration. The importance of selecting age-appropriate strategies is emphasized and traditional fairy tales are suggested as a tool for the development of contents and activities that go beyond nutritional issues and include cultural, environmental and sensorial aspects as well.

AUTHOR KEYWORDS: Food and nutrition education; Juvenile literature; Nutrition; Reading

DOCUMENT TYPE: Article

SOURCE: Scopus

Norton, T.

CFD in the Agri-Food Industry: A maturing engineering design tool

(2013) Computers and Electronics in Agriculture, 93, pp. 149-150.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84875842750&partnerID=40&md5=358a254350ff71a2821183ba4962cdba

AFFILIATIONS: Engineering Department, Harper Adams University, Newport, Shropshire TF108NB, United Kingdom

DOCUMENT TYPE: Editorial

SOURCE: Scopus

Bernal-Orozco, M.F., Vizmanos-Lamotte, B., Rodríguez-Rocha, N.P., Macedo-Ojeda, G., Orozco-Valerio, M., Rovillé-Sausse, F., León-Estrada, S., Márquez-Sandoval, F., Fernández-Ballart, J.D.

Validation of a Mexican food photograph album as a tool to visually estimate food amounts in adolescents

(2013) British Journal of Nutrition, 109 (5), pp. 944-952.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874745764&partnerID=40&md5=ff231c66702c5dc10c843a9a9547327d

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Medicina Preventiva i Salut Pública and IISPV, Universitat Rovira i Virgili, Sant Llorenç 21, CP 43201, Reus, Tarragona, Spain;

CIBER Fisiopatología de la Obesidad y Nutrición (CB06/03), Instituto de Salud Carlos III, Madrid, Spain

ABSTRACT: The aim of the present study was to validate a food photograph album (FPA) as a tool to visually estimate food amounts, and to compare this estimation with that attained through the use of measuring cups (MC) and food models (FM). We tested 163 foods over fifteen sessions (thirty subjects/session; 10-12 foods presented in two portion sizes, 20-24 plates/session). In each session, subjects estimated food amounts with the assistance of FPA, MC and FM. We compared (by portion and method) the mean estimated weight and the mean real weight. We also compared the percentage error estimation for each portion, and the mean food percentage error estimation between methods. In addition, we determined the percentage error estimation of each method. We included 463 adolescents from three public high schools (mean age 17·1 (sd 1·2) years, 61·8 % females). All foods were assessed using FPA, 53·4 % of foods were assessed using MC, and FM was used for 18·4 % of foods. The mean estimated weight with all methods was statistically different compared with the mean real weight for almost all foods. However, a lower percentage error estimation was observed using FPA (2·3 v. 56·9 % for MC and 325 % for FM, P< 0.001). Also, when analysing error rate ranges between methods, there were more observations (P< 0.001) with estimation errors higher than 40 % with the MC (56·1 %), than with the FPA (27·5 %) and FM (44·9 %). In conclusion, although differences between estimated and real weight were statistically significant for almost all foods, comparisons between methods showed FPA to be the most accurate tool for estimating food amounts. Copyright © The Authors 2012.

AUTHOR KEYWORDS: Dietetic assessment; Food photographs; Visual perception

DOCUMENT TYPE: Article

SOURCE: Scopus

Vasilopoulou, E., Dilis, V., Trichopoulou, A.

Nutrition claims: a potentially important tool for the endorsement of Greek Mediterranean traditional foods

(2013) Mediterranean Journal of Nutrition and Metabolism, pp. 1-7. Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874590881&partnerID=40&md5=9c3275dd095b9403922a75e9e7752b9c

AFFILIATIONS: WHO Collaborating Center for Food and Nutrition Policies, Department of Hygiene, Epidemiology and Me, University of Athens Medical School, 75 Mikras Asias Street, Athens, 11527, Greece;

Hellenic Health Foundation, Kaisareias 13 and Alexandroupoleos, Athens, 11527, Greece

ABSTRACT: Dietary traditions are an important part of cultural identity and the production of traditional foods may provide a considerable income to interested businesses, especially small and medium-sized enterprises. Traditional foods, notably those from the Mediterranean area, earned a reputation for their nutritional quality, and should, therefore, be protected and supported. European law has recently provided a framework to promote the beneficial nutritional and health properties of foods, by allowing the communication of scientifically supported claims, after a standard evaluation procedure. European Commission Regulation 1924 of 2006 is intended to minimize consumer misleading and promote healthy dietary choices. In this context, we have investigated the potential of 194 traditional Greek foods to bear nutrition claims, by comparing their energy content and nutritional composition to the European specifications on a wide range of nutritional components, including protein, total fat and fatty acids, sugars, salt, dietary fiber, and certain vitamins and minerals. The average number of claims per traditional food was 5, with a range between 0 and 14. Overall, about 1,024 nutrition claims were potentially relevant for the 194 traditional foods studied. From those, about half were made on vitamins and minerals. Foods linked with the most claims were nuts and seeds. European Regulation on nutrition and health claims made on foods may provide an important tool for the sustainment of Mediterranean traditional foods, since those foods frequently have distinct nutritional qualities. © 2013 Springer-Verlag Italia.

AUTHOR KEYWORDS: Dietary recommendations; Food labeling; Mediterranean diet; Nutrition claims; Traditional foods

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Corradini, C., Lantano, C., Cavazza, A.

Innovative analytical tools to characterize prebiotic carbohydrates of functional food interest

(2013) Analytical and Bioanalytical Chemistry, pp. 1-15. Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873716195&partnerID=40&md5=67f72544eebc30fe514be1198ae5282c

AFFILIATIONS: Department of Chemistry, University of Parma, Parco Area delle Scienze 17/A, Parma, 43124, Italy

ABSTRACT: Functional foods are one of the most interesting areas of research and innovation in the food industry. A functional food or functional ingredient is considered to be any food or food component that provides health benefits beyond basic nutrition. Recently, consumers have shown interest in natural bioactive compounds as functional ingredients in the diet owing to their various beneficial effects for health. Water-soluble fibers and nondigestible oligosaccharides and polysaccharides can be defined as functional food ingredients. Fructooligosaccharides (FOS) and inulin are resistant to direct metabolism by the host and reach the caecocolon, where they are used by selected groups of beneficial bacteria. Furthermore, they are able to improve physical and structural properties of food, such as hydration, oil-holding capacity, viscosity, texture, sensory characteristics, and shelf-life. This article reviews major innovative analytical developments to screen and identify FOS, inulins, and the most employed nonstarch carbohydrates added or naturally present in functional food formulations. High-performance anion-exchange chromatography with pulsed electrochemical detection (HPAEC-PED) is one of the most employed analytical techniques for the characterization of those molecules. Mass spectrometry is also of great help, in particularly matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF-MS), which is able to provide extensive information regarding the molecular weight and length profiles of oligosaccharides and polysaccharides. Moreover, MALDI-TOF-MS in combination with HPAEC-PED has been shown to be of great value for the complementary information it can provide. Some other techniques, such as NMR spectroscopy, are also discussed, with relevant examples of recent applications. A number of articles have appeared in the literature in recent years regarding the analysis of inulin, FOS, and other carbohydrates of interest in the field and they are critically reviewed. [Figure not available: see fulltext.] © 2013 Springer-Verlag Berlin Heidelberg.

AUTHOR KEYWORDS: Fructooligosaccharides; High-performance anion-exchange chromatography with pulsed electrochemical detection; Inulin; Matrix-assisted laser desorption/ionization time of flight-mass spectrometry; Prebiotics

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Soon, J.M., Davies, W.P., Chadd, S.A., Baines, R.N.

Field application of farm-food safety risk assessment (FRAMp) tool for small and medium fresh produce farms

(2013) Food Chemistry, 136 (3-4), pp. 1603-1609. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84870295511&partnerID=40&md5=45709906d8c70bcb2f9f3ffb8e1f628d

AFFILIATIONS: School of Agriculture, Royal Agricultural College, Cirencester, Gloucestershire GL7 6JS, United Kingdom;

Department of Agro Industry, Faculty of Agro Industry and Natural Resources, Universiti Malaysia Kelantan, Kelantan, 16100 Pengkalan Chepa, Malaysia

ABSTRACT: The objective of this study was to develop a farm food safety-risk assessment tool (FRAMp) which serves as a self-assessment and educational tool for fresh produce farms. FRAMp was developed in Microsoft® Excel spreadsheet software using standard mathematical and logical functions and utilised a qualitative risk assessment approach for farmers to evaluate their food safety practices. The FRAMp tool has since been tested on 12 fresh produce farms throughout UK. All the farms determined that FRAMp was interesting but 17% found it too long while 25% of the farms felt the tool was too complicated. The instructions on FRAMp usage were revised and farmers were given the options to skip and select specific steps in the farm risk assessment. The end users (farmers/farm managers) determined that developing their own action plans and using it as proof of assessment for future third-party audits were most useful to them. FRAMp tool can be described as an illustrative risk ranking tool to facilitate farms to identify potential risk factors during their crop production. © 2012 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Food safety; Fresh produce; Qualitative risk assessment

DOCUMENT TYPE: Article

SOURCE: Scopus

Vangay, P., Fugett, E.B., Sun, Q., Wiedmann, M.

Food microbe tracker: A web-based tool for storage and comparison of food-associated microbes

(2013) Journal of Food Protection, 76 (2), pp. 283-294. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874089642&partnerID=40&md5=69539443f45a3d9521ebe740f43b4724

AFFILIATIONS: Department of Food Science, Cornell University, Ithaca, NY 14853, United States;

Computational Biology Services Unit, Cornell University, Ithaca, NY 14853, United States

ABSTRACT: Large amounts of molecular subtyping information are generated by the private sector, academia, and government agencies. However, use of subtype data is limited by a lack of effective data storage and sharing mechanisms that allow comparison of subtype data from multiple sources. Currently available subtype databases are generally limited in scope to a few data types (e.g., MLST.net) or are not publicly available (e.g., PulseNet). We describe the development and initial implementation of Food Microbe Tracker, a public Web-based database that allows archiving and exchange of a variety of molecular subtype data that can be cross-referenced with isolate source data, genetic data, and phenotypic characteristics. Data can be queried with a variety of search criteria, including DNA sequences and banding pattern data (e.g., ribotype or pulsed-field gel electrophoresis type). Food Microbe Tracker allows the deposition of data on any bacterial genus and species, bacteriophages, and other viruses. The bacterial genera and species that currently have the most entries in this database are Listeria monocytogenes, Salmonella, Streptococcus spp., Pseudomonas spp., Bacillus spp., and Paenibacillus spp., with over 40,000 isolates. The combination of pathogen and spoilage microorganism data in the database will facilitate source tracking and outbreak detection, improve discovery of emerging subtypes, and increase our understanding of transmission and ecology of these microbes. Continued addition of subtyping, genetic or phenotypic data for a variety of microbial species will broaden the database and facilitate large-scale studies on the diversity of food-associated microbes. Copyright ©, International Association for Food Protection.

DOCUMENT TYPE: Article

SOURCE: Scopus

Purwanti, N., Peters, J.P.C.M., Van Der Goot, A.J.

Protein micro-structuring as a tool to texturize protein foods

(2013) Food and Function, 4 (2), pp. 277-282.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873354853&partnerID=40&md5=07ce5981bb64f83ce46a724472e70229

AFFILIATIONS: Top Institute Food and Nutrition, NieuweKanaal 9A, 6709 PA Wageningen, Netherlands;

Food Process Engineering Group, Wageningen University, Bomenweg 2, 6703 HD Wageningen, Netherlands;

Biosystem Engineering Division, Dept. of Mechanical and Biosystem Engineering, Bogor Agricultural University, P.O. Box 220, Bogor 16002, Indonesia

ABSTRACT: Structuring protein foods to control the textural properties receives growing attention nowadays. It requires decoupling of the product properties such as water holding capacity and the mechanical properties from the actual protein concentration in the product. From an application point of view, both increasing and lowering the protein content in the food are interesting. Foods enriched with proteins are important due to their reported health benefits, but increasing the protein content in food products generally leads to products that are firmer and have a more rubbery mouth-feel than the regular products, making them less attractive. A reduced protein content, for example in meat- or cheese-analogues, is relevant because it leads to a lower caloric intake per serving and it enhances its economic potential. Decoupling of the protein concentration and product properties can be obtained by changing the internal structure of those food products. This paper outlines the use of protein aggregates and particles in a protein matrix as a tool to obtain different textural properties of a model protein product. Whey protein isolate (WPI) was taken as a model protein. However, further investigation of WPI microparticles should focus on a better understanding of their swelling behaviour in the protein matrix to fully use the potential of those protein particles as a tool to decouple product properties and actual protein concentration. © 2013 The Royal Society of Chemistry.

DOCUMENT TYPE: Article

SOURCE: Scopus

Carbone, E.T., Scarpati, S.E., Pivarnik, L.F.

Food Safety Practices Assessment Tool: An Innovative Way to Test Food Safety Skills among Individuals with Special Needs

(2013) Journal of Food Science Education, 12 (1), pp. 7-16.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871108588&partnerID=40&md5=e7924bf2b4c71633fe5de0527949b493

AFFILIATIONS: Univ. of Massachusetts, Dept. of Nutrition, Chenoweth Lab, 100 Holdsworth Way, Amherst, MA 01003-9282, United States;

Univ. of Massachusetts, School of Education (Emeritus), United States;

Univ. of Rhode Island, Nutrition and Food Sciences Dept, United States

ABSTRACT: This article describes an innovative assessment tool designed to evaluate the effectiveness of a food safety skills curriculum for learners receiving special education services. As schools respond to the increased demand for training students with special needs about food safety, the need for effective curricula and tools is also increasing. A Food Safety Education for High School and Transition Special Needs Students curriculum served as the basis upon which our assessment tool was developed. The project was a collaborative effort by food safety and education professionals in Connecticut, Rhode Island and Massachusetts. This USDA-funded initiative emerged from teacher-generated data that identified critical gaps in food safety knowledge and skills among students with disabilities (SWD) receiving special education services. As an adjunct to this curriculum, a Food Safety Practices Assessment Tool was developed to: 1) conduct observations of students as they demonstrate food safety practices, and 2) use this information to design classroom-based learning activities that are aligned with students' Individual Education Plans (IEP). Pilot data suggest that the tool is valid and reliable for use in a kitchen-based setting. This is the first known tool of its kind to test food safety skills of individuals with special needs in a real-world environment. Further testing is needed to determine the usefulness of the tool for broader audiences. © 2012 Institute of Food Technologists®.

DOCUMENT TYPE: Article

SOURCE: Scopus

Simpson, R., Jaques, A., Nuñez, H., Ramirez, C., Almonacid, A.

Fractional Calculus as a Mathematical Tool to Improve the Modeling of Mass Transfer Phenomena in Food Processing

(2013) Food Engineering Reviews, 5 (1), pp. 45-55.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84872812760&partnerID=40&md5=5cfd8accf5a892f3fa5bfe4cb163b974

AFFILIATIONS: Departamento de Ingeniería Química y Ambiental, Universidad Técnica Federico Santa María, P.O. Box 110-V, Valparaiso, Chile;

Centro Regional de Estudios en Alimentos Saludables (CREAS), Conicyt-Regional R06I1004, Blanco 1623, 1402, Valparaiso, Chile

ABSTRACT: Research, innovations and applications in the food industry are always delayed relative to other areas of engineering, in part because modeling, simulation and optimization of food processes face additional challenges due to the nature of biological materials. In addition, researchers and scientists in other engineering fields tend to have better mathematical training in relation to researchers in biological sciences. Our hypothesis is that the diffusion process within food materials which are non-Fickian, that is, anomalous, can be characterized using a fractional calculus formulation. There is currently strong experimental and theoretical evidence that the diffusion process in food materials generally departs from the Fickian diffusion model which comes from the random walk displacement of the diffusants. In biological materials the heterogeneity due to the cellular structure produces regions in which the diffusants can travel anomalous length distances or be stopped in compartments, which produces a departure from the expected results of the random walk, resulting in anomalous diffusion. The introduction and application of fractional calculus to the field of food science/engineering could lead to many uses, primarily in heat and mass transfer processes. Fractional calculus is a powerful tool for solving and understanding complex natural phenomena; therefore, we believe it is necessary to exploit it to the utmost to obtain realistic and practical solutions for the mass transfer phenomena and to demonstrate its potential to other food science/engineering problems. © 2012 Springer Science+Business Media New York.

AUTHOR KEYWORDS: Anomalous diffusion; Fractional calculus; Modeling mass transfer

DOCUMENT TYPE: Article

SOURCE: Scopus

Galimberti, A., De Mattia, F., Losa, A., Bruni, I., Federici, S., Casiraghi, M., Martellos, S., Labra, M.

DNA barcoding as a new tool for food traceability

(2013) Food Research International, 50 (1), pp. 55-63. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84868232013&partnerID=40&md5=3365fbd8eb5a011a1d28bdb9c85e5905

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Università degli Studi di Trieste, Dipartimento di Scienze della Vita, Via L. Giorgieri 10, 34127 Trieste, Italy

ABSTRACT: Food safety and quality are nowadays a major concern. Any case of food alteration, especially when reported by the media, has a great impact on public opinion. There is an increasing demand for the improvement of quality controls, hence addressing scientific research towards the development of reliable molecular tools for food analysis. DNA barcoding is a widely used molecular-based system, which can identify biological specimens, and is used for the identification of both raw materials and processed food. In this review the results of several researches are critically analyzed, in order to exploit the effectiveness of DNA barcoding in food traceability, and to delineate some best practices in the application of DNA barcoding throughout the industrial pipeline. The use of DNA barcoding for food safety and in the identification of commercial fraud is also discussed. © 2012 Elsevier Ltd.

AUTHOR KEYWORDS: Commercial fraud; DNA barcoding; Food safety; Food traceability; Raw material; Species identification

DOCUMENT TYPE: Review

SOURCE: Scopus

Vereecken, C., Covents, M., Parmentier, J., Maes, L.

Test-retest reliability and agreement between children's and parents' reports of a computerized food preferences tool.

(2013) Public health nutrition, 16 (1), pp. 8-14.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879464904&partnerID=40&md5=947333b2b80bd2df06e70b3d72369de6

AFFILIATIONS: Research Foundation - Flanders (FWO - Vlaanderen), Brussels, Belgium.

ABSTRACT: To investigate test-retest reliability of primary-school children's reports of food preferences and to investigate agreement with parental reports. Children completed an online test and retest, one to two weeks later, during school hours; parents completed a paper-and-pencil or an online questionnaire at home. The children's preferences questionnaire contained 148 food items, reduced to twelve scales; the parental questionnaire contained seventy-eight items reduced to nine scales. Children of fourteen primary schools in Belgium-Flanders. In total 572 children participated; test-retest data were available for 354 children, children's tests could be matched to 362 parental reports. Test-retest intraclass correlations were on average 0.73, ranging between 0.62 and 0.86; correlations between children's and parents' reports were on average 0.50, ranging between 0.32 and 0.62. Retest preferences were significantly higher for more than half of the scales. Children reported higher preferences than their parents for milk & milk products, fruit and soft drinks, while parents reported higher preferences for bread & breakfast cereals, meat, snacks and sauces. The results indicate that the test-retest stability was good; however, agreement between parents and children was rather low to moderate.

DOCUMENT TYPE: Article

SOURCE: Scopus

Chaudhury, M., Vervoort, J., Kristjanson, P., Ericksen, P., Ainslie, A.

Participatory scenarios as a tool to link science and policy on food security under climate change in East Africa

(2013) Regional Environmental Change, 13 (2), pp. 389-398. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84875411208&partnerID=40&md5=7d453c77c08e61cf5f3a62b303e14f0c

AFFILIATIONS: CGIAR Research Program on Climate Change, Agriculture, and Food Security (CCAFS), Nairobi, Kenya;

University of Oxford, Oxford, United Kingdom;

International Livestock Research Institute, Nairobi, Kenya;

Oxford Brookes University, Oxford, United Kingdom

ABSTRACT: How effective are multi-stakeholder scenarios-building processes to bring diverse actors together and create a policy-making tool to support sustainable development and promote food security in the developing world under climate change? The effectiveness of a participatory scenario development process highlights the importance of "boundary work" that links actors and organizations involved in generating knowledge on the one hand, and practitioners and policymakers who take actions based on that knowledge on the other. This study reports on the application of criteria for effective boundary work to a multi-stakeholder scenarios process in East Africa that brought together a range of regional agriculture and food systems actors. This analysis has enabled us to evaluate the extent to which these scenarios were seen by the different actors as credible, legitimate and salient, and thus more likely to be useful. The analysis has shown gaps and opportunities for improvement on these criteria, such as the quantification of scenarios, attention to translating and communicating the results through various channels and new approaches to enable a more inclusive and diverse group of participants. We conclude that applying boundary work criteria to multi-stakeholder scenarios processes can do much to increase the likelihood of developing sustainable development and food security policies that are more appropriate. © 2012 The Author(s).

AUTHOR KEYWORDS: Boundary work; Capacity building; Credibility; East Africa; Legitimacy; Multi-stakeholder scenarios; Salience

DOCUMENT TYPE: Article

SOURCE: Scopus

Zhou, Y., Li, C.-Y., Li, Y.-S., Ren, H.-L., Lu, S.-Y., Tian, X.-L., Hao, Y.-M., Zhang, Y.-Y., Shen, Q.-F., Liu, Z.-S., Meng, X.-M., Zhang, J.-H.

Monoclonal antibody based inhibition ELISA as a new tool for the analysis of melamine in milk and pet food samples

(2012) Food Chemistry, 135 (4), pp. 2681-2686. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84865318492&partnerID=40&md5=96515987a4bdb38f188bd8efa3a63bc2

AFFILIATIONS: Key Laboratory of Zoonosis Research, Ministry of Education, Jilin University, Changchun 130062, China;

Key Laboratory of Mariculture, Ministry of Education, Ocean University of China, Qingdao 266003, China

ABSTRACT: Stories of recent cases about melamine misuse to raise the false impression of a high protein content of milk in China emerged in September of 2008, have become an international health event. To meet the need for rapid and reliable monitoring of melamine in milk samples, a monoclonal antibody (mAb) was produced and an inhibition enzyme-linked immunosorbent assay (ELISA) was developed based on the mAb. The standard curve was linear in the range from 0.03 to 9 ng mL-1 with a detection limit (LOD) of 0.01 ng mL-1. The sensitivity of the assay was 0.35 ng mL-1. The average recovery values of melamine in the liquid milk, powder milk, dog food and cat food were 99%, 96%, 9% and 98%, respectively and the coefficient of variation (CV) values of all samples were less than 10%. The obtained results showed a potential method as a tool for the rapid and reliable monitoring of melamine in liquid milk and milk powder samples (158 words). © 2012 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Inhibition ELISA; Melamine; Milk; Monoclonal antibody

DOCUMENT TYPE: Article

SOURCE: Scopus

Voinea, L.

Food patterns - tools for guiding the alimentary behavior of consumers

(2012) Quality - Access to Success, 13 (131), pp. 94-98.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84870793059&partnerID=40&md5=a26283f61da4d222049294df21f0b134

AFFILIATIONS: Academy of Economic Studies from Bucharest, Department of Business, Consumer Sciences and Quality Management, Romania

ABSTRACT: Eating patterns, which reflect the nutrition and health problems existing at a time in a particular region or country, are primarily intended to provide general solutions to correct these problems through the healthy diet. The concern for developing healthy eating patterns originated in the early XXth century in the U.S. Eating patterns developed over time have been notified to the public through nutrition guidelines. They are designed to translate the expert advices on nu- trient intake, drawn from public purposes, in the recommendations regarding the quantities of foodstuffs to be consumed in order to ensure the nutritional balance. In the paper are highlighted the most important moments in the evolution of USDA eating pattern, considered as a starting point in developing the national eating patterns all over the world. The paper underlines the need for developing and implementing the national nutrition guidelines, which beyond certain limits, represents useful tools for consumers to manage and improve the quality of diet and thus reducing the risk of se- rious illness. In addition, nutrition guidelines may constitute a stimulant for food manufacturers to improve the nutritional quality of their foodstuffs, in order to be more appropriate to the dietary guidelines, which will bring a further important benefit for consumers' health and quality of life.

AUTHOR KEYWORDS: Dietary guideline; Eating pattern; Food pyramid; Foodstuff groups; USDA food pattern

DOCUMENT TYPE: Article

SOURCE: Scopus

Mozzi, F., Ortiz, M.E., Bleckwedel, J., De Vuyst, L., Pescuma, M.

Metabolomics as a tool for the comprehensive understanding of fermented and functional foods with lactic acid bacteria

(2012) Food Research International, . Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84870233691&partnerID=40&md5=1e77cfe3f277b09699f4e62d3683dddd

AFFILIATIONS: Centro de Referencia para Lactobacilos (CERELA-CONICET), San Miguel de Tucumán, Argentina;

Research Group of Industrial Microbiology and Food Biotechnology (IMDO), Faculty of Sciences and Bio-engineering Sciences, Vrije Universiteit Brussel (VUB), Brussels, Belgium

ABSTRACT: Metabolomics, also called metabonomics or metabolic profiling, deals with the simultaneous determination and quantitative analysis of intracellular metabolites or low-molecular-mass molecules. The metabolomics field, which has begun a little more than ten years ago thanks to the development of technologies such as nuclear magnetic resonance (NMR) and mass spectrometry (MS), has been successfully applied in different areas of food science. This review deals with the recent achievements of metabolomics in the comprehensive analysis of fermented foods predominated by lactic acid bacteria, the fermentative capacity of these microorganisms and the beneficial effects of functional foods and probiotics. © 2012 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Fermented foods; Lactic acid bacteria; Metabolic profiling; Metabolomics; Probiotics

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Acharid, A., Rizkallah, J., Ait-Ameur, L., Neugnot, B., Seidel, K., Särkkä-Tirkkonen, M., Kahl, J., Birlouez-Aragon, I.

Potential of front face fluorescence as a monitoring tool of neoformed compounds in industrially processed carrot baby food

(2012) LWT - Food Science and Technology, 49 (2), pp. 305-311. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84865637976&partnerID=40&md5=ac812aa864d20bc35b17cb6fe647d237

AFFILIATIONS: Spectralys Innovation, BIOCITECH, 102 avenue Gaston Roussel, 93230 Romainville, France;

Qualtech, IFBM, Nancy, France;

FiBL, Frick, Switzerland;

Helsinki University, Finland;

Kassel University, Germany

ABSTRACT: The aim of this study was to evaluate the potential of using front face fluorescence (FFF) to monitor the impact of industrial process on carrot baby food, and to calibrate their content in neoformed compounds (NFC). Chromatographically measured NFC included furosine, carboxymethyllysine, and furan. The effect of using different raw material, fresh carrots, frozen cubes or pasteurized puree on NFC content in the resultant sterilized puree was also tested. Bidimensional FFF spectra acquired on the samples were decomposed using multiway PARAFAC model and used to predict the chromatographically measured NFC. FFF PARAFAC sample intensities systematically evolved with successive industrial process steps. The levels of NFC increased the most during heat treatment operations. Frozen cubes resulted in the purees with the lowest content in NFC, compared to fresh or pasteurized carrot cubes. Satisfactory calibration models (R 2 &gt; 0.94) of the chromatographically measured NFC were obtained using FFF PARAFAC sample intensities as predictors. The multivariate regression models root mean square of cross validation for furosine, carboxymethyllysine, and furan were 3.98 mg/kg, 1.38 mg/kg and 5.23 μg/kg, respectively. From these first results we conclude that FFF is a promising tool to monitor fast and easily vegetable processing in a quality control approach. © 2012 Elsevier Ltd.

AUTHOR KEYWORDS: Carrot puree; Fluorescence; Neoformed contaminants; Organic food; PARAFAC; Processing

DOCUMENT TYPE: Article

SOURCE: Scopus

Hanf, J.H., Belaya, V., Schweickert, E.

Power as a coordination tool: Ideas for the agri-food industry using the example of wine cooperatives [Macht als koordinationsinstrument: Überlegungen für die agrar- und ernährungswirtschaft anhand von winzergenossenschaften]

(2012) Berichte uber Landwirtschaft, 90 (3), pp. 429-446.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871772986&partnerID=40&md5=77e50c42780cebbea79b4c006439810d

AFFILIATIONS: Internationale Weinwirtschaft, Hochschule RheinMain, Campus Geisenheim, C/o Fachgebiet Betriebswirtschaft und Marktforschung, Von-Lade-Str. 1, 65366 Geisenheim, Germany;

Promotionsstudentin an der Martin-Luther, Universität Halle/Wittenberg, Hauffstr. 5, 72285 Pfalzgrafenweiler, Germany

ABSTRACT: As the German agrifood industry is characterized by high competitiveness, the importance of customer orientation has been increasing for many years. As a result, firms work hard to differentiate their products and services. As an example, German retailers are increasing their company profile by establishing retail brands and specialized assortments. Wine is often used in this context. The retailer is responsible for the quality of the wine that is sold under the retailer's brand. The retailer must therefore ensure that the quality requirements are complied with to a sufficient degree throughout the chain - from grape production to the retail shelf. For example, wine growing and production requires special knowledge, hence today the importance of vertical coordination between retailer, processor and grape producers is increasing. Such forms of coordination are also called "supply-chain networks". Due to the characteristics of wine, the networks in this sector are generally strategic networks. Such networks can be characterized as pyramidal-hierarchic collaborations which possess a focal firm (chain captain) that coordinates the network in a hierarchical style. This means in the wine sector that the focal company faces the challenge of managing and integrating many (small) wine growers. Cooperatives, as the traditional form of horizontal cooperation, play a key role in this regard.

DOCUMENT TYPE: Article

SOURCE: Scopus

Iannario, M., Manisera, M., Piccolo, D., Zuccolotto, P.

Sensory analysis in the food industry as a tool for marketing decisions

(2012) Advances in Data Analysis and Classification, 6 (4), pp. 303-321.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84870425815&partnerID=40&md5=9927906ee8d5041a2e7502ec1e9b8695

AFFILIATIONS: University of Naples Federico II, Via Leopoldo Rodinò, 22, Napoli, 80138, Italy;

University of Brescia, C.da S. Chiara, 50, Brescia, 25122, Italy

ABSTRACT: In the food industry, sensory analysis can be useful to direct marketing decisions concerning not only products, for example product positioning with respect to competitors, but also market segmentation, customer relationship management, advertising strategies and price policies. In this paper we show how interesting information useful for marketing management can be obtained by combining the results from cub models and algorithmic data mining techniques (specifically, variable importance measurements from Random Forest). A case study on sensory evaluation of different varieties of Italian espresso is presented. © 2012 Springer-Verlag Berlin Heidelberg.

AUTHOR KEYWORDS: cub models; Italian coffee; Ordinal data; Sensory analysis

DOCUMENT TYPE: Article

SOURCE: Scopus

Czarniecka-Skubina, E., Nowak, D.

System for tracking and tracing flow and origin of food as tool to ensure consumer safety [System Śledzenia Ruchu I Pochodzenia Żywności Jako Narze{ogonek}dzie Zapewnienia Bezpieczeństwa Konsumentów]

(2012) Zywnosc. Nauka. Technologia. Jakosc/Food. Science Technology. Quality, 19 (5), pp. 20-36.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84872125883&partnerID=40&md5=bfb61d3c3e4afd5add70bc94a5d23e29

AFFILIATIONS: Katedra Technologii Gastronomicznej i Higieny Zywności, Wydz. Nauk o Zywieniu Czlowieka i Konsumpcji, Poland;

Katedra Inzynierii Zywności i Organizacji Produkcji, Wydz. Nauk o Zywności, Szkola Glówna Gospodarstwa Wiejskiego, ul. Nowoursynowska 159 C, 02-776 Warszawa, Poland

ABSTRACT: In the paper, the issues were presented that referred to a system for tracking and tracing the flow and origin of food (traceability). Among other things, the definition of traceability was discussed, as were the legal aspects of implementing this system into the food chain and the implementation-related concepts such as tracking and tracing. Many food production-related areas were pointed out (such as purchases of raw materials, storage, preparation for production, processing, packaging, transport and distribution, and, also, cleaning and disinfection) that should be included into the system of tracking and tracing the flow of food products. The method of collecting data and their type were characterized and exemplified by animal and plantoriginating products. A method to identify food in a food chain was depicted as were some new technologies, for example RFID. Furthermore, there was characterized a crisis management to be applied in the case of threat or danger signals appearing in the food product market. Finally, there were taken together the benefits resulting from the functioning of the traceability system, both external and internal.

AUTHOR KEYWORDS: Food chain; Food production; Traceability

DOCUMENT TYPE: Article

SOURCE: Scopus

Bountziouka, V., Bathrellou, E., Zazpe, I., Ezquer, L., Martínez-González, M.-A., Panagiotakos, D.B.

Repeatability of food frequency assessment tools in relation to the number of items and response categories included

(2012) Food and Nutrition Bulletin, 33 (4), pp. 288-295.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873630711&partnerID=40&md5=60128670d9def7d3d1b8514fbb48ca95

AFFILIATIONS: Harokopio University, Athens, Greece;

Navarra University, Navarra, Spain

ABSTRACT: Background. Accuracy of measurement is a cornerstone of research in order to make robust conclusions about the research hypothesis. Objective. To examine whether the number of items (questions) and the number of consumption responses (the coding used to measure the frequency of consumption) included in nutritional assessment tools influence their repeatability. Methods. During 2009, 400 participants (250 from Greece, mean age 37 ± 13 years, 34% males, and 150 from Spain, mean age 39 ± 17 years, 41% males) completed a diet index with 11 items and binary (yes/ no) responses, a diet index with 11 items and 6-scale responses, and 36-item and 76-item food frequency questionnaires (FFQs) with 6-scale responses. The participants completed these tools twice, with 15 days between the two administrations of the tools. The Spearman- Brown coefficient (rsb ), Kendall's tau coefficients, and the Bland-Altman method were applied to answer the research hypothesis. Results. The highest repeatability coefficient was observed for the diet index with 11 items and binary (yes/no) responses (rsb = 0.948, p &lt; .001), followed by the diet index with 11 items and 6-scale responses (rsb = 0.943, p &lt; .001), the 36-item FFQ with 6-scale responses (rsb = 0.936, p &lt; .001), and the 76-item FFQ with 6-scale responses (rsb = 0.878, p &lt; .001). Statistical comparisons revealed no significant differences between repeatability coefficients of the first three tools (p &gt; .23), whereas these three tools had significantly higher repeatability coefficients than the 76-item FFQ (p = .002). Subgroup analyses by sex, education, smoking, and clinical status confirmed these results. Conclusions. Repeatability was found for all food frequency assessment tools used, irrespective of the number of items or the number of responses included. © 2012, The United Nations University.

AUTHOR KEYWORDS: Accuracy; Assessment tools; Methodology; Repeatability

DOCUMENT TYPE: Article

SOURCE: Scopus

Rudolph, E., Färbinger, A., König, J.

Determination of the caffeine contents of various food items within the Austrian market and validation of a caffeine assessment tool (CAT)

(2012) Food Additives and Contaminants - Part A Chemistry, Analysis, Control, Exposure and Risk Assessment, 29 (12), pp. 1849-1860.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84868155180&partnerID=40&md5=78bfa7abf484aea3e75829ba151a5885

AFFILIATIONS: Department of Nutritional Sciences, University of Vienna, Althanstraße 14, A-1090 Vienna, Austria

ABSTRACT: The caffeine content of 124 products, including coffee, coffee-based beverages, energy drinks, tea, colas, yoghurt and chocolate, were determined using RP-HPLC with UV detection after solid-phase extraction. Highest concentrations of caffeine were found for coffee prepared from pads (755 mg l-1) and regular filtered coffee (659 mg l-1). The total caffeine content of coffee and chocolate-based beverages was between 15 mg l-1 in chocolate milk and 448 mg l-1 in canned ice coffee. For energy drinks the caffeine content varied in a range from 266 to 340 mg l-1. Caffeine concentrations in tea and ice teas were between 13 and 183 mg l-1. Coffee-flavoured yoghurts ranged from 33 to 48 mg kg-1. The caffeine concentration in chocolate and chocolate bars was between 17 mg kg-1 in whole milk chocolate and 551 mg kg-1 in a chocolate with coffee filling. A caffeine assessment tool was developed and validated by a 3-day dietary record (r2= 0.817, p &lt; 0.01) using these analytical data and caffeine saliva concentrations (r2= 0.427, p &lt; 0.01). © 2012 Copyright Taylor and Francis Group, LLC.

AUTHOR KEYWORDS: beverages; caffeine; caffeine assessment tool; dietary record; intake; saliva

DOCUMENT TYPE: Article

SOURCE: Scopus

Shakila, B.M., Sasikala, P.

Biosensors-an emerging tool in food processing

(2012) Carpathian Journal of Food Science and Technology, 4 (2), pp. 9-17.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84881513166&partnerID=40&md5=b910245921627d31d76c890feffc3acc

AFFILIATIONS: Head Department of Food Processing and Preservation Technology, Faculty of Engineering, Avinashilingam University For Women, Coimbatore, India

ABSTRACT: Recent advances in electronic vision and computer technology have opened the research horizons for greater accuracy in process control, product sorting, and machine operation in food industry. Biosensors are an important alternative in the food industry to ensure the quality and safety of products and process controls with effective, fast and economical methods. Their technology is based on a specific biological recognition element in combination with a transducer for signal processing. Detection of contaminants, verification of product contents, product freshness and monitoring of raw materials conversion are the areas of potential biosensor applications. This article presents an overview on the components of biosensors and describes the most important application areas in food processing industry.

AUTHOR KEYWORDS: Applications; Biosensors; Contaminants; Electronic vision; Food

DOCUMENT TYPE: Article

SOURCE: Scopus

Scarano, D., Montemurro, C., Corrado, G., Blanco, A., Rao, R.

DNA markers as a tool for genetic traceability of primary product in agri-food chains

(2012) Italian Journal of Agronomy, 7 (4), pp. 346-350.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84872920150&partnerID=40&md5=1faf3100ae77dfb94fed80168e380ce1

AFFILIATIONS: Dipartimento di Scienze del Suolo, della Pianta, dell'Ambiente e delle Produzioni Animali, Università di Napoli Federico II, Portici (NA), Italy;

Dipartimento di Biologia e Chimica Agro-forestale ed Ambientale, Sezione di Genetica e Miglioramento genetico, Università di Bari Aldo Moro, Bari, Italy

ABSTRACT: The agri-food components of the Made in Italy are well known all over the world, therefore they may significantly contribute to the Italian economy. However, also owing to a large number of cases of improper labelling, the Italian agro-food industry faces an ever-increasing competition. For this reason, there is a decline of consumers' confidence towards food production systems and safety controls. To prevent erroneous classification of products and to protect consumers from false instore information, it is important to develop and validate techniques that are able to detect mislabelling at any stage of the food-chain. This paper describes some examples of genetic traceability of primary products in some important plant food chains such as durum wheat, olive and tomato, based on DNA analysis both of raw material and of processed food (pasta, olive oil, and peeled tomato). © D. Scarano et al., 2012.

AUTHOR KEYWORDS: AFLP; Durum wheat pasta; Molecular markers; Olive oil; SSR; Tomato

DOCUMENT TYPE: Article

SOURCE: Scopus

Yeung, M.

ADSA Foundation Scholar Award: Trends in culture-independent methods for assessing dairy food quality and safety: Emerging metagenomic tools

(2012) Journal of Dairy Science, 95 (12), pp. 6831-6842.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84869496557&partnerID=40&md5=e1c0296ffc6f3f1b7838e7d341bdff85

AFFILIATIONS: California Polytechnic State University, San Luis Obispo 93407, United States

ABSTRACT: Enhancing the quality and safety of dairy food is critical to maintaining the competitiveness of dairy products in the food and beverage market and in reinforcing consumer confidence in the dairy industry. Raw milk quality has a significant effect on finished product quality. Several microbial groups found in raw milk have been shown to adversely affect the shelf life of pasteurized milk. Current microbiological criteria used to define milk quality are based primarily on culture-dependent methods, some of which are perceived to lack the desired sensitivity and specificity. To supplement traditional methods, culture-independent methods are increasingly being used to identify specific species or microbial groups, and to detect indicator genes or proteins in raw milk or dairy products. Some molecular subtyping techniques have been developed to track the transmission of microbes in dairy environments. The burgeoning " -omics" technologies offer new and exciting opportunities to enhance our understanding of food quality and safety in relation to microbes. Metagenomics has the potential to characterize microbial diversity, detect nonculturable microbes, and identify unique sequences or other factors associated with dairy product quality and safety. In this review, fluid milk will be used as the primary example to examine the adequacy and validity of conventional methods, the current trend of culture-independent methods, and the potential applications of metagenomics in dairy food research. © 2012 American Dairy Science Association.

AUTHOR KEYWORDS: Culture-independent method; Dairy food quality; Metagenomics

DOCUMENT TYPE: Review

SOURCE: Scopus

Alonso, A.D., Liu, Y.

Visitor Centers, Collaboration, and the Role of Local Food and Beverage as Regional Tourism Development Tools: The Case of the Blackwood River Valley in Western Australia

(2012) Journal of Hospitality and Tourism Research, 36 (4), pp. 517-536.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84866992418&partnerID=40&md5=4e96234862413146f1403f6208afcf4f

AFFILIATIONS: Faculty of Business and Law, Edith Cowan University, Australia;

Curtin University, Perth, WA, United States

ABSTRACT: Past research highlights the importance of collaboration as a critical element in the development of regional tourism. In this context of collaborative relationships, the role of visitor centers in promoting and in raising awareness of existing tourism-related activities, including those with a food and beverage theme is vital. The present study examines the extent to which visitor centers in an emerging tourist destination with a farming background, the Blackwood River Valley in Western Australia, use these tools to develop their local tourism. Face-to-face interviews were conducted among representatives of four visitor centers. Respondents acknowledge much collaboration (as opposed to competition), not only within the region but also with other neighboring regions in their present and future development efforts. Despite being a rural region with a tradition in horticultural farming, raising cattle, fishing, and more recently being home to a burgeoning wine sector, respondents recognize that not enough emphasis is placed on promoting food-, wine-, and farm-related tourism themes. Thus, an argument is made that the traditional farming sectors could also play a key role in raising the profile of the tourism in this area and draw quality visitors. © 2012 International Council on Hotel, Restaurant and Institutional Education.

AUTHOR KEYWORDS: Blackwood River Valley; collaboration; food and wine; marketing; regional tourism; visitor centers; Western Australia

DOCUMENT TYPE: Article

SOURCE: Scopus

Ingram, M.A., Stonehouse, W., Russell, K.G., Meyer, B.J., Kruger, R.

The New Zealand PUFA semiquantitative food frequency questionnaire is a valid and reliable tool to assess PUFA intakes in Healthy New Zealand Adults

(2012) Journal of Nutrition, 142 (11), pp. 1968-1974. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84869109858&partnerID=40&md5=ffab884d15fdc9276df445f4f99141a0

AFFILIATIONS: Institute of Food, Nutrition and Human Health, Massey University, Auckland, New Zealand;

School of Computing and Mathematics, Charles Sturt University, Wagga Wagga, NSW, Australia;

School of Health Sciences, University of Wollongong, Wollongong, NSW, Australia

ABSTRACT: The health benefits of PUFA are well established. There is no valid tool or complete fatty acid database to assess PUFA intake in New Zealand (NZ). This study aimed to develop, validate, and test the reproducibility of a NZ-specific PUFA FFQ. A semiquantitative NZ PUFA FFQ was developed based on a validated Australian PUFA FFQ. The Australian fatty acid database was adapted to include NZ-specific data for major PUFA sources. Healthy participants from Auckland, NZ (n = 48) provided fasting blood samples for erythrocyte PUFA analysis, completed the NZ PUFA FFQ and a 3-d weighed food record (WFR), and repeated the NZ PUFA FFQ 3 mo later (n = 42). Relative validity was evaluated by assessing the triangular relationship among the NZ PUFA FFQ, WFR, and erythrocyte PUFA using the methods of triads [EPA, DHA, total omega-3 (n-3) long-chain (LC) PUFA only] and by comparing, correlating, cross-classifying into quintiles and assessing agreement using Bland-Altman plots of intakes between the NZ PUFA FFQ and WFR. Reproducibility was assessed by comparing and correlating intakes between repeat administrations of the NZ PUFA FFQ. The NZ PUFA FFQ effectively estimated EPA [ρQT = 0.72 (95% CI: 0.49, 0.89)], DHA [ρQT = 0.72 (95% CI: 0.53, 0.95)], and total (n-3) LCPUFA [ρQT = 0.68 (95% CI: 0.47, 0.89)] intakes and was comparable with the WFR for other PUFA except docosapentaenoic acid. Repeated implementation of the NZ PUFA FFQ showed agreement for PUFA intakes. The NZ PUFA FFQ is a valid and reliable tool to measure PUFA intake in healthy NZ adults. © 2012 American Society for Nutrition.

DOCUMENT TYPE: Article

SOURCE: Scopus

Concina, I., Falasconi, M., Sberveglieri, V.

Electronic noses as flexible tools to assess food quality and safety: Should we trust them?

(2012) IEEE Sensors Journal, 12 (11), art. no. 6189022, pp. 3232-3237. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867719894&partnerID=40&md5=4091eed795d55d305858ca12d390d652

AFFILIATIONS: CNR-IDASC SENSOR Laboratory, Brescia 25131, Italy;

University of Brescia, Brescia 25133, Italy

ABSTRACT: This paper presents three different applications of an electronic nose (EN) based on a metal oxide sensor array, in order to illustrate the broad spectrum of potential uses of the technique in food quality control. The following scenarios are considered: 1) the screening of a typical error that may occur during the processing of tomato pulp, which leads to sensory damage of the product; 2) the detection of microbial contamination by Alicyclobacillus spp. (ACB) affecting soft drinks; and 3) the proof of evidence of extra virgin olive oil fraudulently adulterated with hazelnut oil. In each case, the EN is able to identify the spoiled product by means of the alterations in the pattern of volatile compounds, reconstructed by principal component analysis of the sensor responses. © 2012 IEEE.

AUTHOR KEYWORDS: Electronic nose (EN); extra virgin olive oil; food quality control; soft drinks; tomato pulp

DOCUMENT TYPE: Article

SOURCE: Scopus

Burrows, D.

Packaging to become most important food marketing tool

(2012) Food Manufacture, (8), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84877098022&partnerID=40&md5=7d2445c4ea02c5cfd780b78275fcc5a4

AUTHOR KEYWORDS: Dorset Cereals; Packaging; Tyrells

DOCUMENT TYPE: Note

SOURCE: Scopus

McAlister, A.R., Bettina Cornwell, T.

Collectible Toys as Marketing Tools: Understanding Preschool Children's Responses to Foods Paired with Premiums

(2012) Journal of Public Policy and Marketing, 31 (2), pp. 195-205. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871204778&partnerID=40&md5=91c798cff1d8c8ab4dd666b1f19782ad

AFFILIATIONS: Department of Advertising, Public Relations, and Retailing, Michigan State University, United States;

Warsaw Sports Marketing Center, Lundquist College of Business, University of Oregon, United States

ABSTRACT: Concern over obesity finds policy makers struggling to understand marketing's role in food choice, but with a limited empirical base to inform them. Because food patterns established in childhood influence life-long patterns, toy premiums that may sway food preference are being questioned. The motivational pull of collectible toys is of particular interest in this discussion because repeated exposure to foods engendered by frequent purchases to obtain collectibles may establish food preference. Thus, Study 1 addresses the role of collectible toys as premiums accompanying food offerings. The authors show that these premiums influence children's attitudes toward both unhealthful and healthful meal offerings. In Study 2, a choice task reveals that a healthful meal is favored when it is paired with a collectible toy premium and the unhealthful meal is presented with no premium. Findings are discussed in terms of providing an evidence base for policy decisions. © 2012, American Marketing Association.

AUTHOR KEYWORDS: Child health; Fast food; Meals; Obesity; Taste perceptions

DOCUMENT TYPE: Article

SOURCE: Scopus

Ogden, J., Liakopoulou, E., Antilliou, G., Gough, G.

The meaning of food (MOF): The development of a new measurement tool

(2012) European Eating Disorders Review, 20 (5), pp. 423-426.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84865482706&partnerID=40&md5=3e121d2ed60a18c9b63fd262408fcab8

AFFILIATIONS: Department of Psychology, University of Surrey, Guildford, Surrey, GU2 7XH, United Kingdom

ABSTRACT: This paper aimed to develop a reliable measurement tool to evaluate the meanings of food that could be used in both practice and research and to examine possible gender differences. A new meaning of food questionnaire (MOF) was refined across two studies (study 1, n = 451 and study 2, n = 170). The final questionnaire consisted of 25 items and 8 reliable subscales: food and sex, emotional regulation, treat, guilt, social interaction, control over life, control over food, family. The new Meaning of Food (MOF) questionnaire could be used in both research and clinical practice to profile patients and explore predictors of eating behaviour. Copyright © 2011 John Wiley & Sons, Ltd and Eating Disorders Association.

AUTHOR KEYWORDS: emotional regulation; meaning of food; roles; social eating; weight concern

DOCUMENT TYPE: Article

SOURCE: Scopus

Frega, R., Lanfranco, J.G., De Greve, S., Bernardini, S., Geniez, P., Grede, N., Bloem, M., de Pee, S.

What linear programming contributes: world food programme experience with the "cost of the diet" tool.

(2012) Food and nutrition bulletin, 33 (3 Suppl), pp. S228-234.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871878924&partnerID=40&md5=e4efe57926b000d8a6e3250d951ba2c3

AFFILIATIONS: United Nations World Food Programme, Rome.

ABSTRACT: Linear programming has been used for analyzing children's complementary feeding diets, for optimizing nutrient adequacy of dietary recommendations for a population, and for estimating the economic value of fortified foods. To describe and apply a linear programming tool ("Cost of the Diet") with data from Mozambique to determine what could be cost-effective fortification strategies. Based on locally assessed average household dietary needs, seasonal market prices of available food products, and food composition data, the tool estimates the lowest-cost diet that meets almost all nutrient needs. The results were compared with expenditure data from Mozambique to establish the affordability of this diet by quintiles of the population. Three different applications were illustrated: identifying likely "limiting nutrients," comparing cost effectiveness of different fortification interventions at the household level, and assessing economic access to nutritious foods. The analysis identified iron, vitamin B2, and pantothenic acid as "limiting nutrients." Under the Mozambique conditions, vegetable oil was estimated as a more cost-efficient vehicle for vitamin A fortification than sugar; maize flour may also be an effective vehicle to provide other constraining micronutrients. Multiple micronutrient fortification of maize flour could reduce the cost of the "lowest-cost nutritious diet" by 18%, but even this diet can be afforded by only 20% of the Mozambican population. Within the context of fortification, linear programming can be a useful tool for identifying likely nutrient inadequacies, for comparing fortification options in terms of cost effectiveness, and for illustrating the potential benefit of fortification for improving household access to a nutritious diet.

DOCUMENT TYPE: Article

SOURCE: Scopus

Fleischhacker, S., Byrd, R.R, Ramachandran, G., Vu, M., Ries, A., Bell, R.A., Evenson, K.R.

Tools for healthy tribes: Improving access to healthy foods in Indian Country

(2012) American Journal of Preventive Medicine, 43 (3 SUPPL.2), pp. S123-S129. Cited 3 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84865675085&partnerID=40&md5=ed487ddfc6246ac43fba048873956ee6

AFFILIATIONS: American Indian Center, University of North Carolina, Chapel Hill, NC, United States;

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Department of Nutrition, University of North Carolina, Chapel Hill, NC, United States;

Department of Epidemiology, University of North Carolina, Chapel Hill, NC, United States;

Maya Angelou Center for Health Equity, Wake Forest School of Medicine, Winston-Salem, NC, United States

ABSTRACT: There is growing recognition that policymakers can promote access to healthy, affordable foods within neighborhoods, schools, childcare centers, and workplaces. Despite the disproportionate risk of obesity and type 2 diabetes among American Indian children and adults, comparatively little attention has been focused on the opportunities tribal policymakers have to implement policies or resolutions to promote access to healthy, affordable foods. This paper presents an approach for integrating formative research into an action-oriented strategy of developing and disseminating tribally led environmental and policy strategies to promote access to and consumption of healthy, affordable foods. This paper explains how the American Indian Healthy Eating Project evolved through five phases and discusses each phase's essential steps involved, outcomes derived, and lessons learned. Using community-based participatory research and informed by the Social Cognitve Theory and ecologic frameworks, the American Indian Healthy Eating Project was started in fall 2008 and has evolved through five phases: (1) starting the conversation; (2) conducting multidisciplinary formative research; (3) strengthening partnerships and tailoring policy options; (4) disseminating community-generated ideas; and (5) accelerating action while fostering sustainability. Collectively, these phases helped develop and disseminate Tools for Healthy Tribes - a toolkit used to raise awareness among participating tribal policymakers of their opportunities to improve access to healthy, affordable foods. Formal and informal strategies can engage tribal leaders in the development of culturally appropriate and tribe-specific sustainable strategies to improve such access, as well as empower tribal leaders to leverage their authority toward raising a healthier generation of American Indian children. © 2012 American Journal of Preventive Medicine.

DOCUMENT TYPE: Article

SOURCE: Scopus

Florin, M.J., Van Ittersum, M.K., Van De Ven, G.W.J.

Selecting the sharpest tools to explore the food-feed-fuel debate: Sustainability assessment of family farmers producing food, feed and fuel in Brazil

(2012) Ecological Indicators, 20, pp. 108-120. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84857982182&partnerID=40&md5=932ccec8c45639cc7078f4e281f697b8

AFFILIATIONS: Plant Production Systems, Wageningen University, Droevendaalsesteeg 1, 6708 PB, Wageningen, Netherlands

ABSTRACT: Continuing interest in sustainable biofuel production is linked with sustainable farming and begs for insights from farming systems research on sustainability assessment and the role of family farms. The aims of this work were two-fold. First, to present a tools and methods selection framework supporting indicator-based sustainability assessment. Second, to apply the framework to the case of castor beans (Ricinus communis L.), family farmers and the biodiesel industry in the southeast of Brazil. The framework synthesizes existing work on sustainability assessment within the agricultural domain. Transparent selection of tools and methods is supported by sequentially accounting for the context of sustainability, dealing with space, classifying the 'nature of research' and the degree of integration of different facets of sustainability. The framework is demonstrated with an exploratory assessment of the potential for castor bean cultivation within the current farm type of extensive pasture and fodder crops for dairy cattle. The study accounted for the range of productivity levels within the current farm type and for different management decisions when including castor beans. Assessment was made against economic development, livelihood stability and soil fertility criteria. Selected tools and methods included farm surveys, alternative farming system design and input-output calculations. The results demonstrate the greatest opportunity for castor bean cultivation by currently low productive farms. There is a trade-off of income derived from milk production that is supported by fodder production, and income from castor beans. Decisions regarding areal extent of castor beans and supplementing animal feed, are shown to be farm-specific, and depend upon the interactions between current farm productivity and prioritisation of sustainability criteria. However, generally it is shown that castor bean cultivation should be linked to animal production so that current risk management and income levels can be supported and improved. Further, to maintain soil fertility, castor bean cultivation with nitrogen inputs is necessary. The cyclic nature of the framework supports the next contextualisation of the sustainability question. For our application, constructive future work in a next cycle could include extending to regional level and accounting for temporal variability. © 2012 Elsevier Ltd.

AUTHOR KEYWORDS: Biofuels; Brazil; Castor beans; Family farmers; Sustainability assessment; Sustainability indicators

DOCUMENT TYPE: Article

SOURCE: Scopus

Hildebrandt, G., Jacob, J., Loewe-Stanienda, B., Oehlenschläger, J., Schneider-Häder, B.

Descriptive sensory analysis with integrated quality rating as a tool for quality testing of commercial food products

(2012) Archiv fur Lebensmittelhygiene, 63 (5), pp. 155-162. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867920389&partnerID=40&md5=6d64eef494e9899ec362cf5577a82178

AFFILIATIONS: Institute of Food Hygiene, Faculty of Veterinary Medicine, Free University of Berlin, Königsweg 69, 14163 Berlin, Germany;

German Agricultural Society (DLG), Germany;

Seafoodconsult, Germany

ABSTRACT: About 25,000 food samples are submitted annually for quality testing of DLG by around 3,000 independent, certified and specialised expert assessors. Depending on the food, tests are carried out in panels of three to ten panellists, with each expert performing and documenting a 'descriptive analysis with integrated quality rating' as described in DIN 10975. If the judgements differ, a consensus is reached under the supervision of a mediator. The consensus usually means a harmonisation of the mental standards. The sensory principles (including assessment method, qualification of experts and their training) of the DLG quality tests and, specifically, the importance of the internal standard of the experts in terms of achieving an objective sensory assessment of product quality are discussed in detail. © M. & H. Schaper GmbH & Co.

AUTHOR KEYWORDS: Descriptive panel; DLG quality tests; Expert product assessor; Mental sensory product standard; Product rating; Sensory analysis

DOCUMENT TYPE: Article

SOURCE: Scopus

Norman, B.

The food and drug administration gets new tools to spur regulatory science

(2012) Health Affairs, 31 (9), pp. 1919-1922.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871911640&partnerID=40&md5=5cc3ef262aa7308e67309e2a2070a6bc

DOCUMENT TYPE: Article

SOURCE: Scopus

Food monitoring tool plays it safe

(2012) Food Manufacture, (5).

http://www.scopus.com/inward/record.url?eid=2-s2.0-84865256270&partnerID=40&md5=0dc18ea92681a8a66b4af17080220070

AUTHOR KEYWORDS: Hawk System; Hygiene Audit Systems; John Lewis Partnership; Online food safety monitoring

DOCUMENT TYPE: Note

SOURCE: Scopus

Layman, C.A., Araujo, M.S., Boucek, R., Hammerschlag-Peyer, C.M., Harrison, E., Jud, Z.R., Matich, P., Rosenblatt, A.E., Vaudo, J.J., Yeager, L.A., Post, D.M., Bearhop, S.

Applying stable isotopes to examine food-web structure: An overview of analytical tools

(2012) Biological Reviews, 87 (3), pp. 545-562. Cited 19 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861421341&partnerID=40&md5=202e95caeba8b2c341be0ca89126a982

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ABSTRACT: Stable isotope analysis has emerged as one of the primary means for examining the structure and dynamics of food webs, and numerous analytical approaches are now commonly used in the field. Techniques range from simple, qualitative inferences based on the isotopic niche, to Bayesian mixing models that can be used to characterize food-web structure at multiple hierarchical levels. We provide a comprehensive review of these techniques, and thus a single reference source to help identify the most useful approaches to apply to a given data set. We structure the review around four general questions: (1) what is the trophic position of an organism in a food web?; (2) which resource pools support consumers?; (3) what additional information does relative position of consumers in isotopic space reveal about food-web structure?; and (4) what is the degree of trophic variability at the intrapopulation level? For each general question, we detail different approaches that have been applied, discussing the strengths and weaknesses of each. We conclude with a set of suggestions that transcend individual analytical approaches, and provide guidance for future applications in the field. © 2011 The Authors. Biological Reviews © 2011 Cambridge Philosophical Society.

AUTHOR KEYWORDS: Bayesian statistics; Dietary variation; Individual specialization; Mixing model; Predator-prey interactions; Trophic structure

DOCUMENT TYPE: Review

SOURCE: Scopus

Tyagi, A.K., Malik, A., Gottardi, D., Guerzoni, M.E.

Essential oil vapour and negative air ions: A novel tool for food preservation

(2012) Trends in Food Science and Technology, 26 (2), pp. 99-113. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84865161875&partnerID=40&md5=6127d3017df0fe0f6d5a0ea9f0541395

AFFILIATIONS: Applied Microbiology laboratory, Centre for Rural Development and Technology, Indian Institute of Technology Delhi, Hauz Khas, New Delhi 110 016, India;

Dipartimento di Scienze degli Alimenti, Università degli Studi di Bologna, Sede di Cesena, Piazza G. Goidanich, 60, 47023 Cesena, Italy

ABSTRACT: Present review summarizes studies concerning antimicrobial efficiency of essential oil vapours, Negative air ions (NAI) as well as their combination for food preservation applications. Investigation on antimicrobial activity of essential oil vapours that began only in the last decade, has covered several food spoilage microorganisms and essential oil vapour combinations and also dealt with the mechanism underlying better performance of vapours over the respective oil. These investigations lead to the application of essential oil vapours in active packaging and food preservation. Antimicrobial activity of NAI has been demonstrated against limited strains but ample evidences on the efficacy of air ionizers in air disinfection and disease prevention have been generated. Nevertheless, the activity of NAI and essential oil vapours, both of which suffer from certain inherent disadvantages, has not been reviewed earlier. The present review shows that recent efforts towards combination of both the agents through in vitro studies depicted marked enhancement in antimicrobial efficiency thereby conceiving a novel tool for food preservation. © 2012 Elsevier Ltd.

DOCUMENT TYPE: Review

SOURCE: Scopus

Tsai, C.-J., Chen, M.-L., Ye, A.-D., Mao, I.-F.

Single SnO 2 gas sensor as a practical tool for evaluating the efficiency of odor control engineering at food waste composting plants

(2012) Sensors and Actuators, B: Chemical, 169, pp. 248-254. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861859904&partnerID=40&md5=3f9f1975bbef3a48fe5bdc2594bba4f7

AFFILIATIONS: Department of Occupational Safety and Health, Chung Hwa University of Medical Technology, No. 89, Wenhwa 1st St., Rende Dist., Tainan City, Taiwan;

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Department of Medical Research, Chung Shan Medical University Hospital, No. 110, Jianguo N. Rd., Taichung, Taiwan

ABSTRACT: The objective of this study was to evaluate the feasibility of using a single tin oxide (SnO 2) gas sensor as a simple and reliable tool for evaluating the efficiency of odor control engineering at food waste composting plants, by correlating sensor responses with chemical concentrations of critical odorants and olfactometric data obtained under laboratory and field conditions. Three critical odorants, including dimethylsulfide, trimethylamine and acetic acid, were prepared in various concentrations, ranging from parts per billion, to parts per million levels. Field samples were collected from two large food waste composting plants in Taiwan. The results indicated that the sensor responses showed significant linear correlation with the chemical concentration of the three target odorants (P &lt; 0.01) and with the olfactometric data for these odorants at various concentrations (P &lt; 0.01). The correlation coefficients were all above 0.940. For field odor measurement, the SnO 2 gas sensor responses showed a good linear correlation with the olfactometric data for samples inside the composting plants, at exhaust outlets and at downwind boundaries (P &lt; 0.01), and the correlation coefficient was 0.963; the coefficient of variation (CV%) of the sensor for triplicate measurements was 0.9-8.4%. © 2012 Elsevier B.V. All rights reserved.

AUTHOR KEYWORDS: Electronic nose; Food waste composting; Gas sensor; Odor measurement; Tin oxide

DOCUMENT TYPE: Article

SOURCE: Scopus

Piškur, J., Ling, Z., Marcet-Houben, M., Ishchuk, O.P., Aerts, A., LaButti, K., Copeland, A., Lindquist, E., Barry, K., Compagno, C., Bisson, L., Grigoriev, I.V., Gabaldón, T., Phister, T.

The genome of wine yeast Dekkera bruxellensis provides a tool to explore its food-related properties

(2012) International Journal of Food Microbiology, 157 (2), pp. 202-209. Cited 7 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84862840690&partnerID=40&md5=ef08c3c7c65e7d3053678cc8444fa9f5

AFFILIATIONS: Wine Research Centre, University of Nova Gorica, Slovenia;

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Centre for Genomic Regulation (CRG) and UPF, Barcelona, Spain;

US Department of Energy Joint Genome Institute, 2800 Michell Dr, Walnut Creek, CA 94598, United States;

Department of Biological Sciences and Biotechnology, University of Milan, Italy;

Department of Viticulture and Enology, University of California, Davis, United States;

Division of Food Science, Brewing Science Program, University of Nottingham, United Kingdom

ABSTRACT: The yeast . Dekkera/Brettanomyces bruxellensis can cause enormous economic losses in wine industry due to production of phenolic off-flavor compounds. . D. bruxellensis is a distant relative of baker's yeast . Saccharomyces cerevisiae. Nevertheless, these two yeasts are often found in the same habitats and share several food-related traits, such as production of high ethanol levels and ability to grow without oxygen. In some food products, like lambic beer, . D. bruxellensis can importantly contribute to flavor development. We determined the 13.4. Mb genome sequence of the . D. bruxellensis strain Y879 (CBS2499) and deduced the genetic background of several "food-relevant" properties and evolutionary history of this yeast. Surprisingly, we find that this yeast is phylogenetically distant to other food-related yeasts and most related to . Pichia (Komagataella) pastoris, which is an aerobic poor ethanol producer. We further show that the . D. bruxellensis genome does not contain an excess of lineage specific duplicated genes nor a horizontally transferred . URA1 gene, two crucial events that promoted the evolution of the food relevant traits in the . S. cerevisiae lineage. However, . D. bruxellensis has several independently duplicated . ADH and . ADH-like genes, which are likely responsible for metabolism of alcohols, including ethanol, and also a range of aromatic compounds. © 2012 Elsevier B.V.

AUTHOR KEYWORDS: Aromatic compounds; Comparative genomics; Ethanol fermentations; Evolution; Wine yeast

DOCUMENT TYPE: Article

SOURCE: Scopus

Félix, J.S., Isella, F., Bosetti, O., Nerín, C.

Analytical tools for identification of non-intentionally added substances (NIAS) coming from polyurethane adhesives in multilayer packaging materials and their migration into food simulants

(2012) Analytical and Bioanalytical Chemistry, 403 (10), pp. 2869-2882. Cited 5 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84863782823&partnerID=40&md5=fe800dd44ff46890337edbab18794f62

AFFILIATIONS: Department of Analytical Chemistry, University of Zaragoza (UNIZAR), 50018 Zaragoza, Spain;

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ABSTRACT: Adhesives used in food packaging to glue different materials can provide several substances as potential migrants, and the identification of potential migrants and migration tests are required to assess safety in the use of adhesives. Solid-phase microextraction in headspace mode and gas chromatography coupled to mass spectrometry (HSSPME- GC-MS) and ChemSpider and SciFinder databases were used as powerful tools to identify the potential migrants in the polyurethane (PU) adhesives and also in the individual plastic films (polyethylene terephthalate, polyamide, polypropylene, polyethylene, and polyethylene/ ethyl vinyl alcohol). Migration tests were carried out by using Tenax® and isooctane as food simulants, and the migrants were analyzed by gas chromatography coupled to mass spectrometry. More than 63 volatile and semivolatile compounds considered as potential migrants were detected either in the adhesives or in the films. Migration tests showed two non-intentionally added substances (NIAS) coming from PU adhesives that migrated through the laminates into Tenax® and into isooctane. Identification of these NIAS was achieved through their mass spectra, and 1,6- dioxacyclododecane-7,12-dione and 1,4,7-trioxacyclotridecane- 8,13-dione were confirmed. Caprolactam migrated into isooctane, and its origin was the external plastic film in the multilayer, demonstrating real diffusion through the multilayer structure. Comparison of the migration values between the simulants and conditions will be shown and discussed. © 2012 Springer-Verlag.

AUTHOR KEYWORDS: Food safety; Migration; Multilayer food packaging; NIAS; Polyurethane adhesives

DOCUMENT TYPE: Article

SOURCE: Scopus

Soon, J.M., Baines, R.N.

Aquaculture Farm Food Safety and Diseases Risk Assessment (AquaFRAM): Development of a spreadsheet tool for salmon farms

(2012) Aquacultural Engineering, 49, pp. 35-45. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861196278&partnerID=40&md5=f4354a7c5bf329506dd61fa8afdfb458

AFFILIATIONS: School of Agriculture, Royal Agricultural College, Cirencester, Gloucestershire GL7 6JS, United Kingdom;

Department of Agro Industry, Faculty of Agro Industry and Natural Resources, Universiti Malaysia Kelantan, 17600 Jeli, Kelantan, Malaysia

ABSTRACT: Atlantic salmon (. Salmo salar) is the most significant aquaculture species in Europe, both in terms of production and economic value, with Norway, followed by Scotland and Ireland as the three major European producers. The objective of the present study was to develop a spreadsheet tool for aquaculture farm-food safety and diseases risk assessment (AquaFRAM) for salmon farms in the UK, (and possibly more widely) to encourage farms to assess potential hazards and diseases. AquaFRAM functions primarily as a self-assessment risk ranking and risk-learning tool to determine the potential of farm food safety hazards, diseases and the level of possible risk for contamination and infections. AquaFRAM has been developed using MS Excel software utilising a qualitative risk assessment approach for farmers to evaluate their food safety practices and diseases on their farms. The risk assessment is based on the risk matrix of frequency of likelihood. ×. severity, where the farmers can judge the likelihood of the hazards occurring on their farm based on given examples or scenarios. Grounding of the model, based on severity scoring is predicated on relevant reports in the literature and expert opinion derived from a separate Delphi study. The AquaFRAM Tool has since been tested on 9 salmon companies throughout UK. All of the farms which tried and tested the AquaFRAM Tool reported it being farmer-friendly and practical. It was highlighted that the current tool focused mainly on risk reduction and not risk elimination. However, such farm food safety and diseases risk assessment tool would be helpful, and certainly timely, to further encourage farms to assess potential hazards and diseases. It is also appropriate for educational and training of full-time and seasonal farm workers. © 2012 Elsevier B.V.

AUTHOR KEYWORDS: Atlantic salmon; Biosecurity; Food safety; Good Aquacultural Practices; Likelihood; Qualitative risk assessment

DOCUMENT TYPE: Article

SOURCE: Scopus

Soon, J.M., Davies, W.P., Chadd, S.A., Baines, R.N.

A Delphi-based approach to developing and validating a farm food safety risk assessment tool by experts

(2012) Expert Systems with Applications, 39 (9), pp. 8325-8336. Cited 4 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84858340150&partnerID=40&md5=925a4fa21b0e8eb025b3ab923fab0f0e

AFFILIATIONS: School of Agriculture, Royal Agricultural College, Cirencester, Gloucestershire GL7 6JS, United Kingdom;

Department of Agro Industry, Faculty of Agro Industry and Natural Resources, Universiti Malaysia Kelantan, Malaysia

ABSTRACT: A farm food safety risk assessment tool for fresh produce and salmon farms were developed and the Delphi-based approach was utilised to identify and aggregate the opinions of experts on the food safety hazards and diseases faced in the farms while simultaneously certifying the scientific contents of the tool. The expert panels also serve to validate the methodology used in the farm food safety risk assessment tool as well as to suggest for improvements. Three rounds of Delphi questionnaire were carried out and the process managed to solicit experts' agreement on the food safety hazards and diseases associated with UK's fresh produce and salmon farms and the topics used in the farm food safety risk assessment tool. The results and suggestions obtained from Delphi process were reviewed and subsequently adapted into the risk assessment tool. The Delphi-based technique has proven to be a valuable approach to aggregate multiple experts' opinions across diverse locations and achieves a wider distribution of experts. © 2012 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Delphi technique; Food safety; Risk assessment

DOCUMENT TYPE: Article

SOURCE: Scopus

De Oliveira, C.P., Rodriguez-Lafuente, A., Soares, N.D.F.F., Nerin, C.

Multiple headspace-solid-phase microextraction as a powerful tool for the quantitative determination of volatile radiolysis products in a multilayer food packaging material sterilized with γ-radiation

(2012) Journal of Chromatography A, 1244, pp. 61-68. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861727858&partnerID=40&md5=d7bddc952080de098df5f78fae67e96a

AFFILIATIONS: Department of Rural and Animal Technology, Bahia's Southwest State University, Praça Primavera 40, 45700-000 Itapetinga, Bahia, Brazil;

Aragon Institute of Engineering Research (I3A), EINA, Department of Analytical Chemistry, University of Zaragoza, María de Luna 3, 50018 Zaragoza, Spain;

Universidade Federal de Viçosa, Avenida PH Holfs, s/n, Campus Universitário, 36.570-000 Viçosa, Minas Gerais, Brazil

ABSTRACT: A method consisting of multiple headspace solid-phase microextraction followed by gas chromatography-mass spectrometry analysis was developed and used to determine the main volatile radiolysis products formed by γ-irradiation of flexible multilayer food packaging samples. The developed method allows the use of solid-phase microextraction in the quantification of compounds from plastic solid samples. A screening of volatiles in the γ-irradiated and non-irradiated films was performed and 29 compounds were identified in the irradiated packaging, 17 of which were absent in the non-irradiated samples. The main volatile radiolysis products identified were: 1,3-di-tert-butylbenzene; 2,6-di-tert-butyl-1,4-benzoquinone; 4-tert-butyl-phenol and the off-odor compounds butanoic acid and valeric acid. These volatile radiolysis compounds were determined with the proposed method and the results are shown and discussed. Solid-liquid extraction and headspace solid-phase microextraction methods were also studied for comparative purposes. The automated solvent-free multiple HSPME technique here presented can be used to quantify the radiolysis compounds in irradiated plastic solid samples in a simple way with the advantages of being free from matrix influence and environmentally friendly. © 2012 Elsevier B.V.

AUTHOR KEYWORDS: γ-Irradiation; Food packaging material; GC-MS; Multiple solid-phase microextraction; Volatile radiolysis compounds

DOCUMENT TYPE: Article

SOURCE: Scopus

Ghosh, D., Chattopadhyay, P.

Application of principal component analysis (PCA) as a sensory assessment tool for fermented food products

(2012) Journal of Food Science and Technology, 49 (3), pp. 328-334.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84863983302&partnerID=40&md5=65579e59553f80abcc0bcfbf2a15b55f

AFFILIATIONS: Department of Food Technology and Biochemical Engineering, Jadavpur University, Kolkata 700032, India;

Department of Food Technology, Guru Nanak Institute of Technology, Panihati- Sodepur, Kolkata 700114, India

ABSTRACT: The objective of the work was to use the method of quantitative descriptive analysis (QDA) to describe the sensory attributes of the fermented food products prepared with the incorporation of lactic cultures. Panellists were selected and trained to evaluate various attributes specially color and appearance, body texture, flavor, overall acceptability and acidity of the fermented food products like cow milk curd and soymilk curd, idli, sauerkraut and probiotic ice cream. Principal component analysis (PCA) identified the six significant principal components that accounted for more than 90% of the variance in the sensory attribute data. Overall product quality was modelled as a function of principal components using multiple least squares regression (R 2 = 0.8). The result from PCA was statistically analyzed by analysis of variance (ANOVA). These findings demonstrate the utility of quantitative descriptive analysis for identifying and measuring the fermented food product attributes that are important for consumer acceptability. © Association of Food Scientists &amp; Technologists (India) 2011.

AUTHOR KEYWORDS: ANOVA; Fermented foods; Lactic cultures; Principal component analysis; Quantitative descriptive analysis

DOCUMENT TYPE: Article

SOURCE: Scopus

Caldarelli, S.

NMR, a tool for the molecular characterization of food products [La RMN pour la caractérisation moléculaire de produits de consommation agroalimentaire]

(2012) Actualite Chimique, (364-365), pp. 69-72.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84863695469&partnerID=40&md5=756029f2e2b32250d0a43531e7a57f1c

AFFILIATIONS: ISM2, UMR 7313 CNRS, Aix Marseille Université, Campus scientifique de Saint-Jérôme, F-13397 Marseille Cedex 20, France;

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ABSTRACT: The ability of NMR to identify a large number of bio-organic compounds has given this technique a privileged role in the characterization and authentication of food products. If on the one hand the classical methods of NMR are able to solve the structure of specific molecules (e.g. proteins or nutritionally relevant small molecules), this requires purification steps. However, the possibility to directly analyze the products in a state as close as possible to their mode of consumption is becoming increasingly common. In this paper, some examples are illustrated of recent methodological developments in this direction, adapted to the study of products of various kinds such as solids (cheese, meat) or liquids (oils).

AUTHOR KEYWORDS: Foodstuff; HRMAS; Multivariate statistics; NMR

DOCUMENT TYPE: Article

SOURCE: Scopus

Spagnoletti, N., Visalberghi, E., Verderane, M.P., Ottoni, E., Izar, P., Fragaszy, D.

Stone tool use in wild bearded capuchin monkeys, Cebus libidinosus. Is it a strategy to overcome food scarcity?

(2012) Animal Behaviour, 83 (5), pp. 1285-1294. Cited 5 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859717050&partnerID=40&md5=98365acc6ba79a6162e6f4eefc623ce6

AFFILIATIONS: Istituto di Scienze e Tecnologie della Cognizione, Consiglio Nazionale delle Ricerche, Rome, Italy;

Dipartimento di Biologia Animale e dell'Uomo, Università La Sapienza di Roma, Rome, Italy;

Institute of Psychology, Department of Experimental Psychology, University of São Paulo, São Paulo, Brazil;

Psychology Department, University of Georgia, Athens, GA, United States

ABSTRACT: To determine whether tool use varied in relation to food availability in bearded capuchin monkeys, we recorded anvil and stone hammer use in two sympatric wild groups, one of which was provisioned daily, and assessed climatic variables and availability of fruits, invertebrates and palm nuts. Capuchins used tools to crack open encased fruits, mostly palm nuts, throughout the year. Significant differences between wet and dry seasons were found in rainfall, abundance of invertebrates and palm nuts, but not in fruit abundance. Catulè nuts were more abundant in the dry season. We tested the predictions of the necessity hypothesis (according to which tool use is maintained by sustenance needs during resource scarcity) and of the opportunity hypothesis (according to which tool use is maintained by repeated exposure to appropriate ecological conditions, such as preferred food resources necessitating the use of tools). Our findings support only the opportunity hypothesis. The rate of tool use was not affected by provisioning, and the monthly rate of tool use was not correlated with the availability of fruits and invertebrates. Conversely, all capuchins cracked food items other than palm nuts (e.g. cashew nuts) when available, and adult males cracked nuts more in the dry season when catulè nuts (the most common and exploited nut) are especially abundant. Hence, in our field site capuchins use tools opportunistically. © 2012 The Association for the Study of Animal Behaviour.

AUTHOR KEYWORDS: Bearded capuchin; Cebus libidinosus; Fallback food; Necessity hypothesis; Nut cracking; Opportunity hypothesis; Tool use

DOCUMENT TYPE: Article

SOURCE: Scopus

Canellas, E., Vera, P., Domeño, C., Alfaro, P., Nerín, C.

Atmospheric pressure gas chromatography coupled to quadrupole-time of flight mass spectrometry as a powerful tool for identification of non intentionally added substances in acrylic adhesives used in food packaging materials

(2012) Journal of Chromatography A, 1235, pp. 141-148. Cited 3 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859004510&partnerID=40&md5=06bcd020aa2198793aa598142c01df97

AFFILIATIONS: GUIA Group, Department of Analytical Chemistry, University of Zaragoza, I3A, María de Luna, 350018 Zaragoza, Spain;

Samtack Adhesivos Industriales, C/ Cerámica, n 3, Pol. Ind. Magarola Sud, 08292, Esparraguera, Barcelona, Spain

ABSTRACT: Acrylic adhesives are used to manufacture multilayer laminates that are used in food packaging to form the geometric shape of the package as well as to stick labels on the packages. Once applied on the packaging adhesives can supply potential migrants that could endanger the packaged food. Adhesives are complex matrices where intentionally and non intentionally added substances are present, but the identification of the migrants is required by law. In this study atmospheric pressure gas chromatography coupled to a quadrupole hyphenated to a time of flight mass spectrometer (APGC-MS/Q-TOF) has been explored for identification of unknowns coming from three different acrylic adhesives. The results are compared to those obtained by conventional GC-MS-Q (quadrupole). Sixteen compounds were identified by GC-MS/Q and five of them were confirmed by APGC-MS/Q-TOF as their molecular ions were found. Moreover, additional three new compounds were identified and their structure was elucidated working with the spectra obtained by APGC-MS/Q-TOF. This finding was very relevant as these compounds were biocides suspected to be allergenic and cytotoxic in humans. Migration studies were carried out using Tenax as solid food simulant and the results showed that the three acrylic adhesives tested in this work were safe for being used in food packaging materials since the migration of compounds previously identified was below the limit established in the current legislation. © 2012 Elsevier B.V.

AUTHOR KEYWORDS: Acrylic adhesives; APGC; Chemical migration; Food packaging; NIAS; Q-TOF

DOCUMENT TYPE: Article

SOURCE: Scopus

Nepusz, T., Petróczi, A., Naughton, D.P.

Interactive network analytical tool for instantaneous bespoke interrogation of food safety notifications

(2012) PLoS ONE, 7 (4), art. no. e35652, .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84860015629&partnerID=40&md5=21e5647c2843c4b914bb24d07de616b2

AFFILIATIONS: School of Life Sciences, Kingston University, London, United Kingdom

ABSTRACT: Background: The globalization of food supply necessitates continued advances in regulatory control measures to ensure that citizens enjoy safe and adequate nutrition. The aim of this study was to extend previous reports on network analysis relating to food notifications by including an optional filter by type of notification and in cases of contamination, by type of contaminant in the notified foodstuff. Methodology/Principal Findings: A filter function has been applied to enable processing of selected notifications by contaminant or type of notification to i) capture complexity, ii) analyze trends, and iii) identify patterns of reporting activities between countries. The program rapidly assesses nations' roles as transgressor and/or detector for each category of contaminant and for the key class of border rejection. In the open access demonstration version, the majority of notifications in the Rapid Alert System for Food and Feed were categorized by contaminant type as mycotoxin (50.4%), heavy metals (10.9%) or bacteria (20.3%). Examples are given demonstrating how network analytical approaches complement, and in some cases supersede, descriptive statistics such as frequency counts, which may give limited or potentially misleading information. One key feature is that network analysis takes the relationship between transgressor and detector countries, along with number of reports and impact simultaneously into consideration. Furhermore, the indices that compliment the network maps and reflect each country's transgressor and detector activities allow comparisons to be made between (transgressing vs. detecting) as well as within (e.g. transgressing) activities. Conclusions/significance: This further development of the network analysis approach to food safety contributes to a better understanding of the complexity of the effort ensuring food is safe for consumption in the European Union. The unique patterns of the interplay between detectors and transgressors, instantly revealed by our approach, could supplement the intelligence gathered by regulatory authorities and inform risk based sampling protocols. © 2012 Nepusz et al.

DOCUMENT TYPE: Article

SOURCE: Scopus

Pruetz, J.D. , Lindshield, S.

Plant-food and tool transfer among savanna chimpanzees at Fongoli, Senegal

(2012) Primates, 53 (2), pp. 133-145. Cited 3 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859584686&partnerID=40&md5=5783748a3d35939bd43e43468105c5c2

AFFILIATIONS: Department of Anthropology, Iowa State University, 324 Curtiss Hall, Ames, IA 50011, United States;

Ecology and Evolutionary Biology, Iowa State University, Ames, IA 50011, United States

ABSTRACT: Transferring food is considered a defining characteristic of humans, as such behavior is relatively uncommon in other animal species save for kin-based transfer. Chimpanzees (Pan troglodytes) are one exception, as they commonly transfer meat among nonrelatives but rarely transfer other resources. New observations at Fongoli, Senegal, show habitual transfer of wild-plant foods and other non-meat resources among community members beyond transfers from mother to offspring. We explore various explanations for these behaviors with a focus on age- and sex-class patterns in transfer events. In a total of 27 of 41 cases, male chimpanzees at Fongoli transferred wild-plant foods or tools to females. Most other cases involved transfer among males or males taking food from females. In light of male-female transfer patterns at Fongoli, we examine four hypotheses that have been applied to food transfer in apes: (1) testing for male-coercive tendency (van Noordwijk and van Schaik, Behav Ecol Sociobiol 63:883-890, 2009), (2) costly signaling (Hockings et al. PLoS ONE 2:e886, 2007), (3) food-for-sex (Gomes and Boesch, PLoS ONE 4:5116, 2009), and (4) sharing-under-pressure (Gilby, Anim Behav 71:953-963, 2006). We also consider hypotheses posed to explain transfer among callitrichids, where such behavior is more common (Ruiz-Miranda et al. Am J Primatol 48:305-320, 1999). Finally, we examine variables such as patch and food size and food transport. We discuss our findings relative to general patterns of non-meat transfer in Pan and examine them in the context of chimpanzee sociality in particular. We then contrast chimpanzee species and subspecies in terms of non-meat food and tool transfer and address the possibility that a savanna environment contributes to the unusual pattern observed at Fongoli. © 2011 Japan Monkey Centre and Springer.

AUTHOR KEYWORDS: Chimpanzee; Food transfer; Pan troglodytes verus; Savanna; Sharing

DOCUMENT TYPE: Article

SOURCE: Scopus

Patel, K.K., Kar, A., Jha, S.N., Khan, M.A.

Machine vision system: A tool for quality inspection of food and agricultural products

(2012) Journal of Food Science and Technology, 49 (2), pp. 123-141. Cited 5 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84862230451&partnerID=40&md5=9b20a445b6812bb56fc360916a11685e

AFFILIATIONS: Division of Post Harvest Technology, Indian Agricultural Research Institute, New Delhi 110012, India;

CIPHET, Ludhiana, Punjab, India;

AMU, Aligarh 202002, Uttar Pradesh, India

ABSTRACT: Quality inspection of food and agricultural produce are difficult and labor intensive. Simultaneously, with increased expectations for food products of high quality and safety standards, the need for accurate, fast and objective quality determination of these characteristics in food products continues to grow. However, these operations generally in India are manual which is costly as well as unreliable because human decision in identifying quality factors such as appearance, flavor, nutrient, texture, etc., is inconsistent, subjective and slow. Machine vision provides one alternative for an automated, non-destructive and cost-effective technique to accomplish these requirements. This inspection approach based on image analysis and processing has found a variety of different applications in the food industry. Considerable research has highlighted its potential for the inspection and grading of fruits and vegetables, grain quality and characteristic examination and quality evaluation of other food products like bakery products, pizza, cheese, and noodles etc. The objective of this paper is to provide in depth introduction of machine vision system, its components and recent work reported on food and agricultural produce. © Association of Food Scientists & Technologists (India) 2011.

AUTHOR KEYWORDS: Food and agricultural products; Image analysis; Image processing; Machine vision; Quality inspection

DOCUMENT TYPE: Review

SOURCE: Scopus

McCullough, C.E., Reed, T., Kaufman-Rivi, D.

A tool to analyze medical device problems: The Food and Drug Administration device problem codes

(2012) Journal of Clinical Engineering, 37 (2), pp. 56-62.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859012668&partnerID=40&md5=46ffeaa274da16eebe9b45056ab691a1

AFFILIATIONS: Food and Drug Administration, 10903 New Hampshire Ave, Silver Spring, MD 20993, United States

ABSTRACT: Most, if not all, hospital clinical/biomedical engineering departments currently use Computerized Maintenance Management Software for maintenance of their equipment inventory, scheduling of preventive maintenance, and documentation of corrective and preventive maintenance activities. In addition, this software is often used for maintenance of replacement parts inventories and generation of management reports for budgetary and other purposes. The clinical engineer currently uses the maintenance history stored in the Computerized Maintenance Management Software to identify trends of equipment breakdown patterns and justify replacement of outdated or problematic equipment. © 2012 Lippincott Williams & Wilkins, Inc.

DOCUMENT TYPE: Article

SOURCE: Scopus

Li, Y.

Gene deletor: A new tool to address gene flow and food safety concerns over transgenic crop plants

(2012) Frontiers in Biology, 7 (6), pp. 557-565.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84870658033&partnerID=40&md5=8bc9c0f266007435e71ac055e0a55f25

AFFILIATIONS: Department of Plant Science and Landscape Architecture, University of Connecticut, Storrs, CT, 06269, United States

ABSTRACT: Environmental and food safety concerns over transgenic plants have hampered commercial applications of transgenic plant technology worldwide. A recently developed transgene deletion technology, named gene deletor technology, may be used to eliminate all transgenes from pollen, seeds, fruits or other organs when functions of transgenes are no longer needed or their presence may cause concerns. In this review, I will briefly describe the principle of the gene deletor technology with major supporting experimental data. I will also explain main characteristics and requirements of the gene deletor technology. Finally, I will discuss the gene deletor technology in the context of how it may be used to alleviate environmental and food safety concerns over transgenic plants in vegetatively and sexually propagated plants, to prevent volunteer transgenic plants, to protect proprietary transgenic technologies, and to allow farmers to reuse their harvested seeds for future planting. © 2012 Higher Education Press and Springer-Verlag Berlin Heidelberg.

AUTHOR KEYWORDS: FLP/FRT; food safety; Gene deletor; loxP/Cre; pollen-mediated gene flow; proprietary technologies; seed-mediated gene flow; transgene deletion; transgenic plants; volunteer transgenic plants

DOCUMENT TYPE: Review

SOURCE: Scopus

Hefny, M.A.

Changing behavior as a policy tool for enhancing food security

(2012) Water Policy, 14 (SUPPL. 1), pp. 106-120. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84858189146&partnerID=40&md5=b235dd3c31526561721a30a2a483d8f7

AFFILIATIONS: Arab Network of Water Ethics (ANWE), Arab Water Council, Cairo, 5, Elobour Buildings Salah Salem Street, Hiliopolis, Cairo, Egypt

ABSTRACT: Recent developments in international markets point to a dramatic food crisis all over the world. The media today is repeatedly dominated by staggering reports on the global food crisis, soaring crop prices and demands for biofuels, raising fears of political instability. Since 2002, media reports have mostly highlighted the dramatic situation of food insecurity. The Arab region is most seriously affected by the global food crisis. It is clear that the root causes of 'the Arab springs' and revolutions underway in various Arab countries are not only a desire for transformation to a more democratic political system but also desire for the realization of social justice among citizens, the eradication of poverty and hunger, and a narrowing of the gap between rich and poor. This paper addresses the need for a change in individual and societal behavioral patterns. It addresses the need for communities to assist governments in preventing and managing water-related food crises. It brings together world waters in its complexities, with new dimensions of institutional context and cultural norms. The effectiveness of ongoing traditional approaches may be limited without additional measures and tools to help governments understand how to engage in cooperative behavioral change. © IWA Publishing & the Botín Foundation 2012.

AUTHOR KEYWORDS: Changing behaviour; Culture and ethics; Food security; Integrated water resources management (IWRM); Water-food crisis

DOCUMENT TYPE: Article

SOURCE: Scopus

Smith, B.P., Appleby, R.G., Litchfield, C.A.

Spontaneous tool-use: An observation of a dingo (Canis dingo) using a table to access an out-of-reach food reward

(2012) Behavioural Processes, 89 (3), pp. 219-224. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84857139647&partnerID=40&md5=2e70707178513a1b58f216eb3065c409

AFFILIATIONS: Australian Dingo Foundation, VIC, Australia;

School of Environmental Science, Griffith University, Australia;

School of Psychology, Social Work and Social Policy, University of South Australia, Australia

ABSTRACT: Opportunities to observe non-human animals exhibiting naturalistic 'high-order' behaviour are rare. Examples featuring canids, although often anecdotal and involving captive animals are potentially valuable, as they may provide an opportunity to examine complex problem-solving behaviour not easily observed in free-ranging settings. This paper describes observations of two captive male dingoes (Canis dingo), representing possible examples of high-order behaviour. The first set of observations involved a sub-adult male that spontaneously (i.e., without training) learned to move objects around his enclosure, apparently to multiple ends, such as in an effort to gain the additional height required to attain objects otherwise out of reach, or to attain a better view of his surroundings. The second set of observations involved an adult male that learned to open a gate, possibly in an effort to gain access to a female. These observations add to the small number of anecdotal accounts offering a window into the cognitive abilities of canids, and the observations involving the sub-adult male appear to be the first documented cases of tool-use in a canid. © 2011 Elsevier B.V.

AUTHOR KEYWORDS: Canid; Cognition; Dingo; High-order behaviour; Intelligence; Tool use

DOCUMENT TYPE: Article

SOURCE: Scopus

Addy, R.

New virtual warehousing tool for food manufacturers

(2012) Food Manufacture, (3), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859353765&partnerID=40&md5=563b4a0204620ba9c77b10b8d0ef4b1d

AUTHOR KEYWORDS: 3D virtual reality warehouse simulator; Logistics providers

DOCUMENT TYPE: Note

SOURCE: Scopus

Hwang, M., Smith, M.

Integrating publicly available web mapping tools for cartographic visualization of community food insecurity: A prototype

(2012) GeoJournal, 77 (1), pp. 47-62.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84863059405&partnerID=40&md5=09fde15da6e92f5675dc8e3e0e8382a0

AFFILIATIONS: GeoDa Center for Geospatial Analysis and Computation, School of Geographical Sciences and Urban Planning, Arizona State University, Tempe, AZ, United States

ABSTRACT: Spatial profiling of community food security data can help the targeting of geographic areas and populations most vulnerable to food insecurity. While multiple poverty mapping systems support spatial profiling, they often lack capabilities to disseminate mapping results to a wide range of audiences and to spatially link qualitative data to quantitative analysis. To address these limitations, this study presents a web mapping framework which integrates a variety of publicly available software tools to enable spatial exploration of both quantitative and qualitative data. Specifically, our framework allows online choropleth mapping and thematic data exploration through a mixture of free mapping Application Programming Interfaces (APIs) and open source software tools for spatial data processing and desktop-like user interfaces. The study demonstrates this framework by developing a web prototype for informing food insecurity issues in Bogotá, Colombia. The prototype implementation reveals that the proposed framework facilitates the development of scalable and functionally-extensible mapping systems and the identification of community-specific food insecurity problems (e. g., food kitchens inaccessible from workplaces of low-income residents). This suggests that web-based cartographic visualization using publicly available software tools can be useful for spatial examination of community food insecurity as well as for cost-effective distribution of the resulting map information. © 2010 Springer Science+Business Media B.V.

AUTHOR KEYWORDS: Bogotá; Choropleth mapping; Community food security; Free or open source software; Spatial data exploration; Web mapping

DOCUMENT TYPE: Article

SOURCE: Scopus

Ferguson, L.R., Schlothauer, R.C.

The potential role of nutritional genomics tools in validating high health foods for cancer control: Broccoli as example

(2012) Molecular Nutrition and Food Research, 56 (1), pp. 126-146. Cited 4 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84855321572&partnerID=40&md5=e2fb6a3f17ccb0a5ee8976f1339e1df9

AFFILIATIONS: Discipline of Nutrition, Faculty of Medical and Health Sciences, The University of Auckland, Auckland, New Zealand;

Nutrigenomics, New Zealand;

Chief Technology Officer, Comvita New Zealand Limited, Te Puke, New Zealand

ABSTRACT: Nutritional genomics reflects gene/nutrient interactions, utilising high-throughput genomic tools in nutrition research. The field also considers the contribution of individual genotypes to wellness and the risk of chronic disease (nutrigenetics), and how such genetic predisposition may be modified by appropriate diets. For example, high consumption of brassicaceous vegetables, including broccoli, has regularly associated with low cancer risk. Bioactive chemicals in broccoli include glucosinolates, plant pigments including kaempferol, quercetin, lutein and carotenoids, various vitamins, minerals and amino acids. Cancer prevention is hypothesised to act through various mechanisms including modulation of xenobiotic metabolising enzymes, NF-E2 p45-related factor-2 (Nrf2)-mediated stress-response mechanisms, and protection against genomic instability. Broccoli and broccoli extracts also regulate the progression of cancer through anti-inflammatory effects, effects on signal transduction, epigenetic effects and modulation of the colonic microflora. Human intervention studies with broccoli and related foods, using standard biomarker methodologies, reveal part of a complex picture. Nutrigenomic approaches, especially transcriptomics, enable simultaneous study of various signalling pathways and networks. Phenotypic, genetic and/or metabolic stratification may identify individuals most likely to respond positively to foods or diets. Jointly, these technologies can provide proof of human efficacy, and may be essential to ensure effective market transfer and uptake of broccoli and related foods. © 2012 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.

AUTHOR KEYWORDS: Broccoli; Nutrigenetics; Nutrigenomics; Sulforaphane; Transcriptomics

DOCUMENT TYPE: Review

SOURCE: Scopus

Morcia, C., Stanca, A.M., Tumino, G., Terzi, V.

Genetic traceability as a tool in managing safety and improved quality in feed and food chains

(2012) Agrochimica, 56 (1), pp. 1-27.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84875931116&partnerID=40&md5=cf0f6102ed78d57fc753969283d5bfe4

AFFILIATIONS: CRA-GPG, Genomic Research Centre, Via San Protaso 302, 1-29017 Fiorenzuola d'Arda (PC), Italy;

Department of Agricultural Sciences, University of Modena and Reggio Emilia, 1-42100 Reggio Emilia, Italy

ABSTRACT: The identification of plant and animal species in food and feed can have an important role for the safety and quality of the products, for producers, in consumer protection and for regulatory enforcement. Increasing demands for traceability can be satisfied by DNA-based approaches and genetic fingerprinting and these also have useful applications in the identification of plants, animals and microorganisms involved in the food (and feed) chains, the management of these chains and in quality assurance.

AUTHOR KEYWORDS: Fingerprinting; Molecular markers; QPCR; Traceability

DOCUMENT TYPE: Article

SOURCE: Scopus

Otero, L., Sanz, P., Guignon, B., Sanz, P.D.

Pressure-shift nucleation: A potential tool for freeze concentration of fluid foods

(2012) Innovative Food Science and Emerging Technologies, 13 (JANUARY), pp. 86-99. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84857453086&partnerID=40&md5=7332d32e32d338ab861812024b78084b

AFFILIATIONS: Malta Consolider Team, Department of Processes, Institute of Food Science, Technology and Nutrition (ICTAN-CSIC), c/ José Antonio Nováis, 10, 28040 Madrid, Spain

ABSTRACT: Pressure-shift nucleation (PSN) has been evaluated as a potential substitute of the crystallization step at the scraped surface heat exchanger in conventional freeze concentration. To do that, PSN experiments were carried out at different pressure and temperature conditions in orange juices of several concentrations. After crystallization, the final concentration reached and the size and shape of the ice crystals formed were measured. The results obtained showed that the higher the pressure and the lower the temperature employed in the PSN experiments, the higher is the final concentration in the juice and the smaller the ice crystals formed. Four important advantages of pressure-shift nucleation over conventional crystallization were found: temperature in the pressure vessel can be relatively high if pressure is increased enough, the desired concentration can be achieved in the whole sample quasi-instantaneously just after expansion, ice crystals produced are round in shape without pockets and indentations and they are homogeneously distributed throughout the sample. Industrial relevance: Freeze concentration is the most advantageous technique to obtain high quality food concentrates without appreciable loss in taste, aroma, color, or nutritive value. However, it is hardly employed in the food industry mainly due to economic aspects of the technology. In the last decades, many efforts have been made to improve the crystallization phase, the most expensive step in freeze concentration, without definitive success. The results obtained in this paper show that pressure-shift nucleation presents a number of advantages over the traditional crystallization step at the scraped surface heat exchanger which can be exploited to improve the industrial freeze concentration process. © 2011 Elsevier Ltd.

AUTHOR KEYWORDS: Freeze concentration; High-pressure; Ice crystals; Nucleation; Orange juice; Supercooling

DOCUMENT TYPE: Article

#### Food & Solutions

Liu, Z., Zhong, S., Liu, X.

Permanence and periodic solutions for an impulsive reaction-diffusion food-chain system with ratio-dependent functional response

(2014) Communications in Nonlinear Science and Numerical Simulation, 19 (1), pp. 173-188.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84884152762&partnerID=40&md5=68296de19d3c379cddf84a4f75bfdc59

AFFILIATIONS: School of Science, Chongqing Jiaotong University, Chongqing 400074, China;

School of Mathematical Science, University of Electronic Science and Technology of China, Chengdu, Sichuan 610054, China;

School of Automation Engineering, University of Electronic Science and Technology of China, Chengdu 610054, China

ABSTRACT: An impulsive reaction-diffusion periodic food-chain system with ratio-dependent functional response is investigated in the present paper. Sufficient conditions for the ultimate boundedness and permanence of the food-chain system are established based on the comparison theory of differential equation and upper and lower solution method. By constructing appropriate auxiliary function, the conditions for the existence of a unique globally stable positive periodic solution are also obtained. Some numerical examples are presented to verify our results. A discussion is given in the end of the paper. © 2013 Elsevier B.V.

AUTHOR KEYWORDS: Food-chain system; Permanence; Ratio-dependent functional response; Reaction-diffusion; Stability

DOCUMENT TYPE: Article

SOURCE: Scopus

Sharma, P., Bhardwaj, V., Chaudhary, T., Sharma, I., Kumar, P., Chauhan, S.

Micellar interaction study of synthetic antioxidant (BHA) and sodium dodecyl sulfate (SDS) in aqueous solution for potential pharmaceutical/food applications

(2013) Journal of Molecular Liquids, 187, pp. 287-293. Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84883648066&partnerID=40&md5=606c8cbb53d64ca2b45b7fa9e9233c94

AFFILIATIONS: Department of Biotechnology, Bioinformatics and Pharmacy, Jaypee University of Information Technology, Waknaghat, Solan, Himachal Pradesh 173234, India;

Department of Chemistry, Jawahar Lal Engineering College, Sunder Nagar, Himachal Pradesh, India;

Department of Chemistry, Himachal Pradesh University, Summer Hill, Shimla, Himachal Pradesh 173005, India

ABSTRACT: Butylated hydroxyanisole (BHA) is a potential phenolic antioxidant which has a wide range of pharmacological actions, whereas, sodium dodecyl sulfate (SDS) is well known to form colloidal aggregates which can be employed for biological processes, and as effective vehicles for delivery and transport phenomena. Therefore, it would be interesting to evaluate the interactions between BHA-SDS and impact of BHA-SDS micellar properties. Aggregation in terms of CMCs and thermo-acoustic properties via specific conductivity (κ), viscosity (η), compressibility coefficient (β), apparent molar volume (φv) and apparent molar adiabatic compressibility (φk) of SDS in aqueous solutions containing BHA at different temperatures (25, 30, 35 and 40. °C) have been measured. Proton NMR analysis was performed in the absence and presence of BHA. Interactions were evaluated in terms of chemical shifts and moreover provided perceptivity on the location of BHA within the micelle. The results revealed the significant contribution of BHA to promoting the micelle formation much earlier with regard to increase in concentration and temperature. Convincingly, this study not only casts light on the binding interactions but also provides a hint to utilizing the micellar system in stabilization and maintenance of pharmaceutical and food materials. © 2013 Elsevier B.V.

AUTHOR KEYWORDS: Butylatedhydroxyanisole; Interaction; Micellization; Sodium dodecyl sulfate

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Valili, S., Siavalas, G., Karapanagioti, H.K., Manariotis, I.D., Christanis, K.

Phenanthrene removal from aqueous solutions using well-characterized, raw, chemically treated, and charred malt spent rootlets, a food industry by-product

(2013) Journal of Environmental Management, 128, pp. 252-258.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879354907&partnerID=40&md5=949a564f62a1fdd3a6266f324cb2d235

AFFILIATIONS: Department of Chemistry, University of Patras, Patras 26504, Greece;

Department of Geology, University of Patras, Patras 26504, Greece;

Department of Civil Engineering, Environmental Engineering Laboratory, University of Patras, Patras 26504, Greece

ABSTRACT: Malt spent rootlets (MSR) are biomaterials produced in big quantities by beer industry as by-products. A sustainable solution is required for their management. In the present study, MSR are examined as sorbents of a hydrophobic organic compound, phenanthrene, from aqueous solutions. Raw MSR sorb phenanthrene but their sorptive properties are not competitive with the respective properties of commercial sorbents (e.g., activated carbons). Organic petrography is used as a tool to characterize MSR after treatment in order to produce an effective sorbent for phenanthrene. Chemical and thermal (at low temperature under nitrogen atmosphere) treatments of MSR did not result in highly effective sorbents. Based on organic petrography characterization, the pores of the treated materials were filled with humic colloids. When pyrolysis at 800°C was used to treat MSR, a sorbent with new and empty pores was produced. Phenanthrene sorption capacity was 2 orders of magnitude higher for the pyrolized MSR than for raw MSR. © 2013 Elsevier Ltd.

AUTHOR KEYWORDS: Biochar; Biosorption; Polycyclic aromatic hydrocarbons (PAH); Sustainable management; Wastewater treatment

DOCUMENT TYPE: Article

SOURCE: Scopus

Okulus, Z., Héberger, K., Voelkel, A.

Sorption, solubility, and mass changes of hydroxyapatite-containing composites in artificial saliva, food simulating solutions, tea, and coffee

(2013) Journal of Applied Polymer Science, . Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84883186552&partnerID=40&md5=65a4616d3536d091776698fda373dcad

AFFILIATIONS: Poznań University of TechnologyInstitute of Chemical Technology and Engineering, Department of Organic ChemistryPoznań60-965 Poland;

Research Centre for Natural SciencesHungarian Academy of SciencesBudapestH-1025 Hungary

ABSTRACT: The purpose of this study was to evaluate the influence of preparation/storage conditions on the sorption, solubility, and mass changes of new proposed hydroxyapatite-containing resin-based composites. Seventy cylindrical samples of composite were prepared according to the ISO 4049 and stored in different storage solutions (distilled water, artificial saliva, 10% ethanol, 3% acetic acid, heptane, tea, and coffee) for 7, 14, and 28 days at 37°C. Principal component analysis and analysis of the variance were used to determine the impact of the preparation and storage conditions (e.g., curing time, storage time, and type of storage solution) on the changes of stability of examined material. Sorption, solubility, and mass changes of examined samples were specified. The tendency of these changes depending on the curing time, storage time, and type of storage solutions were presented. Due to the observed behavior, three groups of storage solutions were distinguished: "aqueous," acidic, and hydrophobic ("fat") solutions. Investigated properties changed in different way, characteristic for each of the above groups. No general tendency of the influence of storage and curing time was observed. The type of storage solution has the greatest impact on the sorption, solubility, and mass changes of examined material. The influence of the curing and storage time may be neglected. © 2013 Wiley Periodicals, Inc.

AUTHOR KEYWORDS: Ageing; Biomaterials; Composites

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Obesity and food science being part of the solution

(2013) Journal of Food Science, 78 (9), pp. iv-iv.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84883801443&partnerID=40&md5=2074f62f59859d6ddfe953af920ebd90

DOCUMENT TYPE: Editorial

SOURCE: Scopus

Berman, J., Zhu, C., Pérez-Massot, E., Arjó, G., Zorrilla-López, U., Masip, G., Banakar, R., Sanahuja, G., Farré, G., Miralpeix, B., Bai, C., Vamvaka, E., Sabalza, M., Twyman, R.M., Bassié, L., Capell, T., Christou, P.

Can the world afford to ignore biotechnology solutions that address food insecurity?

(2013) Plant Molecular Biology, 83 (1-2), pp. 5-19.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84883248996&partnerID=40&md5=c3a379fce46ca5f45b57249b668b3a30

AFFILIATIONS: Department of Plant Production and Forestry Science, ETSEA, University of Lleida-Agrotecnio Center, Av. Alcalde Rovira Roure, 191, 25198 Lleida, Spain;

Department of Medicine, Institut de Recerca Biomèdica de Lleida (IRBLleida), University of Lleida, Av. Alcalde Rovira Roure, 80, 25198 Lleida, Spain;

Department of Biological Sciences, University of Warwick, Coventry, CV4 7AL, United Kingdom;

Institució Catalana de Recerca i Estudis Avançats, Passeig Lluís Companys, 23, 08010 Barcelona, Spain

ABSTRACT: Genetically engineered (GE) crops can be used as part of a combined strategy to address food insecurity, which is defined as a lack of sustainable access to safe and nutritious food. In this article, we discuss the causes and consequences of food insecurity in the developing world, and the indirect economic impact on industrialized countries. We dissect the healthcare costs and lost productivity caused by food insecurity, and evaluate the relative merits of different intervention programs including supplementation, fortification and the deployment of GE crops with higher yields and enhanced nutritional properties. We provide clear evidence for the numerous potential benefits of GE crops, particularly for small-scale and subsistence farmers. GE crops with enhanced yields and nutritional properties constitute a vital component of any comprehensive strategy to tackle poverty, hunger and malnutrition in developing countries and thus reduce the global negative economic effects of food insecurity. © 2013 Springer Science+Business Media Dordrecht.

AUTHOR KEYWORDS: Economic impact; Food insecurity; Genetically engineered crops; Nutritionally enriched crops

DOCUMENT TYPE: Article

SOURCE: Scopus

Verburg, P.H., Mertz, O., Erb, K.-H., Haberl, H., Wu, W.

Land system change and food security: towards multi-scale land system solutions

(2013) Current Opinion in Environmental Sustainability, . Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84880724769&partnerID=40&md5=23a1f14fce425ad8b141356999ee1bfa

AFFILIATIONS: Institute for Environmental Studies (IVM), VU University Amsterdam, de Boelelaan 1087, 1081 HV Amsterdam, The Netherlands;

Department of Geosciences and Natural Resource Management, University of Copenhagen, Øster Voldgade 10, 1350 Copenhagen K, Denmark;

Institute of Social Ecology Vienna (SEC), Alpen-Adria Universitaet (AAU), Schottenfeldgasse 29, 1070 Vienna, Austria;

Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, Beijing, China

ABSTRACT: Land system changes are central to the food security challenge. Land system science can contribute to sustainable solutions by an integrated analysis of land availability and the assessment of the tradeoffs associated with agricultural expansion and land use intensification. A land system perspective requires local studies of production systems to be contextualised in a regional and global context, while global assessments should be confronted with local realities. Understanding of land governance structures will help to support the development of land use policies and tenure systems that assist in designing more sustainable ways of intensification. Novel land systems should be designed that are adapted to the local context and framed within the global socio-ecological system. Such land systems should explicitly account for the role of land governance as a primary driver of land system change and food production. © 2013 The Authors.

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Krishni, R.R., Foo, K.Y., Hameed, B.H.

Food cannery effluent, pineapple peel as an effective low-cost biosorbent for removing cationic dye from aqueous solutions

(2013) Desalination and Water Treatment, . Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84880224561&partnerID=40&md5=f4a75573b8230a8d143f12e0e5149eb6

AFFILIATIONS: School of Chemical Engineering, Engineering Campus, Universiti Sains Malaysia, 14300, Nibong Tebal, Malaysia;

Environment and Occupational Health Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia, 16150, Kubang Kerian, Malaysia

ABSTRACT: The present research explores the viability of pineapple peel, an agricultural effluent discharged from the food can processing industries for removing methylene blue (MB) dye from the aqueous solution. The effects of contact time, initial concentration, and solution pH on the adsorptive uptake of MB were investigated in a batch mode study. The morphological and functional characterization of the adsorbent was performed using the scanning electron microscopy and Fourier transform infrared analysis. The adsorption equilibrium was simulated using the Langmuir, Freundlich and Temkin isotherm models. Kinetic modeling was fitted to the pseudo-first-order and pseudo-second-order kinetic equations, while the adsorption mechanism was determined using the intraparticle diffusion model. Equilibrium data were favorably described by the Langmuir isotherm model, with a maximum monolayer adsorption capacity of 97.09 mg/g. The results provide a strong evidence to support the potential use of pineapple waste as an effective adsorbent for the treatment of textile wastewater. © 2013 Copyright Balaban Desalination Publications.

AUTHOR KEYWORDS: Adsorption; Isotherm; Kinetic; Methylene blue; Pineapple peel

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Fang, H.

Existence of eight positive periodic solutions for a food-limited two-species cooperative patch system with harvesting terms

(2013) Communications in Nonlinear Science and Numerical Simulation, 18 (7), pp. 1857-1869.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873566311&partnerID=40&md5=03fd086446f0355a6effaab58a72a955

AFFILIATIONS: Department of Mathematics, Kunming University of Science and Technology, Yunnan 650500, China

ABSTRACT: This paper is concerned with a food-limited two-species cooperative patch system with harvesting terms. By using Mawhin's coincidence degree theory, this paper establishes a new criterion on the existence of at least eight positive periodic solutions for this system under the assumption of periodicity of the parameters. An example is given to illustrate the effectiveness of the result. The ecological interpretation of the result is also given. © 2012 Elsevier B.V.

AUTHOR KEYWORDS: Coincidence degree; Cooperative patch system; Food-limited supply; Harvesting term; Periodic solution

DOCUMENT TYPE: Article

SOURCE: Scopus

Gibbons, L.

New head of innovation for Food innovations solutions

(2013) Food Manufacture, (18), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879313685&partnerID=40&md5=a3b1b045f3b94c224dca9d5a1cd38729

AUTHOR KEYWORDS: Food innovation solutions; Stefan Cosser; The Fat Duck

DOCUMENT TYPE: Article

SOURCE: Scopus

Zachary, G.P.

Africa's food solution [Spectral Lines]

(2013) IEEE Spectrum, 50 (6), art. no. 6521013, p. 8.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878727413&partnerID=40&md5=f78c43f785a4098caaf0d65430ba0933

AFFILIATIONS: Arizona State University, United States

ABSTRACT: After world war II, a starving europe, its farms ruined by the most destructive conflict in human history, leaned heavily on growers south of the Sahara. Wheat from Kenya, maize from Zimbabwe, and fruits and vegetables from western and southern Africa adorned European tables. African farmers prospered, and by the early 1960s, they supplied 8 percent of the world¿s tradable food. Now that figure is less than 2 percent. Sub-Saharan farmers lag their counterparts elsewhere in nearly every measure that counts: crop yields, use of irrigation, fertilizer, and high-quality seeds, and access to capital, electricity, and transportation. © 2013 IEEE.

DOCUMENT TYPE: Article

SOURCE: Scopus

Orlowska, M., Koutchma, T., Grapperhaus, M., Gallagher, J., Schaefer, R., Defelice, C.

Continuous and Pulsed Ultraviolet Light for Nonthermal Treatment of Liquid Foods. Part 1: Effects on Quality of Fructose Solution, Apple Juice, and Milk

(2013) Food and Bioprocess Technology, 6 (6), pp. 1580-1592. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876907969&partnerID=40&md5=9cb02582b55a274409183682e2806b66

AFFILIATIONS: Agriculture and Agri-Food Canada, 93 Stone Rd W, Guelph, ON, N1G 5C9, Canada;

Phoenix Science and Technology Inc., 27 Industrial Ave., Chelmsford, MA, 01824, United States

ABSTRACT: Performance of three innovative high-intensity pulsed (HIP) ultraviolet (UV) sources characterized by different emission spectra, energy per pulse, and frequency (HIP-1: 31 J/pulse, 8 Hz; HIP-2: 344 J/pulse, 0.75 Hz; HIP-3: 644 J/pulse, 0.5 Hz) was evaluated at UV fluence of 5 mJ/cm2 by measuring the effects on quality parameters of 30% (w/v) fructose solution, apple juice and milk. The results were compared with the continuous monochromatic low pressure (LPM) and medium pressure polychromatic (MPM) mercury lamps at the UV fluence of 10 mJ/cm2 that was determined based on 5-log microbial reduction requirement. The effects of HIP-1 and HIP-3 pulsed lamps on color, pH, and vitamin C, were comparable with the LPM lamp. For example, pH of fructose decreased by 1.94% for the LPM lamp and by 0.78% and 4.31% for HIP-1 and HIP-3, respectively. Treatment with the LPM lamp reduced the vitamin C content by 1.30% in apple juice and 35.13% in milk. In the case of pulsed lamps the reduction of vitamin C was 0.85% for HIP-1 and 1.78% for HIP-3 in apple juice, 12.31% (HIP-1) and 21.66% (HIP-3) in milk. HIP-2 and MPM lamps caused the most significant deterioration of the quality parameters in all tested liquids. The HIP-2 lamp decreased vitamin C by 8.52% in apple juice and 35.80% in milk, and also reduced pH of fructose solution by 5.29%. These results indicate that UV treatment with pulsed HIP-1 and HIP-3 sources could represent a promising alternative for the treatment of low UV transparent and opaque liquid foods. © 2012 Her Majesty the Queen in Right of Canada as represented by: Horst Donner.

AUTHOR KEYWORDS: Apple juice; Continuous UV light; Fructose; High-intensity pulsed UV light; Milk

DOCUMENT TYPE: Article

SOURCE: Scopus

van der Velde, M., See, L., You, L., Balkovič, J., Fritz, S., Khabarov, N, Obersteiner, M., Wood, S.

Affordable Nutrient Solutions for Improved Food Security as Evidenced by Crop Trials

(2013) PLoS ONE, 8 (4), art. no. e60075, .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84875669991&partnerID=40&md5=838bd524f8a06855ebadeb8b3c837eb8

AFFILIATIONS: International Institute for Applied Systems Analysis (IIASA), Ecosystem Services and Management Program, Laxenburg, Austria;

International Food Policy Research Institute (IFPRI), Washington D.C., United States;

College of Economics and Management, Huazhong Agricultural University, Wuhan, China;

Global Development Program, Bill and Melinda Gates Foundation, Seattle, WA, United States

ABSTRACT: The continuing depletion of nutrients from agricultural soils in Sub-Saharan African is accompanied by a lack of substantial progress in crop yield improvement. In this paper we investigate yield gaps for corn under two scenarios: a micro-dosing scenario with marginal increases in nitrogen (N) and phosphorus (P) of 10 kg ha-1 and a larger yet still conservative scenario with proposed N and P applications of 80 and 20 kg ha-1 respectively. The yield gaps are calculated from a database of historical FAO crop fertilizer trials at 1358 locations for Sub-Saharan Africa and South America. Our approach allows connecting experimental field scale data with continental policy recommendations. Two critical findings emerged from the analysis. The first is the degree to which P limits increases in corn yields. For example, under a micro-dosing scenario, in Africa, the addition of small amounts of N alone resulted in mean yield increases of 8% while the addition of only P increased mean yields by 26%, with implications for designing better balanced fertilizer distribution schemes. The second finding was the relatively large amount of yield increase possible for a small, yet affordable amount of fertilizer application. Using African and South American fertilizer prices we show that the level of investment needed to achieve these results is considerably less than 1% of Agricultural GDP for both a micro-dosing scenario and for the scenario involving higher yet still conservative fertilizer application rates. In the latter scenario realistic mean yield increases ranged between 28 to 85% in South America and 71 to 190% in Africa (mean plus one standard deviation). External investment in this low technology solution has the potential to kick start development and could complement other interventions such as better crop varieties and improved economic instruments to support farmers. © 2013 van der Velde et al.

DOCUMENT TYPE: Article

SOURCE: Scopus

Kiwango, Y., Moshi, G., Kibasa, W., Mnaya, B.

Papyrus wetlands creation, a solution to improve food security and save Lake Victoria

(2013) Wetlands Ecology and Management, 21 (2), pp. 147-154.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876917904&partnerID=40&md5=fc8c14cd0d438c6efc07513c6fe3004b

AFFILIATIONS: Lake Manyara National Park, P.O. Box 12, Mto wa Mbu, Tanzania;

Mahale Mountains National Park, P.O. Box 1374, Kigoma, Tanzania;

Rubondo Island National Park, P.O. Box 111, Geita, Tanzania;

Tanzania National Parks, P.O. Box 3134, Arusha, Tanzania

ABSTRACT: A demonstration project was set up to create two small papyrus wetlands in villages on the shores of Lake Victoria near Rubondo Island National Park, aimed at helping the community to replenish the fish stock in the lake and to improve socio-economics. The wetlands were constructed by using locally available means and they are owned and successfully managed by the villages to support community-based activities. We describe the approach, methodology and design of these plots. 2 years after the wetlands were created, the above-ground papyrus biomass was found to be comparable with that of pristine papyrus wetlands at Mlaga Bay in Rubondo Island National Park. Light trap data shows increased fish around the area. This correlated well with the results of questionnaire survey from the community around the created wetland. Our study shows that the degraded wetlands around Lake Victoria can be recreated by using locally available means, to restore most of the vital functions of those wetlands as they were before destruction, and improve the socio-economics of the local communities. © 2013 Springer Science+Business Media Dordrecht.

AUTHOR KEYWORDS: Eutrophication; Lake Victoria; Papyrus wetlands; Socio-economics; Tilapia fish; Wetlands creation

DOCUMENT TYPE: Article

SOURCE: Scopus

Carantino, S.

To food labels more technicals [Étiquettes: Vers des solutions]

(2013) Emballage Digest, (577), pp. 25-27.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84878507478&partnerID=40&md5=a1054a37ace9e6cea25cfca2666d0217

ABSTRACT: Legal informations on many factors and increasing promotional offers have as effects of making the market of the multi-sheet labels and booklet labels rise in the drinks and food industries. • APE is focusing its efforts on the printing and applying of high technical labels (bi and triple sheets, in variable format by sheet, with semi-rigide base...). • Stratus Packaging is doubling the capadtie's printing and applying of multi-sheets labels (soon until 5 colors) and books labels onserts (soon until 7 colors and larger than before). • HB Fuller optimize health and environmental qualities of the glues.

DOCUMENT TYPE: Article

SOURCE: Scopus

Balan, S.N., Chua, L.-S., Choong, S.S.Y., Chang, Y.-F., Say, Y.-H.

Demographic differences in the saltiness intensity perception and pleasantness ratings of salty solutions and foods among Malaysian subjects

(2013) Food Quality and Preference, 28 (1), pp. 154-160.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867592193&partnerID=40&md5=18f159af26913d351edd6e8352bab8ff

AFFILIATIONS: Department of Biomedical Science, Faculty of Science, Universiti Tunku Abdul Rahman (UTAR), Perak Campus, 31900 Kampar, Perak, Malaysia;

Department of Mathematical and Actuarial Sciences, Faculty of Engineering and Science, Universiti Tunku Abdul Rahman (UTAR), Kuala Lumpur Campus, 53300 Setapak, Kuala Lumpur, Malaysia

ABSTRACT: In order to determine how individual differences in saltiness intensity perception and pleasantness rating might be associated with demographics and anthropometric measurements among Malaysians, 300 university students (114 males, 186 females; 259 ethnic Chinese, 41 Indians) tasted three increasing suprathreshold concentrations of NaCl aqueous solutions and low and high sodium versions of chicken stock soups, eggs and biscuits. They then rated the saltiness intensity perception and pleasantness using the generalised Labeled Magnitude Scale and Labeled Affective Magnitude scales, respectively. Taken together, as the sodium content of solutions/foods increases, the saltiness intensity perception increased; while the opposite was only true for the pleasantness ratings of NaCl solutions and eggs. Principle Component Analysis showed that food stimuli that were generally perceived as 'tasted less salty' did not predict the differences among genders, ethnicities and BMI groups, but those that 'tasted more salty' were perceived as significantly higher among females and those with normal weight. The pleasantness of soups and high sodium food stimuli was rated significantly higher by males, while the pleasantness of low and high sodium foods was rated significantly higher by Chinese. Finally, it also seemed that the intensity perception and pleasantness ratings of salty foods did not correlate well with the obesity and cardiovascular health indices. Taken together, saltiness intensity perception and pleasantness rating are dependent on the demographics, but not on anthropometric measurements and blood pressures of the young Malaysian subjects in this study. © 2012 Elsevier Ltd.

AUTHOR KEYWORDS: Anthropometric measurements; Food sodium content; Malaysia; Saltiness intensity perception; Saltiness pleasantness rating

DOCUMENT TYPE: Article

SOURCE: Scopus

Azaiez, I., Meca, G., Manyes, L., Luciano, F.B., Fernández-Franzón, M.

Study of the chemical reduction of the fumonisins toxicity using allyl, benzyl and phenyl isothiocyanate in model solution and in food products

(2013) Toxicon, 63 (1), pp. 137-146. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84872412450&partnerID=40&md5=22e5e01fff32fd8648a70ddb2cc82792

AFFILIATIONS: Laboratory of Food Chemistry and Toxicology, Faculty of Pharmacy, University of Valencia, Av. Vicent Andrés Estellés s/n, 46100 Burjassot, Spain;

Department of Animal Science, School of Agricultural Sciences and Veterinary Medicine, Pontifícia Universidade Católica, BR 376 Km 14, São José dos Pinhais, PR 83010-500, Brazil

ABSTRACT: Fumnisins (FBs) are bioactive compounds produced by several strains of Fusarium spp. which contain a polyketide structure similar to sphinganine. These mycotoxins contain a free amino group that could work as an electron donor and react with the electrophile carbon present within the isothiocyanate (ITC) group. The objective of this study was to determine the effect of ITCs (allyl, benzyl and phenyl) on the stability of FB1, FB2 and FB3. Firstly, PBS solutions at three pH levels (4, 7 and 9) were prepared and added with pairs of one FB (1 mg/L) plus one ITC (1 mg/L). Then, gaseous ITC was used to fumigate corn kernels and corn flour contaminated with FBs produced by Gibberella moniliformis CECT 2987 in situ. Mycotoxin levels were evaluated using liquid chromatography coupled to mass spectrometry in tandem (LC-MS/MS), while products formed from the reaction of FBs and ITCs were examined by liquid chromatography coupled to mass spectrometry-linear ion trap (LC-MS-LIT). The reduction of FB1 and FB2 in solution ranged from 42 to 100% on a time-dependent manner. This variance was greatly influenced by pH. In general, lower pH levels eased the reaction between ITCs and FBs. ITC fumigation treatment (50, 100 and 500 μL/L) was able to reduce 53-96% of FB1 levels, 29-91% of FB2 and 29-96% of FB3. Four reaction products between the bioactive compounds employed in this study were identified, corresponding to FB + ITC conjugates. © 2012 Elsevier Ltd.

AUTHOR KEYWORDS: Fumonisins; Isothiocyanates; LC-MS-LIT; LC-MS/MS; Mycotoxin reduction

DOCUMENT TYPE: Article

SOURCE: Scopus

Chen, X.D., Putranto, A.

Comments on A new solution approach for simultaneous heat and mass transfer during convective drying of mango by E. Barati, J.A. Esfahani, Journal of Food Engineering 102 (2011) 302-309; A novel approach to evaluate the temperature during drying of food products with negligible external resistance to mass transfer by E. Barati, J.A. Esfahani, Journal of Food Engineering 114 (2013) 39-46

(2013) Journal of Food Engineering, . Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874261993&partnerID=40&md5=6dbd17f357eae6c5bd20b62538bac1b2

AFFILIATIONS: Department of Chemical and Biochemical Engineering, College of Chemistry and Chemical Engineering, Xiamen University, PR China;

Department of Chemical Engineering, Monash University, Clayton Campus, Melbourne, Australia

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Martin, D.F., Alessio, R.J., McCane, C.H.

Removal of synthetic food dyes in aqueous solution by Octolig®

(2013) Journal of Environmental Science and Health - Part A Toxic/Hazardous Substances and Environmental Engineering, 48 (5), pp. 495-500.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873642765&partnerID=40&md5=dd5cba85703a4fbe9c3da26c4c5a3c7f

AFFILIATIONS: Institute for Environmental Studies, Department of Chemistry, University of South Florida, 4202 East Fowler, Tampa, FL 33620-5250, United States

ABSTRACT: We studied six of the seven food dyes commonly used, e.g., FD&C Blue No. 1 and No. 2, Green No. 3, Red No. 3 and No. 40, Yellow No. 5 and No. 6. Quantitative removal was achieved by passage of dyes in aqueous solutions over chromatography columns packed with Octolig®, a polyethylenediimine covalently attached to high-surface-area silica. A structural feature most of the dyes have in common are the presence of sulfonate groups attached to aromatic molecules. Prior studies and the current one indicated that the seventh food dye (Green No. 3) should also be quantitatively removed. Matrix effects were considered, but none were observed. © 2013 Copyright Taylor and Francis Group, LLC.

AUTHOR KEYWORDS: behavioral problems; chromatography; Feingold diet; Food dyes; Octolig®

DOCUMENT TYPE: Article

SOURCE: Scopus

El-Marouf, S.A.A., Al-Hobishe, A.S.

Global analysis of solutions of three species food chain model with group defense

(2013) International Journal of Applied Mathematics and Statistics, 31 (1), pp. 27-42.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873466979&partnerID=40&md5=ad6c6dcfab6710525ad8f4beb9f55ab6

AFFILIATIONS: Department of Mathematics, Faculty of Science, Taibah University, Madinahmonwarah, Saudi Arabia;

Depertment of Mathematics, Faculty of Science, Menoufia University, Egypt

ABSTRACT: In this paper we consider a chemostat that involves a three species food chain with no imposed periodicities. The bottom trophic level species depends on a single, essential, growth-limiting nutrient. For a particular choice of prototype response functions. We use Liapunov functions in the study of the global stability of equlibria. Mathematical analysis of the model equations with regard to invariance of non-negativity, boundedness of solutions, dissipativity and persistence are studied. © 2012-13 by CESER Publications.

AUTHOR KEYWORDS: Chemostat; Food chain; Global stability; Local stability; Persistence

DOCUMENT TYPE: Article

SOURCE: Scopus

Garnett, T.

Food sustainability: Problems, perspectives and solutions

(2013) Proceedings of the Nutrition Society, 72 (1), pp. 29-39. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84872855599&partnerID=40&md5=83fe724f4059fb907db57c2ffd875088

AFFILIATIONS: Food Climate Research Network, Environmental Change Institute, University of Oxford, Oxford, United Kingdom

ABSTRACT: The global food system makes a significant contribution to climate changing greenhouse gas emissions with all stages in the supply chain, from agricultural production through processing, distribution, retailing, home food preparation and waste, playing a part. It also gives rise to other major environmental impacts, including biodiversity loss and water extraction and pollution. Policy makers are increasingly aware of the need to address these concerns, but at the same time they are faced with a growing burden of food security and nutrition-related problems, and tasked with ensuring that there is enough food to meet the needs of a growing global population. In short, more people need to be fed better, with less environmental impact. How might this be achieved? Broadly, three main 'takes' or perspectives, on the issues and their interactions, appear to be emerging. Depending on one's view point, the problem can be conceptualised as a production challenge, in which case there is a need to change how food is produced by improving the unit efficiency of food production; a consumption challenge, which requires changes to the dietary drivers that determine food production; or a socio-economic challenge, which requires changes in how the food system is governed. This paper considers these perspectives in turn, their implications for nutrition and climate change, and their strengths and weaknesses. Finally, an argument is made for a reorientation of policy thinking which uses the insights provided by all three perspectives, rather than, as is the situation today, privileging one over the other. Copyright © 2013 The Author.

AUTHOR KEYWORDS: Climate change; Food security; Greenhouse gas; Meat and dairy; Nutrition

DOCUMENT TYPE: Conference Paper

SOURCE: Scopus

Müller, L., Catalano, A., Simone, R., Cittadini, A., Fröhlich, K., Böhm, V., Palozza, P.

Erratum: Correction to antioxidant capacity of tomato seed oil in solution and its redox properties in cultured macrophages (Journal of Agricultural and Food Chemistry (2013) 61:2 (346-354) DOI: 10.1021/jf302748z)

(2013) Journal of Agricultural and Food Chemistry, 61 (4), p. 1007.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873121677&partnerID=40&md5=3c604a2862e98c22a5183199f0c67d2b

DOCUMENT TYPE: Erratum

SOURCE: Scopus

Dibden, J., Gibbs, D., Cocklin, C.

Framing GM crops as a food security solution

(2013) Journal of Rural Studies, 29, pp. 59-70. Cited 3 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873304352&partnerID=40&md5=78cacae94a4d48a83a2986a5c938dcd3

AFFILIATIONS: School of Geography and Environmental Science, Monash University, Building 11, Wellington Road, VIC 3800, Australia;

Department of Geography, University of Hull, HU6 7RX, United Kingdom;

Chancellery, James Cook University, QLD 4811, Australia

ABSTRACT: The spectre of a food security crisis has raised important questions about future directions for agriculture and given fresh impetus to a long-standing debate about the potential contribution of agricultural biotechnology to food security. This paper considers the discursive foundations for promotion of agricultural biotechnology, arguing that notions of progress and 'science-based' risk assessment act as 'anti-political' strategies to remove consideration of genetically modified organisms (GMOs) from the cut and thrust of politics, while the concept of 'food security' reconstitutes agricultural biotechnology as a moral imperative. We argue that a debate ostensibly focussed on developing countries in fact largely arises from discordant views about the future of farming and rural areas in the developed countries where these arguments are taking place. These debates are examined through a comparative study of the UK and Australia. Whereas acceptance of GM crops and foods at government and industry level has not led to commercial adoption in the UK due to consumer resistance and the influence of EU regulations, Australian governments at federal and state level have increasingly embraced GM crops, potentially locking Australia into a food and farming trajectory based on agricultural biotechnology. © 2011 Elsevier Ltd.

AUTHOR KEYWORDS: Agri-food paradigms; Agricultural biotechnology; Farming trajectories; Food security; Genetically modified crops; Progress

DOCUMENT TYPE: Article

SOURCE: Scopus

Fang, M., Buttenheim, A.M., Havassy, J., Gollust, S.E.

"It's Not an 'If You Build It They Will Come' Type of Scenario": Stakeholder Perspectives on Farmers' Markets as a Policy Solution to Food Access in Low-Income Neighborhoods

(2013) Journal of Hunger and Environmental Nutrition, 8 (1), pp. 39-60.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84875286738&partnerID=40&md5=aba151099cff4cec843350cf8e4ecafd

AFFILIATIONS: Robert Wood Johnson Foundation Health and Society Scholars Program, University of Pennsylvania, Philadelphia, PA, United States;

Department of Family and Community Health, University of Pennsylvania School of Nursing, 235L Fagin Hall, 418 Curie Boulevard, Philadelphia, PA 19104, United States;

Division of Health Policy and Management, University of Minnesota School of Public Health, Minneapolis, MN, United States

ABSTRACT: As national and local policies promote farmers' markets (FMs) in underserved communities, it is important to understand stakeholder perspectives. Through in-depth interviews, this study describes the views of 22 stakeholders in Pennsylvania about FMs as a solution to food access in low-income areas. We found that stakeholders view FMs as a promising public health nutrition intervention, as a political symbol of commitment to local food systems, and as an economic engine to support farmers and community development. Tensions emerge where these roles conflict: (1) FMs must be profitable while providing affordable foods to low-income customers; (2) FMs require careful planning to succeed; and (3) though politicians may seek a "silver bullet" solution, FMs are just one part of a comprehensive strategy to promote food access and economic revitalization in underserved neighborhoods. © 2013 Copyright Taylor & Francis Group, LLC.

AUTHOR KEYWORDS: farmers' markets; food access; food policy; low-income

DOCUMENT TYPE: Article

SOURCE: Scopus

Dotto, G.L., Moura, J.M., Cadaval, T.R.S., Pinto, L.A.A.

Application of chitosan films for the removal of food dyes from aqueous solutions by adsorption

(2013) Chemical Engineering Journal, 214, pp. 8-16. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84868562025&partnerID=40&md5=b8ca1414bc13fe55a67792cd4ac844c0

AFFILIATIONS: Unit Operation Laboratory, School of Chemistry and Food, Federal University of Rio Grande - FURG, 475 Engenheiro Alfredo Huch Street, 96203-900 Rio Grande, RS, Brazil

ABSTRACT: Chitosan films were applied to remove acid red 18 and FD&amp;C blue no. 2 dyes from aqueous solutions. The films were prepared by casting technique and characterized. Batch adsorption equilibrium experiments were carried out at different temperatures (298-328K). Freundlich, Langmuir and Redlich-Peterson models were fitted to the experimental data. The thermodynamic parameters (ΔG0, ΔH0 and ΔS0) were also estimated. Kinetic study was realized using pseudo-first order, pseudo-second order and Elovich models. The possible films-dyes interactions were investigated by Fourier transform infrared spectroscopy, differential scanning calorimetry and color parameters. The maximum experimental adsorption capacities were 194.6mgg-1 and 154.8mgg-1 for the acid red 18 and FD&amp;C blue no. 2, respectively, obtained at 298K. It was found that the Redlich-Peterson isotherm model presented satisfactory fit with the experimental data (R2&gt;0.98 and ARE&lt;9.00%). The adsorption process was spontaneous, favorable, exothermic, and occurred by electrostatic interactions. The Elovich model was the more appropriate to represent the adsorption kinetic data (R2&gt;0.95 and ARE&lt;5.00%). The chitosan films maintained its structure and were easily separated from the liquid phase after the adsorption process. © 2012 Elsevier B.V.

AUTHOR KEYWORDS: Acid red 18; Adsorption; Chitosan films; FD&C blue no. 2; Phase separation

DOCUMENT TYPE: Article

SOURCE: Scopus

Alves, M.V.C., Barbosa Jr., J.R., Prata, A.T.

Corrigendum to ''Analytical solution of single screw extrusion applicable to intermediate values of screw channel aspect ratio'' [J. Food Eng. 92 (2009) 152-156] (DOI:10.1016/j.jfoodeng.2008.10.037)

(2012) Journal of Food Engineering, . Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871373788&partnerID=40&md5=d47bb24527a9089c7fa5316a1699bd07

AFFILIATIONS: POLO Research Laboratories for Emerging Technologies in Cooling and Thermophysics, Department of Mechanical Engineering, Federal University of Santa Catarina (UFSC), Florianópolis, SC 88040900, Brazil

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Wahlqvist, M.L., McKay, J., Chang, Y.-C. , Chiu, Y.-W.

Rethinking the food security debate in Asia: Some missing ecological and health dimensions and solutions

(2012) Food Security, 4 (4), pp. 657-670. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84870394839&partnerID=40&md5=13a4e4de736169ff2dbb29c0be2204e3

AFFILIATIONS: Division of Preventive Medicine and Health Services Research, Institute of Population Health Sciences, National Health Research Institutes, No. 35, Keyan Road, Zhunan, Miaoli County, 350, Taiwan;

Monash Asia Institute, Monash University, Caulfield, Melbourne, VIC, 3145, Australia;

APCNS Centre for Nutrition and Food Safety, Zhejiang University, 268 Kaixuan Road, Hangzhou, 310029, China;

Analysis International and Australian APEC Study Centre, 1/6 Marne Street, South Yarra, Melbourne, VIC, 3141, Australia;

School of Humanities and Social Sciences, Deakin University, Melbourne, Australia

ABSTRACT: Food security is a global and regional concern of rapidly increasing consequence. It is at risk of inattention because of competing crises, because of its theoretical amenability to previously effective, if temporary measures, most impressively with the so-called Green Revolution and because of the recourse to the global trade paradigm as a putative solution. We identify some missing or under-emphasised dimensions in this analysis, with particular reference to Asia, which in spite of recent growth-or in some cases because of it-faces particularly daunting food problems. Greater emphasis needs to be given to population size and distribution through more concerted family planning and enlightened migration policy; public policy to retain or encourage plant-based diets; integration of food, health and environmental approaches to create resilient regional food systems; and the incorporation of food into the broader human security agenda. While regional organisations, along with their NGO counterparts and nation states, have an over-arching role to strategise in this way, substantial progress could still be made at the community and household levels, especially with current technologies which can marshal their collective and coherent action. © 2012 Springer Science + Business Media B.V. & International Society for Plant Pathology.

AUTHOR KEYWORDS: Eco-health; Ecosystems; Food prices; Non-traditional security; Population health; Resilience

DOCUMENT TYPE: Article

SOURCE: Scopus

Lagoda, P.

Why radiation induced mutation?: Pierre lagoda, head of the FAO/IAEA plant breeding and genetics section, explains why 'induced mutation breeding' is a practical, sustainable solution to the world's food crisis

(2012) IAEA Bulletin, 53 (3), p. 10.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84871896368&partnerID=40&md5=ad9be9f3d637b3adc0c62dcff2919dc8

AFFILIATIONS: FAO/IAEA, Plant Breeding and Genetics Section, Austria

DOCUMENT TYPE: Note

SOURCE: Scopus

Rominger, C.a , Emert, S.b , Ushimaru, K.c

Development of a sustainable food supply chain by post harvest program-An approach to a sustainable solution to food delivery and waste problems

(2012) Proceedings - 2012 IEEE Global Humanitarian Technology Conference, GHTC 2012, art. no. 6387053, pp. 230-236.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84873103350&partnerID=40&md5=4f407dea042df745c11026f32f0e4b23

AFFILIATIONS: NanoICE, Inc., Clinton Global Initiative (CGI), Bothell, WA, United States;

Post Harvest Project, Bothell, WA, United States;

Infra Innovations, Inc., Seattle, WA, United States

ABSTRACT: One of the major causes of food shortage in the world is post harvest food waste. This paper introduces The Post Harvest Project (PHP), which is a group of committed technology and capital partners dedicated to delivering technological solutions to food waste in the supply chain. Of the many technological solutions being pursued by PHP, an innovative food preservation technology called nanoICE is described in detail. An effort is underway in Ghana to build a series of small community food process plants by integrating various breakthrough technologies. The aim of PHP's effort in Ghana is to engage local communities to feed people, create opportunities, and improve health through good nutrition. © 2012 IEEE.

AUTHOR KEYWORDS: food preservation; food waste reduction; global food crisis; micro-scaleice; nanoIce; post harvest

DOCUMENT TYPE: Conference Paper

SOURCE: Scopus

Mietzsch, E., Graf, W., Martini, D., Schmitz, M.

Transparent food: Requirements and solutions for tracking and tracing in the food sector

(2012) Landtechnik, 67 (1), pp. 31-33.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84875314365&partnerID=40&md5=1df5128dc2ee8537e64ca8aca6d2b40a

AFFILIATIONS: Association for Technologies and Structures in Agriculture (KTBL e.V.), Germany

ABSTRACT: One of the objectives of the TransparentFood project is to create a blueprint proposal for a European Backbone Solution that provides basic and simple functionalities to enable integration of tracking and tracing systems across system boundaries and chains. After an initial requirements analysis, methods and technologies that can be used to build such a solution have been gathered, analyzed and evaluated. Reuse of existing standards and leveraging the capabilities and networks of existing organizations is a crucial factor in facilitating build-up and uptake of the envisioned backbone.

AUTHOR KEYWORDS: Food safety and integrity; Quality assurance; Tracking and tracing

DOCUMENT TYPE: Article

SOURCE: Scopus

Eicher-Miller, H.A., Fulgoni, V.L., Keast, D.R.

Contributions of processed foods to dietary intake in the us from 2003-2008: A report of the food and nutrition science solutions joint task force of the academy of nutrition and dietetics, American society for nutrition, institute of food technologists, and international food information council

(2012) Journal of Nutrition, 142 (11), pp. 2065-2072.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84869122634&partnerID=40&md5=614774f64aa531d44f5f0cdf93611808

AFFILIATIONS: Purdue University, West Lafayette, IN, United States;

Nutrition Impact, LLC, Battle Creek, MI, United States;

Food Nutrition Database Research, Inc., Okemos, MI, United States

ABSTRACT: Processed foods are an integral part of American diets, but a comparison of the nutrient contribution of foods by level of processing with the recommendations of the Dietary Guidelines for Americans regarding nutrients to encourage or to reduce has not been documented. The mean reported daily dietary intakes of these nutrients and other components were examined among 25,351 participants $2 y of age in the 2003-2008 NHANES to determine the contribution of processed food to total intakes. Also examined was the percent contribution of each nutrient to the total reported daily nutrient intake for each of the 5 categories of food that were defined by the level of processing. All processing levels contributed to nutrient intakes, and none of the levels contributed solely to nutrients to be encouraged or solely to food components to be reduced. The processing level was a minor determinant of individual foods' nutrient contribution to the diet and, therefore, should not be a primary factor when selecting a balanced diet. © 2012 American Society for Nutrition.

DOCUMENT TYPE: Article

SOURCE: Scopus

Zhong, L.-H.

Positive periodic solution of a Lotka-Volteraa food chain model with several delays

(2012) Proceedings of International Conference on Information and Computing Science, ICIC, art. no. 6258114, pp. 232-235.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867147239&partnerID=40&md5=a44f8d4befeb565a5bbe8cd60126e7b5

AFFILIATIONS: College of Mathematics, Beihua University, Jilin, China

ABSTRACT: By using a continuation theorem based on coincidence degree, we study the global existence of positive periodic solution of the periodic Lotka-Volteraa food chain model with delays. A set of easily verifiable sufficient conditions are obtained, some new results obtained. © 2012 IEEE.

AUTHOR KEYWORDS: Coincidence degree; Food chain system; Periodic solution; several delays

DOCUMENT TYPE: Conference Paper

SOURCE: Scopus

Poivet, E., Rharrabe, K., Monsempes, C., Glaser, N, Rochat, D., Renou, M., Marion-Poll, F., Jacquin-Joly, E.

The use of the sex pheromone as an evolutionary solution to food source selection in caterpillars

(2012) Nature Communications, 3, art. no. 1047, . Cited 4 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84866984815&partnerID=40&md5=186bc3d745bac655c7c0d753eac0acf1

AFFILIATIONS: INRA, UMR 1272 INRA-UPMC Physiologie de l'Insecte, Signalisation et Communication, Route de Saint-Cyr, F-78026 Versailles Cedex, France;

Agro Paris Tech, Département Sciences de la Vie et Santé, 16 rue Claude Bernard, F-75231 Paris Cedex 05, France;

Université Abdelmalek Essaadi, Faculté Polydisciplinaire de Larache, Département des Ressources Naturelles, B.P. 745, 92004 Larache, Morocco

ABSTRACT: Sex pheromones are released by adults of a species to elicit a sexual interaction with the other sex of the same species. Here we report an unexpected effect of a moth sex pheromone on the caterpillars of the same species. We demonstrate that larvae of the cotton leafworm Spodoptera littoralis are attracted by the moth sex pheromone and that this phenomenon is independent of sex determination. In addition, we show that the olfactory sensilla carried by the caterpillar antennae are sensitive to the pheromone and that the caterpillar sensilla express pheromone-binding proteins that are used by adult antennae to bind pheromone components. Finally, we demonstrate that the larvae are preferentially attracted to a food source when it contains the sex pheromone main component. A possible interpretation of these results is that the sex pheromone is used to promote food search in caterpillars, opening potential new routes for insect pest management. © 2012 Macmillan Publishers Limited. All rights reserved.

DOCUMENT TYPE: Article

SOURCE: Scopus

Jauneau, V.

Siemens: Complete solutions for packaging machines and food packaging [Siemens; des solutions complètes pour les machines de conditionnements et d'emballages alimentaires]

(2012) Emballage Digest, (572), pp. 6-7.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84870032950&partnerID=40&md5=73f5d356225a4ae48960f5791cc50f09

DOCUMENT TYPE: Article

SOURCE: Scopus

Chandon, P., Wansink, B.

Does food marketing need to make us fat? A review and solutions

(2012) Nutrition Reviews, 70 (10), pp. 571-593. Cited 6 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867166027&partnerID=40&md5=41719350c833e9bdde10be470377c855

AFFILIATIONS: INSEAD, ICAN, Paris, France;

Charles H. Dyson School of Applied Economics and Management, Cornell University, Ithaca, NY, United States

ABSTRACT: Food marketing is often singled out as the leading cause of the obesity epidemic. The present review examines current food marketing practices to determine how exactly they may be influencing food intake, and how food marketers could meet their business objectives while helping people eat healthier. Particular attention is paid to the insights provided by recently published studies in the areas of marketing and consumer research, and those insights are integrated with findings from studies in nutrition and related disciplines. The review begins with an examination of the multiple ways in which 1) food pricing strategies and 2) marketing communication (including branding and food claims) bias food consumption. It then describes the effects of newer and less conspicuous marketing actions, focusing on 3) packaging (including the effects of package design and package-based claims) and 4) the eating environment (including the availability, salience, and convenience of food). Throughout, this review underscores the promising opportunities that food manufacturers and retailers have to make profitable "win-win" adjustments to help consumers eat better. © 2012 International Life Sciences Institute.

AUTHOR KEYWORDS: Consumer behavior; Diet; Food packaging; Health; Marketing; Mindless eating; Obesity; Public policy; Slim by design

DOCUMENT TYPE: Article

SOURCE: Scopus

Hu, X., Zhang, M., Yu, J., Zhang, G.

Food waste management in China: Status, problems and solutions

(2012) Shengtai Xuebao/ Acta Ecologica Sinica, 32 (14), pp. 4575-4584. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84866522279&partnerID=40&md5=2e1c4fcf4a5e672fb33e36c805809f0d

AFFILIATIONS: State Key Laboratory for Biological Control, Institute of Entomology, Sun Yat-sen University, Guangzhou 510275, China

ABSTRACT: The present paper reviewed the food waste management in China, specially analyzed the basic features of food waste, summarized the current disposal technologies, pointed out the present problems, and suggested countermeasures for future in the food waste management of China. Food waste is characterized by high moisture, salinity and organic matter content, which makes it possess duplicity with the perishable and smelly as a waste and the potential as a recycling biotic resource. There is significant spatial and temporal variations in components of food waste from different areas due to geographic differences, eating habits and cultural traditions. Thereby it is usually difficult to process various food waste with a unitary approach. At present, commonly used disposal technologies for food waste include incineration, sanitary landfill, ecofeed, anaerobic digestion, aerobic composting, and vermicomposting. However, incineration is featured with heavy energy consumption because of the high moisture character and sanitary landfill occupies a lot of places with the possibility of the secondary pollution. Other unconventional approaches (except for incineration and sanitary landfill) also have common limitations, such as a long processing period, complex operation, inefficient reclamation and low economic value, when referred to the principle of decrement, innoxiousness, and reclamation. In recent years, more and more attentions have been paid to the food waste reclamation in view of the gradually serious predicament of garbage siege. Nevertheless, the food waste reclamation is still in its infancy with many problems of management and disposal. Above all, it is reported that the amount of food waste generated in China is not less than 60 million tons per year, accounting for 40% -50% of the municipal solid wastes, but the reclamation ratio is extremely low. Moreover, an effective collection system and relevant laws/ regulations have not been established. Guangzhou is the only city to issue the Interim Provisions of Garbage Classification Management till the present moment, where refuse sorting is made mandatory for citizens. There is no national law of food waste management in China, and only Xining issued a district law Regulations of Food Waste Management in Xining. Besides, the economic value of the current processing technologies is low at large, and local financial subsidy is requisite to the development of food waste processing technologies and companies which are responsible for food waste disposal. Ultimately, it is difficult to dispose food waste completely using existing technologies, and the liquid of food waste is usually discharged into sewage treatment system. High salinity in the liquid from food waste brings overburdens to the sewage treatment system, not only hindering the growth of microorganism in sewage treatment system, but also corroding relative equipments. All these problems can be broadly grouped into two areas, administrative bottleneck and technical bottleneck. The solution of administrative bottleneck lies in improving management and disposal systems, and all levels of government should pay more attentions and increase investment to the garbage sorting. Whereas the solution of technical bottleneck requires comprehensive use of multiple processing technologies, as well as research and development of new technologies to improve the degree of food waste recycling. And a creative and feasible technology was suggested in the end of this paper, which could be used to recycle food waste efficiently by flies naturrally occurred in organic wastes.

AUTHOR KEYWORDS: Food waste; Reclamation; Recycling; Waste management

DOCUMENT TYPE: Article

SOURCE: Scopus

Fang, H.

Multiple positive periodic solutions for a food-limited two-species ratio-dependent predator-prey patch system with delay and harvesting

(2012) Electronic Journal of Differential Equations, 2012, pp. 1-13.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84866138038&partnerID=40&md5=697a94f946400ba3fa28afa708632978

AFFILIATIONS: Department of Mathematics, Kunming University of Science and Technology, Kunming, Yunnan 650500, China

ABSTRACT: By using Mawhin's coincidence degree theory, this paper establishes some sufficient conditions on the existence of four positive periodic solutions for a food-limited two-species ratio-dependent predator-prey patch system with delay and harvesting. Some novel techniques are employed to obtain the appropriate a priori estimates. An example is given to illustrate our results. © 2012 Texas State University - San Marcos.

AUTHOR KEYWORDS: Coincidence degree; Food-limited supply; Harvesting rate; Periodic solution; Predator-prey patch system

DOCUMENT TYPE: Article

SOURCE: Scopus

Pang, Z.a b , Chen, Q.a , Han, W.c , Zheng, L.a d

Value-centric design of the internet-of-things solution for food supply chain: Value creation, sensor portfolio and information fusion

(2012) Information Systems Frontiers, pp. 1-31. Article in Press.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84865307353&partnerID=40&md5=a5167d81a4e227657f61f6495e2ffa73

AFFILIATIONS: iPack Vinn Excellence Center, School of Information and Communication Technology, Royal Institute of Technology (KTH), Isafjordsgatan 39, Kista-Stockholm, 164 40, Sweden;

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Software School, Fudan University, No. 825, Zhangheng Road, Shanghai, China;

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ABSTRACT: The revolution of Internet-of-Things (IoT) is reshaping the modern food supply chains with promising business prospects. To be successful in practice, the IoT solutions should create "income-centric" values beyond the conventional "traceability-centric" values. To accomplish what we promised to users, sensor portfolios and information fusion must correspond to the new requirements introduced by this income-centric value creation. In this paper, we propose a value-centric business-technology joint design framework. Based on it the income-centric added-values including shelf life prediction, sales premium, precision agriculture, and reduction of assurance cost are identified and assessed. Then corresponding sensor portfolios are developed and implemented. Three-tier information fusion architecture is proposed as well as examples about acceleration data processing, self-learning shelf life prediction and real-time supply chain re-planning. The feasibilities of the proposed design framework and solution have been confirmed by the field trials and an implemented prototype system. © 2012 Springer Science+Business Media, LLC.

AUTHOR KEYWORDS: Food supply chain; Industrial information integration engineering (IIIE); Information fusion; Internet-of-things (IoT); Sensor portfolio; Value-centric design

DOCUMENT TYPE: Article in Press

SOURCE: Scopus

Amarakoon, D., Thavarajah, D., McPhee, K., Thavarajah, P.

Iron-, zinc-, and magnesium-rich field peas (Pisum sativum L.) with naturally low phytic acid: A potential food-based solution to global micronutrient malnutrition

(2012) Journal of Food Composition and Analysis, 27 (1), pp. 8-13. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84864023356&partnerID=40&md5=5093cdf327eb5a8e2acf0dc84668cbb5

AFFILIATIONS: School of Food Systems, North Dakota State University, Dept. 7640, 223 Harris Hall, P.O. Box 6050, Fargo, ND 58108-6050, United States;

Department of Plant Sciences, North Dakota State University, Dept. 767, 370G Loftsgard Hall, P.O. Box 6050, Fargo, ND 58108-6050, United States

ABSTRACT: Biofortification of commonly eaten foods with iron (Fe) and zinc (Zn) might be a solution to global "hidden hunger". This study was carried out to determine the micronutrient biofortification potential of US-grown field peas (Pisum sativum L.). We analyzed seed Fe, Zn, calcium (Ca), magnesium (Mg), total phosphorus (P), and phytic acid (PA) concentrations of six commercial field pea genotypes grown at seven locations in North Dakota, USA. These US-grown field peas were naturally rich in Fe (46-54mgkg -1), Zn (39-63mgkg -1), and Mg (1350-1427mgkg -1). A single serving of field pea could provide of 28-68% the recommended daily allowance (RDA) for Fe, 36-78% of the RDA for Zn, and 34-46% of the RDA for Mg. Field pea is not a good source of Ca (622-1219mgkg -1; 6-12% of RDA). In addition, these field peas are naturally low in PA (4.9-7.1mgg -1 of PA or 1.4-2mgg -1 of phytic-P) despite very high total P concentrations (3.5-5mgg -1). Overall, field pea is a good food source of Fe, Zn, and Mg, and selection of genetic material to enrich micronutrients in conjunction with growing location may further enhance mineral concentrations. © 2012 Elsevier Inc.

AUTHOR KEYWORDS: Bioavailability; Biofortification; Calcium; Field pea; Food analysis; Food composition; Iron; Legume; Magnesium; Micronutrients; Mineral composition; Phytic acid; Pulse; Zinc

DOCUMENT TYPE: Article

SOURCE: Scopus

Bohlen, D.

Hygiene brought in line: It is always important to keep an eye on the corresponding hygienic standards in robotic solutions in the food sector [Hygiene in linie gebraclit]

(2012) Fleischwirtschaft, 92 (6), pp. 37-38.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84864049909&partnerID=40&md5=9e68c2ff732fd162336a06d00dd8989d

AFFILIATIONS: Weber Maschinenbau GmbH Breidenbach, Guenther-Weber-Str. 3, 35236 Breidenbach, Germany

DOCUMENT TYPE: Article

SOURCE: Scopus

Aider, M., Gnatko, E., Benali, M., Plutakhin, G., Kastyuchik, A.

Electro-activated aqueous solutions: Theory and application in the food industry and biotechnology

(2012) Innovative Food Science and Emerging Technologies, 15, pp. 38-49. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861829022&partnerID=40&md5=75dfc6609bb60fba5409176541dbbb36

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Natural Resources Canada/CanmetENERGY, 1615 Lionel-Boulet Blvd., Varennes, QC J3X 1S6, Canada;

Department of Biotechnology, Biochemistry and Biophysics, Kuban State Agrarian University, Kalinin Str. 13, Krasnodar, 350044, Russian Federation

ABSTRACT: The present review highlights the state-of-the-art electro-activation as a science and the applications of electro-activated aqueous solutions in biotechnology and the food industry. The science behind electro-activation remains unknown. Hence, this review focuses on understanding the mechanisms governing the process of obtaining electro-activated aqueous solutions. Several applications in biotechnology and the food industry are discussed. Among the potential applications of this technology, reagentless chemical catalysis and food safety seem to be the most promising. Industrial relevance: Electro-activated solution can be successfully used in the food industry and biotechnology for:Selective protein and fiber extraction from different meal residues.Self-generation of acidic and alkaline conditions for different catalytic applications.Electro-activated solutions can be used as sanitizing agents for work area cleaning in food processing industries.Electro-activated solutions can be used for prevention of bio-films formation in food processing equipments. © 2012 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Acidic anolyte; Alkaline catholyte; Aqueous solution; Electro-activation; Reagentless chemical reaction; Sanitizing

DOCUMENT TYPE: Review

SOURCE: Scopus

Sigge, G., Campbell-Platt, G., Schmidl, M., Starke, N., Agboola, S.

15th IUFoST World Congress of Food Science and Technology - Food Science Solutions in an Evolving World

(2012) Food Research International, 47 (2), p. 127.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861731985&partnerID=40&md5=00828df568296c639091c2f1d2386a0a

DOCUMENT TYPE: Editorial

SOURCE: Scopus

Clemens, R., Kranz, S., Mobley, A.R., Nicklas, T.A., Raimondi, M.P., Rodriguez, J.C., Slavin, J.L., Warshaw, H.

Filling America's fiber intake gap: Summary of a roundtable to probe realistic solutions with a focus on grain-based foods

(2012) Journal of Nutrition, 142 (7), pp. 1390S-1401S. Cited 4 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84863550133&partnerID=40&md5=fecdeb3e54de951a13cbc55b7117004c

AFFILIATIONS: Department of Pharmacy, University of Southern California, Los Angeles, CA, United States;

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Department of Food Science and Nutrition, University of Minnesota, St. Paul, MN, United States;

Hope Warshaw Associates, LLC, Alexandria, VA, United States

ABSTRACT: Current fiber intakes are alarmingly low, with long-term implications for public health related to risk of coronary heart disease, stroke, hypertension, certain gastrointestinal disorders, obesity, and the continuum of metabolic dysfunctions including prediabetes and type 2 diabetes. Eating patterns high in certain fibers are known to lower LDL cholesterol and blood pressure, lower blood glucose, and decrease insulin resistance in people with prediabetes and type 2 diabetes; help with both weight loss and maintenance; and improve bowel regularity and gastrointestinal health. With > 90% of adults and children who fall short of meeting their daily fiber recommendations, the 2010 Dietary Guidelines for Americans once again classified fiber as a nutrient of concern. Despite efforts over the past decade to promote adequate fiber through fruit, vegetable, and whole-grain intakes, fiber consumption has remained flat at approximately half the daily recommended amount. The public health implications of inadequate fiber intake prompted the roundtable session "Filling America's Fiber Gap: Probing Realistic Solutions," which assembled nutrition researchers, educators, and communicators to identify challenges, opportunities, and realistic solutions to help fill the current fiber gap. The roundtable discussions highlighted the need for both consumer and professional education to improve acceptance for and inclusion of grain-based foods with added fiber as one strategy for increasing fiber intakes within daily energy goals. © 2012 American Society for Nutrition.

DOCUMENT TYPE: Article

SOURCE: Scopus

Watanabe, J., Oki, T., Takebayashi, J., Yamasaki, K., Takano-Ishikawa, Y., Hino, A., Yasui, A.

Method validation by interlaboratory studies of improved hydrophilic oxygen radical absorbance capacity methods for the determination of antioxidant capacities of antioxidant solutions and food extracts

(2012) Analytical Sciences, 28 (2), pp. 159-166. Cited 3 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84862319704&partnerID=40&md5=4d73750d2eb870215e1fc073dbb884e8

AFFILIATIONS: National Food Research Institute, National Agriculture and Food Research Organization, 2-1-12 Kannondai, Tsukuba, Ibaraki 305-8642, Japan;

National Agricultural Research Center for Kyushu Okinawa Region, National Agriculture and Food Research Organization, 2421 Suya, Koshi, Kumamoto 861-1192, Japan;

National Institute of Health and Nutrition, 1-23-1 Toyama, Shinjuku, Tokyo 162-8636, Japan;

Taiyo Kagaku Co., 1-3 Takara, Yokkaichi, Mie 510-0844, Japan

ABSTRACT: Hydrophilic oxygen radical absorbance capacity (H-ORAC) is a method for evaluating antioxidant capacities of solutions of hydrophilic compounds. In this study, we improved the original method for H-ORAC determination, and evaluated the precision of the two improved methods (methods A and B) by interlaboratory studies using 5 antioxidant solutions and 5 food extracts as test samples. An interlaboratory study of method A, in accordance with the harmonized protocol, demonstrated satisfactory performance (intermediate precision relative standard deviations (RSD int) ranging from 4.6 to 18.8%; the reproducibility relative standard deviations (RSD R) ranging from 7.0 to 21.1%, and the HorRat values ranging from 0.40 to 1.93). However, methodological problems remained, and a further improved method, method B, was thus developed. An interlaboratory study of method B by 5 participating laboratories showed better intermediate precision and reproducibility (RSD int and RSD R ranging from 1.8 to 9.4%, and from 4.4 to 13.8%, respectively), and all HorRat values for the test samples were less than 1.3, suggesting good performance for the H-ORAC measurement. © 2012 The Japan Society for Analytical Chemistry.

DOCUMENT TYPE: Article

SOURCE: Scopus

Stentiford, G.D.

Diseases in aquatic crustaceans: Problems and solutions for global food security

(2012) Journal of Invertebrate Pathology, 110 (2), p. 139.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861206462&partnerID=40&md5=72a39781ebd1383718cfcd5e344c3036

AFFILIATIONS: European Union Reference Laboratory for Crustacean Diseases, Cefas Weymouth Laboratory, Weymouth, Dorset DT4 8UB, United Kingdom

DOCUMENT TYPE: Editorial

SOURCE: Scopus

Cheng, H.N., Neiss, T.G.

Solution NMR spectroscopy of food polysaccharides

(2012) Polymer Reviews, 52 (2), pp. 81-114. Cited 3 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861022434&partnerID=40&md5=851c22d8f640941f7971222b8ac1b5a0

AFFILIATIONS: Southern Regional Research Center, USDA Agricultural Research Service, 1100 Robert E. Lee Blvd., New Orleans, LA 70124, United States;

Janssen Research and Development, Spring House, PA, United States

ABSTRACT: Many polysaccharides are allowed for direct food use, where they serve a number of useful functions including dietary fiber, bulking agent, thickener, encapsulant, gelling agent, foam and emulsion stabilizer, protective colloid, emulsifier and suspending agent, adhesive and binder, flocculant, swelling agent, film/coat former, or syneresis inhibitor. Many of these polysaccharides have complex structures or are mixtures with different components. Over the years, NMR has been a premiere technique for characterizing thesematerials. NMRcharacterization can help identify the materials in question, quantify the different functional groups present, and detect minor components and impurities. Above all, the high resolution achieved in solution NMR can provide detailed structural information on composition, sequence distribution, substitution pattern, and molecular weights (in some cases) for individual polysaccharides. Concurrent application of other analytical techniques, such as methylation, esterification, fractionation, mass spectrometry, and chromatographic methods, has enabled structural information on even complex polysaccharides or mixtures to be obtained. In this article a review is given of the solution NMR of food polysaccharides, with emphasis on papers published in the past 20 years. Included in the review is a survey of 21 common food polysaccharides, the current understanding of their structures, and the techniques used for their determination. © 2012 Taylor & Francis Group, LLC.

AUTHOR KEYWORDS: Carbohydrates; Food gums; Food polymers; Hydrocolloid; Nuclear magnetic resonance (NMR); Polysaccharides

DOCUMENT TYPE: Review

SOURCE: Scopus

Fransson, B., Silberg, D.G., Niazi, M., Miller, F., Ruth, M., Holmberg, A.A.

Effect of food on the bioavailability of lesogaberan given as an oral solution or as modified-release capsules in healthy male volunteers

(2012) International Journal of Clinical Pharmacology and Therapeutics, 50 (4), pp. 307-314.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861434516&partnerID=40&md5=bcededdd04b6dd8de6fa5a878c1d6023

AFFILIATIONS: AstraZeneca R and D, Södertälje, Sweden;

AstraZeneca LP, Wilmington, DE, United States;

AstraZeneca R and D, 431 83, Mölndal, Sweden

ABSTRACT: The novel Type B γ-aminobutyric acid (GABAB)-receptor agonist lesogaberan (AZD3355) has been evaluated as an add-on to proton pump inhibitor treatment for gastroesophageal reflux disease, but the effect of food on the bioavailability of this compound has not been assessed. In this openlabel crossover study, healthy males received single 100 mg doses of lesogaberan (oral solution (A) or oral modified release (MR) capsules with a dissolution rate of 50% (B) or 100% (C) over 4 h) with and without food. Blood plasma concentrations of lesogaberan were assessed over 48 h. A log-transformed geometric mean Cmax and AUC ratio within the 90% confidence interval (CI) range (0.80-1.25) was defined as excluding a clinically relevant food effect. Overall, 57 subjects completed the study. Only the oral lesogaberan solution had a fed/fasting Cmax ratio outside the 90% CI range (Cmax ratio: 0.76). AUC ratios were within the 90% CI limits for all three lesogaberan formulations. The only substantial change in tmax associated with food intake was observed for the oral solution (1.0 h without food, 1.8 h with food). In conclusion, a clinically relevant food effect could be excluded for the lesogaberan MR formulations, but not for the oral lesogaberan solution. ©2012 Dustri-Verlag Dr. K. Feistle.

AUTHOR KEYWORDS: Bioavailability; Food interaction; GABAB-receptor agonist; Gastroesophageal reflux; Lesogaberan

DOCUMENT TYPE: Article

SOURCE: Scopus

Schober, J., Vecchio, J., Cerroti, J.P.

Using benchtop NMR as a QA solution in food and agriculture

(2012) American Laboratory, 44 (4), pp. 33-37.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84860194751&partnerID=40&md5=030fdf0deb8480823cbd8c0cca01d169

AFFILIATIONS: Oxford Instruments Magnetic Resonance Division, Tuhney Woods, Abingdon, Oxon OX13 5QX, United Kingdom

ABSTRACT: The measurement of parameters such as oil, fat, and moisture content is important to help define the nutritional value and product quality for many foodstuffs and agriculture products. Solvent extraction techniques are commonly used for the determination of fat content. However, they tend to be slow, cumbersome, and require highly skilled personnel. In addition, many of the often hazardous chemicals used are becoming increasingly unacceptable according to international environmental standards. Instrumental methods are often referred to as secondary techniques since they are usually set up to match the results produced by solvent extraction. To provide a result equivalent to the traditional extraction techniques, secondary techniques require a correlation against the reference technique used. A calibration can be generated using either one 100% oil sample or a set of 36 samples of real products with predefined oil contents spanning the range of concentrations of interest.

DOCUMENT TYPE: Article

SOURCE: Scopus

Gupta, A.

International Baby Food Action Network (IBFAN) statement on the promotion and use of commercial fortified foods as solutions for child malnutrition

(2012) Indian Pediatrics, 49 (4), pp. 295-296.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84863089920&partnerID=40&md5=9311fd7cf8cd61876a398c373a9ed1f4

AFFILIATIONS: International Baby Food Action Network (IBFAN) Asia, BP-33, Pitampura, Delhi, India

DOCUMENT TYPE: Article

SOURCE: Scopus

Huang, J.-Y., John Chew, Y.M., Ian Wilson, D.

A spinning disc study of fouling of cold heat transfer surfaces by gel formation from model food fat solutions

(2012) Journal of Food Engineering, 109 (1), pp. 49-61. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-81055156574&partnerID=40&md5=64fa834705d7c79ac916ca54ce62bffb

AFFILIATIONS: Department of Chemical Engineering and Biotechnology, University of Cambridge, New Museums Site, Pembroke Street, Cambridge CB2 3RA, United Kingdom;

Department of Chemical Engineering, University of Bath, Claverton Down, Bath BA2 7AY, United Kingdom

ABSTRACT: The formation of immobile gels on heat transfer surfaces ('coring') caused by cooling fat solutions below their cloud point was studied using a novel spinning disc apparatus (SDA). The SDA features a cooled, removable heat transfer surface with well defined heat and mass transfer characteristics. Measurements of heat flux were combined with computational fluid dynamics simulations to yield reliable estimates of the surface temperature and shear stress. Fouling studies were performed with model solutions of 5 wt.% tripalmitin in a paraffin oil operating in the 'cold start' mode, wherein the experiment starts with the surface colder than the steady state, simulating one mode of operating a standard 'cold finger' experiment. Local heat flux measurements allowed the thermal fouling resistance to be monitored: deposit mass coverage and composition were also measured. The cold surface promotes the rapid formation of an initial gel layer, followed by a period of linear fouling, and finally falling rate fouling behaviour. The linear fouling rate was relatively insensitive to temperature and shear rate, while the fouling rate in the falling rate regime was found to depend on the temperature driving force for crystallisation kinetics. The solids fraction within the deposit layer increased over the duration of a 12 h fouling test, indicating rapid ageing. The rheological properties of the deposits were highly sensitive to solids fraction. © 2011 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Crystallisation; Fats; Fouling; Freezing; Gel

DOCUMENT TYPE: Article

SOURCE: Scopus

Colombini, D.

Unilever Food Solutions appoints new marketing director

(2012) Food Manufacture, (3), .

http://www.scopus.com/inward/record.url?eid=2-s2.0-84859347261&partnerID=40&md5=cd2dd2b3f57ff8c703101456354f064d

AUTHOR KEYWORDS: Hellmann's; Marmite; Peter Dahl; Unilever; Unilever Food Solutions

DOCUMENT TYPE: Note

SOURCE: Scopus

Magazù, S., Migliardo, F.

Bioprotectant solutions and food applications

(2012) Current Nutrition and Food Science, 8 (1), pp. 49-54.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84860474510&partnerID=40&md5=af1b70b9bc68f942703f07b8bfebb45b

AFFILIATIONS: Department of Physics, University of Messina, P.O. Box 55, Viale D'Alcontres 31, 98166 Messina, Italy

ABSTRACT: This review aims to present an overview of many applications of trehalose, a glass-forming disaccharide, and its solutions with water and glycerol on food products. The versatility of trehalose is discussed in relation with some experimental evidences concerning with the molecular mechanisms responsible for the cryo- and crypto-protective functions of trehalose and its mixtures. © 2012 Bentham Science Publishers.

AUTHOR KEYWORDS: Cryoprotection; Cryptoprotection; Dehydration; Frozen storage; Glycerol; Lyoprotection; Molecular mechanisms; Trehalose

DOCUMENT TYPE: Review

SOURCE: Scopus

Li, Y., Xiang, S., Zeng, H., Wang, J., Wang, Q.

The corrosion behavior of 304L and 316L stainless steel in food grade phosphoric acid solutions

(2012) Applied Mechanics and Materials, 109, pp. 28-31.

http://www.scopus.com/inward/record.url?eid=2-s2.0-81555212306&partnerID=40&md5=6374281cfd1980d6f4a0dc43b7382392

AFFILIATIONS: School of Materials and Metallurgy, Guizhou University, Guiyang 550003, China

ABSTRACT: The corrosion behavior of 304L and 316L stainless steel have been investigated in 55 °C,85% food grade phosphoric acid solution by weight loss method and dynamic potential scan , the surface morphology was observed by scanning electron microscopy(SEM). The results showed that the number of pits in 304L was much more than that in 316L. The contents of Cr inside pits were greater than that in the smooth surface in the two stainless steels, indicating the Cr-poor are prone to corrosion. All the samples exhibited stable passive behavior which can be seen from the potentiodynamic polarization curves, 316L corrosion potential (-0.201V) was higher than that of 304L the corrosion potential (-0.357V), and under the same circumstance, 316L stainless steel was more corrosion-resistant than 304L stainless steel. © (2012) Trans Tech Publications.

AUTHOR KEYWORDS: Corrosion morphology; Polarization curves; Stainless steel

DOCUMENT TYPE: Conference Paper

SOURCE: Scopus

Du, Y., Xu, R.

Traveling wave solutions in a three-species food-chain model with diffusion and delays

(2012) International Journal of Biomathematics, 5 (1), art. no. 1250002, . Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84857540337&partnerID=40&md5=7c646f8ac13acc85160675501f26ea86

AFFILIATIONS: Institute of Applied Mathematics, Shijiazhuang Mechanical Engineering College, Shijiazhuang, 050003, China

ABSTRACT: This paper deals with the existence of traveling wave solutions in a three-species food-chain model with spatial diffusion and time delays due to gestation and negative feedback. By using a cross iteration scheme and Schauder's fixed point theorem, we reduce the existence of traveling wave solutions to the existence of a pair of upper-lower solutions. By constructing a pair of upper-lower solutions, we derive the existence of a traveling wave solution connecting the trivial steady state and the positive steady state. Numerical simulations are carried out to illustrate the main results. In particular, our results extend and improve some known results. © 2012 World Scientific Publishing Company.

AUTHOR KEYWORDS: food chain; partial exponential quasi-monotonicity; Schauder's fixed point theorem; Traveling wave solutions; upper-lower solutions

DOCUMENT TYPE: Article

SOURCE: Scopus

Peleg, M., Normand, M.D., Corradini, M.G.

A study of the randomly fluctuating microbial counts in foods and water using the Expanded Fermi Solution as a model

(2012) Journal of Food Science, 77 (1), pp. R63-R71. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84856037257&partnerID=40&md5=11138a733e031eb64b9f5ce4e7134824

AFFILIATIONS: Dept. of Food Science, Univ. of Massachusetts, Amherst, MA 01003, United States;

Inst. de Tecnología, Facultad de Ingeniería y Ciencias Exactas, Univ. Argentina de la Empresa, Ciudad de Buenos Aires, Argentina

ABSTRACT: Randomly fluctuating industrial microbial count records, with and without zero counts, were simulated with a version of the Expanded Fermi Solution, originally developed for risk assessment. The basic assumption has been that each individual count is determined by the multiplicative effect of several random factors, which augment or suppress the microbial population size, and in the case of sporadic pathogens, determine the probability of their initial presence too. Records were generated by a series of Monte Carlo simulations in which the factors were specified by ranges and their values chosen randomly within them. The process has been automated and posted as a freely downloadable Wolfram Demonstration on the Internet. The program allows the user to enter and alter the series length, parameters' ranges, and count level deemed dangerous with sliders on the screen. The display includes the chosen factors' ranges, the corresponding generated count record and its histogram, and an estimate of the risk of surpassing the dangerous threshold. Where the record contains no zero counts, the histogram is accompanied by the lognormal distribution, which naturally emerges from the fluctuations' mathematical model. Once the factors are identified and their ranges specified, the method could be used as a tool to analyze, compare, and quantify microbial risks in foods and water. © 2011 Institute of Food Technologists ®.

AUTHOR KEYWORDS: Expanded Fermi Solution; Foodborne pathogens; Microbial risk assessment; Probability; Quality assurance; Water microbiology

DOCUMENT TYPE: Article

SOURCE: Scopus

Ismail, Z., Karim, R.

Consolidation of heat transfer coefficients of viscoelastic simulated food solutions in helical exchangers

(2012) Journal of Food Engineering, 108 (1), pp. 122-127. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84864327016&partnerID=40&md5=ab9b03b4af9ac88c41dd5078a94a29ad

AFFILIATIONS: Civil Engineering Department, Faculty of Engineering, University of Malaya, 50603 Kuala Lumpur, Malaysia;

Petmel Resources Pte Limited, Kuala Lumpur, Malaysia

ABSTRACT: Heat transfer of viscoelastic liquids in helical exchangers attracted limited work in the past. Most heat transfer equations proposed do not reduce to the Graetz-Leveque equation for the straight tubes. Heat transfer coefficients were obtained for seven copper helical coil heat exchangers with different diameters and diameter ratios. Hot water was used as the heating medium; and dilute polyacrylamide solutions were used to simulate the food solutions. Results showed increased heat transfer coefficients but the magnitudes were lower than those obtained by previous workers. A unified form of the Graetz-Leveque equation obtained was: Nu = 1.75 Gz 1/3[1 + 0.5421Dn 0.45(d/D) 0.54] for water. The heat transfer equation for the 250 ppm solution is represented by, Nu = 1.75 Gz 1/3[1 + 0.3515Dn 0.45(d/D) 0.54]; and for the 500 ppm solution the results can be represented by Nu = 1.75 Gz 1/3[1 + 0.3615Dn 0.45(d/D) 0.54]. Viscoelasticity reduces heat transfer performance. © 2011 Elsevier Ltd. All rights reserved.

AUTHOR KEYWORDS: Graetz-Leveque equation; Heat transfer coefficient; Helical exchanger; Viscoelastic liquid

DOCUMENT TYPE: Article

SOURCE: Scopus

#### Food & Procurement

Lentz, E.C., Passarelli, S., Barrett, C.B.

The Timeliness and Cost-Effectiveness of the Local and Regional Procurement of Food Aid

(2013) World Development, 49, pp. 9-18. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879604276&partnerID=40&md5=157d44bfa08e8c704bf416c33ca199f5

AFFILIATIONS: Bucknell University, Lewisburg, United States;

Cornell University, Ithaca, United States;

Tufts University, Boston, United States;

Cornell University, Ithaca, United States

ABSTRACT: Local and regional procurement (LRP) of food aid is often claimed to lead to quicker and more cost-effective response. We generate timeliness and cost-effectiveness estimates by comparing US-funded LRP activities in nine countries against in-kind, transoceanic food aid shipments from the US to the same countries during the same timeframe. Procuring food locally or distributing cash or vouchers results in a time savings of nearly 14. weeks, a 62 percent gain. Cost-effectiveness varies significantly by commodity type. Procuring grains locally saved over 50 percent, on average, while local procurement of processed commodities was not always cost-effective. © 2013 Elsevier Ltd.

AUTHOR KEYWORDS: Emergency response; Food assistance; Foreign aid; Humanitarian aid

DOCUMENT TYPE: Article

SOURCE: Scopus

Harou, A.P, Upton, J.B., Lentz, E.C., Barrett, C.B., Gómez, M.I.

Tradeoffs or Synergies? Assessing Local and Regional Food Aid Procurement through Case Studies in Burkina Faso and Guatemala

(2013) World Development, 49, pp. 44-57. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879602279&partnerID=40&md5=1d9c512ac87a70d8ac73977bf3c43908

AFFILIATIONS: Cornell University, Ithaca, NY, United States;

Bucknell University, Lewisburg, PA, United States

ABSTRACT: We compare the impacts across a range of criteria of local and regional procurement (LRP) relative to transoceanic shipment of food aid in Burkina Faso and Guatemala. We find that neither instrument dominates the other across all criteria in either country, although LRP commonly performs at least as well as transoceanic shipment with respect to timeliness, cost, market price impacts, satisfying recipients' preferences, food quality and safety, and in benefiting smallholder suppliers. LRP is plainly a valuable food assistance tool, but its advantages and disadvantages must be carefully weighed, compared, and prioritized depending on the context and program objectives. © 2013 Elsevier Ltd.

AUTHOR KEYWORDS: Burkina Faso; Farmer based organizations; Food aid; Food assistance; Guatemala; Local and regional procurement; Response analysis; School feeding; Smallholder farmers

DOCUMENT TYPE: Article

SOURCE: Scopus

Garg, T., Barrett, C.B., Gómez, M.I., Lentz, E.C., Violette, W.J.

Market Prices and Food Aid Local and Regional Procurement and Distribution: A Multi-Country Analysis

(2013) World Development, 49, pp. 19-29. Cited 2 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879603421&partnerID=40&md5=c162dd724f7a86d01038cbb619bd137e

AFFILIATIONS: Cornell University, Ithaca, NY, United States;

Bucknell University, Lewisburg, United States;

Cornell University, Ithaca, NY, United States;

Brown University, Providence, RI, United States

ABSTRACT: To date, no research has rigorously addressed the concern that local and regional procurement (LRP) of food aid could affect food prices and food price volatility in food aid source and recipient countries. We assemble spatially and temporally disaggregated data and estimate the relationship between food prices and their volatility and local food aid procurement and distribution across seven countries for several commodities. In most cases, LRP activities have no statistically significant relationship with either local price levels or food price volatility. The few exceptions underscore the importance of market monitoring. © 2013 Elsevier Ltd.

AUTHOR KEYWORDS: Food assistance; Local and regional procurement and distribution; Price analysis; Spatial price transmission

DOCUMENT TYPE: Article

SOURCE: Scopus

Pal, S., Haman, F., Robidoux, M.A.

The Costs of Local Food Procurement in Two Northern Indigenous Communities in Canada

(2013) Food and Foodways, 21 (2), pp. 132-152.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879731327&partnerID=40&md5=a8150c3a9560b95898fcdc935c202ad2

AFFILIATIONS: Department of Biology, Faculty of Science, University of Ottawa, Ottawa, ON, Canada;

Indigenous Health Research Group, Faculty of Health Sciences, University of Ottawa, 125 University Ave., Ottawa, ON K1N 6N5, Canada

ABSTRACT: Remote Northern Ontario First Nations communities face severe food insecurity. Prices of store foods are often unaffordable and not always in stock. Government programs have been implemented to subsidize some of the market food costs. Our objective is to illustrate the costs associated with procuring food from the land through hunting and fishing in an effort to present this as an alternate option to relying solely on store-bought foods. Northern Ontario is an area of the world undergoing a rapid nutrition transition leading to high levels of obesity and type 2 diabetes. Despite this knowledge, little has been done to reverse this trend using land based foods, widely promoted as nutritionally beneficial. We conclude that estimated cost of food from the land requires significant energy and time, but remains economically comparable to food available in-store. Further government support should be given to community hunters to make land-based food a viable option for a larger proportion of each community. © 2013 Copyright Taylor and Francis Group, LLC.

DOCUMENT TYPE: Article

SOURCE: Scopus

Ramachandran, V., Leo, B., Mccarthy, O.

Strategies to improve the world food programme's revenue mobilisation and procurement practices

(2013) Development Policy Review, 31 (3), pp. 321-341.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876331715&partnerID=40&md5=17b048662f1027feb83f72134fd38c5e

AFFILIATIONS: Center for Global Development, 1800 Massachusetts Ave NW, Washington DC 20036, United States

ABSTRACT: Currently, a vast majority of WFP food procurement is executed through spot markets, which exposes it to substantial commodity and transport price risk as well as significant delays in delivery. The WFP also has limited flexibility owing to unpredictable revenue mobilisation, partly driven by restricted donor contributions. However, a significant portion of its operations are fairly predictable - both in terms of countries and delivery volumes. There are several types of derivatives contracts available at commodities exchanges that can facilitate strategic hedging. Greater commitments of untied cash donations from the US and other major donors can give the WFP significant operational flexibility to execute prudent financial management operations without damaging local food markets. © The Authors 2013. Development Policy Review © 2013 Overseas Development Institute.

AUTHOR KEYWORDS: Derivatives; Food aid; Hedging; World Food Programme

DOCUMENT TYPE: Article

SOURCE: Scopus

Robles, B., Wood, M., Kimmons, J., Kuo, T.

Comparison of nutrition standards and other recommended procurement practices for improving institutional food offerings in Los Angeles County, 2010-2012.

(2013) Advances in nutrition (Bethesda, Md.), 4 (2), pp. 191-202.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84883017404&partnerID=40&md5=ca67db43d42326712fde2100f3bb76be

AFFILIATIONS: Division of Chronic Disease and Injury Prevention, Los Angeles County Department of Public Health, Los Angeles, CA, USA.

ABSTRACT: National, state, and local institutions that procure, distribute, sell, and/or serve food to employees, students, and the public are increasingly capitalizing on existing operational infrastructures to create healthier food environments. Integration of healthy nutrition standards and other recommended practices [e.g., energy (kilocalories) postings at point-of-purchase, portion size restrictions, product placement guidelines, and signage] into new or renewing food service and vending contracts codifies an institution's commitment to increasing the availability of healthful food options in their food service venues and vending machines. These procurement requirements, in turn, have the potential to positively influence consumers' food-purchasing behaviors. Although these strategies are becoming increasingly popular, much remains unknown about their context, the processes required to implement them effectively, and the factors that facilitate their sustainability, especially in such broad and diverse settings as schools, county government facilities, and cities. To contribute to this gap in information, we reviewed and compared nutrition standards and other best practices implemented recently in a large school district, in a large county government, and across 10 municipalities in Los Angeles County. We report lessons learned from these efforts.

DOCUMENT TYPE: Review

SOURCE: Scopus

Bere, E., Westersjø, J.H.

Nature trips and traditional methods for food procurement in relation to weight status.

(2013) Scandinavian journal of public health, 41 (2), pp. 180-184.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876500496&partnerID=40&md5=efc8c19fd3f3f29d1cc932e172bbe007

AFFILIATIONS: Department of Public Health, Sport and Nutrition, University of Agder, Kristiansand, Norway. elling.bere@ uia.no

ABSTRACT: The purpose of this study is to assess the relationships between trips in nature, gathering of wild plants, fishing and hunting and weight status. Data from a cross-sectional questionnaire survey of 996 parents of sixth- and seventh-graders from 38 randomly chosen schools in two Norwegian counties. All data are self-reported: Weight and height (participants were considered as overweight if BMI were 25 or higher), family trips in nature (dichotomized into ≥once a week vs. less than once a week), gathering of wild plants/mushrooms, fishing and hunting (all dichotomized into ≥sometimes vs. never), sex, family education level and general physical activity level. Multivariate logistic regression analyses were performed with overweight as the dependent variable Adjusting for all outdoor activities; those engaging in nature trips (OR = 0.52; 95% CI = 0.37-0.75) and those engaging in gathering (OR = 0.73; 95% CI = 0.55-0.98) were less frequently overweight, while those fishing (OR = 1.83; 95% CI = 1.35-2.47) were more frequently overweight. After also adjusting for sex, family education level and general physical activity level, nature trips (OR = 0.52; 95% CI = 0.36-0.75) and fishing (OR = 1.53; 95% CI = 1.12-2.10) were still significant, gathering was not. No association between hunting and weight status was observed. Frequent family trips in nature might be an important behaviour in order to reverse the obesity epidemic.

DOCUMENT TYPE: Article

SOURCE: Scopus

Finnis, E., Benítez, C., Romero, E.F.C., Meza, M.J.A.

Changes to agricultural decision making and food procurement strategies in rural Paraguay

(2012) Latin American Research Review, 47 (2), pp. 180-190.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84866118448&partnerID=40&md5=39f0d41861220c4a3568703fcc984ae1

AFFILIATIONS: University of Guelph, Canada;

Universidad Nacional de Asunción, Paraguay

ABSTRACT: This research note provides a preliminary discussion of changing agricultural and food procurement strategies in a smallholder farming community in Piribebuy District, Paraguay. Although considerable attention has been paid to the contemporary problems of soy agriculture in Paraguay, it is also important to engage with the experiences of smallholders who are not involved in or affected by soy cultivation, as this highlights farmers' diverse everyday experiences and their agricultural priorities. We consider three issues that have emerged as key to farmer agricultural decision making in this community: farmer perceptions of environmental changes, processes of dietary delocalization via the movement of food from urban centers to rural communities, and the intersection of labor issues and aging farmers. © 2012 by the Latin American Studies Association.

DOCUMENT TYPE: Article

SOURCE: Scopus

Lehtinen, U.

Sustainability and local food procurement: A case study of Finnish public catering

(2012) British Food Journal, 114 (8), pp. 1053-1071. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84864148459&partnerID=40&md5=69b6d13bf3eeff2fb230360a209dc948

AFFILIATIONS: Department of International Business, Oulu Business School, University of Oulu, Oulu, Finland

ABSTRACT: Purpose: The aim of the paper is to present how sustainability as a concept supports the use of locally-sourced food in public catering, and the issues that arise from that policy objective and their implications for suppliers and purchasers. Design/methodology/approach: First, the paper explains the characteristics of local food chains and the concept of sustainability based on a literature review. It then outlines the stages of the food procurement process in public food catering in Finland, focussing on the delivery of potatoes from a local producer to a public caterer providing school meals. The case study identifies the dimensions of sustainability. Findings: First, the criteria defining sustainability remain unclear. Second, to overcome the cost disadvantages brought about by its small-scale production and high delivery costs, locally-sourced food should add some extra value. Short food supply chains have advantages over long ones, however, they are not sustainable per se. Research limitations/implications: The research is descriptive in nature and rests on action research implemented during 2004-2007. The study does not provide any quantitative analysis nor can it be statistically generalised. Practical implications: Measuring the impact of sustainability in a public tendering process remains challenging, as an unambiguous definition of sustainability criteria is lacking. Further, sustainable procurement practices would improve collaborative relationships. Originality/value: This paper complements the current discussion on sustainability and local food. Provision of free school meals is now a rare phenomenon, and has recently stirred widespread interest. Finland's continuing commitment to providing free school meals thus provides a very specific context in which to study the problems of food sourcing in the public sector. © Emerald Group Publishing Limited.

AUTHOR KEYWORDS: Catering industry; Finland; Food products; Local food chain; Public catering; School meals; Sustainable development; Sustainable procurement

DOCUMENT TYPE: Article

SOURCE: Scopus

Conner, D.S., Izumi, B.T., Liquori, T., Hamm, M.W.

Sustainable school food procurement in large K-12 districts: Prospects for value chain partnerships

(2012) Agricultural and Resource Economics Review, 41 (1), pp. 100-113.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861869914&partnerID=40&md5=013288018235729572cd4273f3110d62

AFFILIATIONS: Department of Community Development and Applied Economics, University of Vermont, Burlington, VT, United States;

School of Community Health, Portland State University, Portland, OR, United States;

School Food FOCUS, New York, NY, United States;

Department of Community, Agriculture, Recreation and Resource Studies, Michigan State University, East Lansing, MI, United States;

Department of Food Science and Human Nutrition, Michigan State University, East Lansing, MI, United States;

Department of Crop and Soil Sciences, Michigan State University, East Lansing, MI, United States

ABSTRACT: Many scholars and activists are interested in the potential for school-based childhood nutrition programs to positively impact the U.S. agri-food system. This paper explores efforts of a national K-12 school food collaborative to procure more sustainably grown and healthful food products. After a review of literature on transaction cost theory and school food procurement, the paper examines the potential of strategic partnerships in a value chain framework to meet procurement change goals. Results from a qualitative study of two participating school districts suggest that partnerships can offer potential solutions to recurring procurement barriers found in previous research. Copyright 2012 Northeastern Agricultural and Resource Economics Association.

AUTHOR KEYWORDS: School meals; Supply chains; Transaction costs

DOCUMENT TYPE: Conference Paper

SOURCE: Scopus

Bagchi, A., Aliyas Paul, J., Maloni, M.

Erratum: Improving bid efficiency for humanitarian food aid procurement (International Journal of Production Economics (2011) 134 (238-245))

(2012) International Journal of Production Economics, 136 (1), p. 254.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84856001299&partnerID=40&md5=30351e0d4319131f10bfc03f9611d267

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DOCUMENT TYPE: Erratum

#### Food & Reporting

Stobaugh, D.J., Deepak, P., Ehrenpreis, E.D.

Alleged isotretinoin-Associated inflammatory bowel disease: Disproportionate reporting by attorneys to the Food and Drug Administration Adverse Event Reporting System

(2013) Journal of the American Academy of Dermatology, 69 (3), pp. 393-398.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84882858252&partnerID=40&md5=8f92eaab99a184825c56542f8ef9884e

AFFILIATIONS: Center for the Study of Complex Diseases, Research Institute, NorthShore University HealthSystem, Evanston, IL, United States

ABSTRACT: Background: Some studies have purported to link isotretinoin prescribed for acne with the development of inflammatory bowel disease (IBD). Objective: We sought to identify existence of disproportionate attorney-initiated reporting of isotretinoin-Associated IBD in the Food and Drug Administration Adverse Event Reporting System (FAERS). Methods: A total of 3,338,835 cases (2003-2011) were downloaded from the FAERS. These were queried for IBD cases reported with isotretinoin for a usage indication of acne while recording reporter category. Trends were analyzed over time for reports by attorneys for all medications compared with reports of IBD with isotretinoin. Signal inflation factor was calculated to determine the distortion of pharmacovigilance signals for IBD with isotretinoin. Results: There were 2214 cases of IBD resulting from isotretinoin. Attorneys reported 1944 (87.8%) cases whereas physicians reported 132 (6.0%) and consumers reported 112 (5.1%) cases (P value <.01). For the entire FAERS, only 87,905 of the total 2,451,314 (3.6%) reports for all drug reactions during the same time period were reported by attorneys (P value <.01). The signal inflation factor for IBD with isotretinoin for attorney-initiated reports was 5.82, signifying a clear distortion. Limitations: The accuracy of reports was not ascertained. Conclusions: Attorney-initiated reports inflate the pharmacovigilance signal of isotretinoin-Associated IBD in the FAERS. © 2013 by the American Academy of Dermatology, Inc.

AUTHOR KEYWORDS: acne vulgaris; acne vulgaris/drug therapy; dermatologic agents/adverse effects; inflammatory bowel diseases; inflammatory bowel diseases/chemically induced; isotretinoin; postmarketing; product surveillance

DOCUMENT TYPE: Article

SOURCE: Scopus

Deepak, P., Stobaugh, D.J., Sherid, M., Sifuentes, H., Ehrenpreis, E.D.

Neurological events with tumour necrosis factor alpha inhibitors reported to the Food and Drug Administration Adverse Event Reporting System

(2013) Alimentary Pharmacology and Therapeutics, 38 (4), pp. 388-396.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84880265802&partnerID=40&md5=eb2f84713b2435b54d0f8a57548885d8

AFFILIATIONS: Department of Gastroenterology, Research Institute, NorthShore University Health System, Evanston IL, United States;

Center for the Study of Complex Diseases, Research Institute, NorthShore University HealthSystem, 1001 University Place, Evanston, IL 60201, United States;

Aspirus Wausau Hospital Hospitalists, Wausau WI, United States;

Department of Gastroenterology and Hepatology, Georgia Health Sciences University, Augusta GA, United States;

University of Chicago, Chicago IL, United States

ABSTRACT: Background The association between inhibition of tumour necrosis factor alpha (TNF-α) and new onset of neurological adverse events (AEs) is unclear. Aims To evaluate neurological AEs with TNF-α inhibitors reported to the Food and Drug Administration Adverse Event Reporting System (FAERS) utilising a standardised scoring tool for drug-induced AEs. Methods A search of FAERS for neurological AEs (January 1, 2000 to December 31, 2009) reported with infliximab, adalimumab, certolizumab and etanercept was performed. Full-text reports were accessed using the Freedom of Information Act and scored using Naranjo score, while accounting for temporal association, previous conclusive reports of the neurological AE with any TNF-α inhibitor, and alternate explanations including underlying disease, concomitant medications and comorbidities, such as diabetes mellitus. Results There were 772 reports. Most were in patients who had rheumatoid arthritis (393, 50.9%) followed by inflammatory bowel disease (140, 18.1%). No significant differences in age or gender were seen between IBD patients compared with rheumatological diseases (P = 0.584 and P = 0.055 respectively). Etanercept was reported most (327, 42.4%) followed by infliximab (276, 35.8%) (P = 0.008). Peripheral neuropathy was the most common neurological AE (296 reports, 38.3%) followed by central nervous system and/or spinal cord demyelination (153 reports, 19.8%). Majority (551, 71.4%) of the reports were of 'possible' AE with the remaining 'probable' AE and none identified as 'definite' AE. Conclusion While several neurological AEs have been described, definite association between de novo development of these AEs and exposure to TNF-α inhibitors was not established using the Naranjo score. © 2013 John Wiley & Sons Ltd.

DOCUMENT TYPE: Article

SOURCE: Scopus

Burrows, T.L., Truby, H., Morgan, P.J., Callister, R., Davies, P.S.W., Collins, C.E.

A comparison and validation of child versus parent reporting of children's energy intake using food frequency questionnaires versus food records: Who's an accurate reporter?

(2013) Clinical Nutrition, 32 (4), pp. 613-618.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84879462143&partnerID=40&md5=934f50dce08a700c217c077af038665d

AFFILIATIONS: School of Health Sciences, Faculty of Health and Priority Research Centre in Physical Activity and Nutrition, The University of Newcastle, Australia;

Department of Nutrition and Dietetics, Southern Clinical School of Medicine, Monash University, Australia;

School of Education, Faculty of Education and Arts and Priority Research Centre in Physical Activity and Nutrition, The University of Newcastle, Australia;

School of Biomedical Sciences and Pharmacy, Faculty of Health and Priority Research Centre in Physical Activity and Nutrition, The University of Newcastle, Australia;

Children's Nutrition Research Centre, School of Medicine, University of Queensland, Australia

ABSTRACT: Background & aims: The aim of this study was to (i) to compare the accuracy of reporting for child's total energy intake from a food frequency questionnaire (FFQ) completed independently by the mother, father and child in comparison to total energy expenditure (TEE) measured using doubly labeled water (DLW) (ii) compare the accuracy of the weighed food record (WFR) and DLW. Methods: Healthy weight children (mean±SD age 9.8±1.3years, n=6 girls/3 boys) and their parents independently completed an FFQ about children's intake. A 4-day WFR of child intake was recorded simultaneously. The accuracy of energy intakes reports were determined by the absolute and percentage differences between estimated energy intake and TEE measured by DLW. Results: The mean difference (limits of agreement LOA, ±2SD) when compared to DLW was; child 130 (-1518, 1258)kcal or (113±35% of TEE); father 398 (0,796)kcal or (121±13%); mother 807 (-213, 1824)kcal or (144±26%) and for the WFR-153 (1089,-1395)kcal or 95±32%. Conclusions: Children were the most accurate reporters when compared to their parents, with fathers more accurate than mothers. The 4-day WFR was approximately equal to the child report FFQ in estimating EI in children 8-11 years. © 2012 Elsevier Ltd and European Society for Clinical Nutrition and Metabolism.

AUTHOR KEYWORDS: Child; Dietary assessment; FFQ

DOCUMENT TYPE: Article

SOURCE: Scopus

Garg, V., Raisch, D.W., McKoy, J.M., Trifilio, S.M., Holbrook, J., Edwards, B.J., Belknap, S.M.b, Samaras, A.T., Nardone, B., West, D.P.

Impact of united states food and drug administration's boxed warnings on adverse drug reactions reporting rates and risk mitigation for multiple myeloma drugs

(2013) Expert Opinion on Drug Safety, 12 (3), pp. 299-307.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876572224&partnerID=40&md5=70d1feeb1e6812b68dab53fcc2907b3d

AFFILIATIONS: University of New Mexico, College of Pharmacy, Albuquerque, NM, United States;

Northwestern University, Division of General Internal Medicine, Department of Medicine, Chicago, IL, United States;

Northwestern University, Robert H Lurie Comprehensive Cancer Center, Chicago, IL, United States;

Northwestern University, Department of Medicine and Orthopaedic Surgery, Chicago, IL, United States;

Northwestern Memorial Hospital, Department of Pharmacy, Chicago, IL, United States;

Northwestern University, Feinberg School of Medicine, Department of Dermatology, Chicago, IL, United States;

University of New Mexico, College of Pharmacy, Pharmacoeconomics, Epidemiology, Public Policy, 1 University of New Mexico, Albuquerque, NM 87131, United States

ABSTRACT: Purpose: To determine the relationship between boxed warnings issuance by the US Food and Drug Administration (FDA) and the proportional reporting rates of the associated adverse drug reactions (ADRs) to the FDA's Adverse Event Reporting System (FAERS) for multiple myeloma (MM) drugs. Methods: We compiled a list of all FDA approved MM drugs and identified their associated ADR boxed warnings, through FDA's website and physician desk reference. Drugs that were issued boxed warnings after their market launch were included in the analysis, i.e., melphalan, thalidomide, vincristine, carmustine and doxorubicin. For each drug/ADR boxed warning combination, we retrieved all reported cases from the FAERS and calculated their Empiric Bayes Geometric Means (EBGMs), in pre-and post-boxed warning periods. Chi-square tests were performed to compare serious adverse drug events before and after boxed warnings for all drug/ADR combinations. Results: A total of 10 drug/ADR boxed warning combinations were identified, of which EBGM signals increased for six combinations after a boxed warning was issued. Reports of serious adverse drug events also increased significantly (p < 0.05). Conclusion: Boxed warnings were associated with increased FAERS reporting, indicating increased awareness of ADRs for MM drugs. Proactive pharmacovigilance programs, such as the FDA's Mini-Sentinel Project, may improve timeliness of detection of rare ADRs. © 2013 Informa UK, Ltd.

AUTHOR KEYWORDS: Adverse drug reaction; Boxed warnings; Multiple myeloma; United States Food and Drug Administration

DOCUMENT TYPE: Article

SOURCE: Scopus

Stobaugh, D.J., Deepak, P., Ehrenpreis, E.D.

Concomitant antibiotic usage does not augment the risk of inflammatory bowel disease with isotretinoin treatment for acne: A review of the Food and Drug Administration Adverse Event Reporting System

(2013) European Journal of Clinical Pharmacology, 69 (4), pp. 1041-1042.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876725054&partnerID=40&md5=e1f0ad9c054c0062187afee02ea50b25

AFFILIATIONS: Center for the Study of Complex Diseases, NorthShore University HealthSystem, Evanston, IL, United States;

Gastroenterology Department, NorthShore University HealthSystem, Highland Park, IL, United States

DOCUMENT TYPE: Letter

SOURCE: Scopus

Salk, A., Stobaugh, D.J, Deepak, P. , Ehrenpreis, E.D.

Ischemic colitis with type I interferons used in the treatment of hepatitis C and multiple sclerosis: An evaluation from the food and drug administration adverse event reporting system and review of the literature [Colitis isquémica con interferonas tipo I usadas en el tratamiento de hepatitis c y esclerosis múltiple: Una evaluación del sistema de reporte de eventos adversos de la administración de drogas y alimentos y revisión de laliteratura]

(2013) Annals of Pharmacotherapy, 47 (4), pp. 537-542.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84876253940&partnerID=40&md5=8aa90b2fe32bd3d981ad1db8861e2f24

AFFILIATIONS: University of Michigan, Ann Arbor, United States;

Center for the Study of Complex Diseases, Research Institute, NorthShore University HealthSystem, Evanston, IL, United States;

Highland Park Hospital, Highland Park, IL, United States

ABSTRACT: Objective: To better characterize the association between type I interferons and ischemic colitis (IC) in patients with the hepatitis C virus (HCV) and multiple sclerosis (MS), by analyzing reports submitted to the Food and Drug Administration (FDA) Adverse Event Reporting System (AERS) and the published literature. Data sources: A total of 2,562,390 reports of adverse events between January 2003 and June 2011 were downloaded from the FDA AERS. A literature review was performed on PubMed (January 1966-August 2012) using the MeSH terms interferon or interferon alfa or interferon beta and ischemic colitis separated by the Boolean operator "and" between the first 3 terms and the last term. Additional literature was identified by conducting a hand search of the reference list of the published literature identified in the initial search. Study selection and data extraction: Cases were restricted to those with an indi cation of HCV or MS, a primary suspect drug of a type I interferon, and a reaction of IC. Full-length reports were requested and organized by type of interferon, age, sex, concomitant drugs, and comorbidities. The Naranjo prob a bility scale was used to define cases as definite, probable, possible, or doubtful druginduced adverse events. Data synthesis: Type I interferons, including interferon alfa (IFN-α) and interferon beta (IFN-β), are approved for the treatment of HCV and MS. IFN-α has been shown to induce IC, but a relationship between type I interferons and IC has not been clarified in the medical literature. Fifty-six primary suspect reports of type I interferons associated with IC in patients with HCV or MS were identified from the FDA AERS. Seventeen cases were reported with IFN-α and 39 cases were reported with IFN-β. The majority of the cases were in females (80%) and those between the ages of 50 and 65 years (52%). The Naranjo probability scale identi fied 13 probable and 4 possible cases of IFN-α-induced IC, and 19 probable and 20 possible cases of IFN-β-induced IC. In the literature, 11 cases of IFN-α-induced IC were reported, while there were no reports with IFN-β. Conclusions: Our study suggests a possible association between treatment with type I interferons and the development of IC. Further research to determine the mechanism of this association is warranted. © 1967-2013 Harvey Whitney Books Co. All rights reserved.

DOCUMENT TYPE: Article

SOURCE: Scopus

Nalty, C.C., Sharkey, J.R., Dean, W.R.

Children's reporting of food insecurity in predominately food insecure households in Texas border colonias

(2013) Nutrition Journal, 12 (1), art. no. 15, . Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84872779065&partnerID=40&md5=efaf372640c9e3a93868508b9c8b1409

AFFILIATIONS: Program for Research in Nutrition and Health Disparities, School of Rural Public Health, Texas A and M Health Science Center, College Station, TX 77843-1266, United States

ABSTRACT: Background: Food insecurity is associated with detrimental physical, psychological, behavioral, social, and educational functioning in children and adults. Greater than one-quarter of all Hispanic households in the U.S. are food insecure. Hispanic families in the U.S. comprise 30% of households with food insecurity at the child level, the most severe form of the condition. Methods. Food security discordance was evaluated among 50 Mexican-origin children ages 6-11 and their mothers living in Texas border colonias from March to June 2010. Mothers and children were interviewed separately using promotora-researcher administered Spanish versions of the Household Food Security Survey Module and the Food Security Survey Module for Youth. Cohen's kappa statistic (κ) was used to analyze dyadic agreement of food security constructs and level of food security. Results: Eighty percent of mothers reported household food insecurity while 64% of children identified food insecurity at the child level. There was slight inter-rater agreement in food security status (κ = 0.13, p = 0.15). Poor agreement was observed on the child hunger construct (κ = -0.06, p = 0.66) with fair agreement in children not eating for a full day (κ = 0.26, p < 0.01) and relying on low-cost foods (κ = 0.23, p = 0.05). Conclusions: Mother and child-reported household and child-level food insecurity among this sample of limited-resource Mexican-origin colonias residents far surpass national estimates. While the level of dyadic agreement was poor, discordance may be attributable to parental buffering, social desirability in responses, and/or the age of children included in the present analysis. Future research should continue to explore how food security is understood from the perspectives and experiences of children and adolescents. © 2013 Nalty et al.

AUTHOR KEYWORDS: Child self-reports; Differential reporting; Discordance; Food security; Inter-rater agreement; Mexican-origin

DOCUMENT TYPE: Article

SOURCE: Scopus

Mincher, J.L., Symons, C.W., Thompson, A.

A Comparison of Food Policy and Practice Reporting between Credentialed and Noncredentialed Ohio School Foodservice Directors

(2012) Journal of the Academy of Nutrition and Dietetics, 112 (12), pp. 2035-2041.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84869863007&partnerID=40&md5=635920f9f8f67e052ee4a5ae314b5cc0

AFFILIATIONS: Department of Human Ecology, Youngstown State University, One University Plaza, Youngstown, OH 44555, United States;

Department of Health Education and Promotion, Kent State University, Kent, OH, United States;

Department of Health and Recreation Professions, The University of Toledo, Toledo, OH, United States

ABSTRACT: With rising childhood obesity rates and the increasing complexity of the school food environment, practitioners working in school nutrition need adequate preparation for their responsibilities. School foodservice directors (SFSDs) vary widely in their academic preparation, and there are no established standards for individuals in this occupation. Credentialing provides a way in which baseline knowledge of SFSDs can be established; however, little is known about the influence of such credentials on food-related policies and practices in public schools. Our cross-sectional study compared the reported food policies and practices between credentialed and noncredentialed SFSDs within all districts (N=364) of the Ohio public school system during the 2009-2010 school year. Using a Likert-type format, policy and practice scores were measured by asking participants to respond to statements adapted from the School Health Index assessment tool. Differences in the policy and practice scores reported by SFSDs holding a food-related credential and those not holding a credential were determined by . t test. Results indicated that respondents with a food-related credential were more likely to report both comprehensive food-related policies (14.51 vs 13.39; range=0 to 21) and practices (33.86 vs 32.50; range=0 to 39). These findings support the value of credentialing SFSDs. However, further research is required to establish which credential provides the optimal match in the provision of high quality nutrition care to schoolchildren. © 2012 Academy of Nutrition and Dietetics.

AUTHOR KEYWORDS: Credentials; Policy; School foodservice

DOCUMENT TYPE: Article

SOURCE: Scopus

Gandhi, P.K., Gentry, W.M., Bottorff, M.B.

Thrombotic events associated with C1 esterase inhibitor products in patients with hereditary angioedema: Investigation from the United States food and drug administration adverse event reporting system database

(2012) Pharmacotherapy, 32 (10), pp. 902-909. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84867289618&partnerID=40&md5=e86dc6cd8f5d17bbb1eef32bbad31b19

AFFILIATIONS: Department of Pharmacy Practice, School of Pharmacy, South College, 400 Goodys Lane, Knoxville, TN 37919, United States

ABSTRACT: Study Objective. To investigate reports of thrombotic events associated with the use of C1 esterase inhibitor products in patients with hereditary angioedema in the United States. Design. Retrospective data mining analysis. Source. The United States Food and Drug Administration (FDA) adverse event reporting system (AERS) database. Measurements and Main Results. Case reports of C1 esterase inhibitor products, thrombotic events, and C1 esterase inhibitor product-associated thrombotic events (i.e., combination cases) were extracted from the AERS database, using the time frames of each respective product's FDA approval date through the second quarter of 2011. Bayesian statistical methodology within the neural network architecture was implemented to identify potential signals of a drug-associated adverse event. A potential signal is generated when the lower limit of the 95% 2-sided confidence interval of the information component, denoted by IC025, is greater than zero. This suggests that the particular drug-associated adverse event was reported to the database more often than statistically expected from reports available in the database. Ten combination cases of thrombotic events associated with the use of one C1 esterase inhibitor product (Cinryze) were identified in patients with hereditary angioedema. A potential signal demonstrated by an IC025 value greater than zero (IC025 = 2.91) was generated for these combination cases. Conclusion. The extracted cases from the AERS indicate continuing reports of thrombotic events associated with the use of one C1 esterase inhibitor product among patients with hereditary angioedema. The AERS is incapable of establishing a causal link and detecting the true frequency of an adverse event associated with a drug; however, potential signals of C1 esterase inhibitor product-associated thrombotic events among patients with hereditary angioedema were identified in the extracted combination cases.

AUTHOR KEYWORDS: Adverse event reporting system database; C1 esterase inhibitor; Food and Drug Administration; HAE; Hereditary angioedema; Thrombotic events

DOCUMENT TYPE: Article

SOURCE: Scopus

Gavaza, P., Brown, C.M., Lawson, K.A., Rascati, K.L., Steinhardt, M., Wilson, J.P.

Pharmacist reporting of serious adverse drug events to the Food and Drug Administration.

(2012) Journal of the American Pharmacists Association : JAPhA, 52 (5), pp. e109-112.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84874405411&partnerID=40&md5=d74b527e6d0a2892967ef11c115207ec

AFFILIATIONS: Appalachian College of Pharmacy, 1060 Dragon Rd., Oakwood, VA 24631, USA.

ABSTRACT: To identify barriers to and facilitators of pharmacist reporting of serious adverse drug events (ADEs) to the Food and Drug Administration (FDA). Two focus groups consisting of practicing pharmacists were held in Austin, TX, in 2009. The following open-ended questions were used in the focus groups: (1) What do you think would make it easier to report serious ADEs to the FDA? (2) What do you think would make it more difficult to report serious ADEs to the FDA? A content analysis was performed on the generated transcripts. 13 pharmacists practicing in hospital and community settings in Texas participated. Pharmacists identified 27 barriers to and facilitators of reporting serious ADEs to FDA. Lack of patients' complete medical histories and lack of time were the barriers most frequently cited. Knowledge and awareness of ADEs and ADE reporting emerged as important factors that would facilitate reporting serious ADEs to FDA. These findings highlight the factors that facilitate and/or inhibit pharmacist reporting of serious ADEs to FDA. Improved knowledge of ADEs and ADE reporting would facilitate reporting behaviors, while lack of time, lack of complete patient medical histories, and lack of compensation issues serve as important barriers to reporting. Interventions are needed to address these factors.

DOCUMENT TYPE: Article

SOURCE: Scopus

Kadoyama, K. Sakaeda, T., Tamon, A., Okuno, Y.

Adverse event profile of tigecycline: Data mining of the public version of the U.S. Food and Drug Administration adverse event reporting system

(2012) Biological and Pharmaceutical Bulletin, 35 (6), pp. 967-970. Cited 5 times.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861894709&partnerID=40&md5=08460c69e3d7a2d26934b064906a5c99

AFFILIATIONS: Center for Integrative Education in Pharmacy and Pharmaceutical Sciences, Graduate School of Pharmaceutical Sciences, Kyoto University, Kyoto 606-8501, Japan;

Kyoto Constella Technologies Co., Ltd., Kyoto 604-8156, Japan;

Department of Systems Biosciences for Drug Discovery, Graduate School of Pharmaceutical Sciences, Kyoto University, Kyoto 606-8501, Japan

ABSTRACT: The recent emergence of multidrug-resistant pathogens and/or pharmacokinetics-pharmacodynamics considerations may result in off-label use of a certain class of antibacterials, including tigecycline. This study was performed to clarify the safety profile of tigecycline in the user-derived manner and to compare it with the prescribing information provided by the manufacturer. Numerous spontaneous adverse event reports (AERs) submitted to the U.S. Food and Drug Administration (FDA) were analyzed after a revision of arbitrary drug names and the deletion of duplicated submissions. Standardized official pharmacovigilance tools were used for quantitative detection of signals, i.e., drug-associated adverse events, including the proportional reporting ratio, the reporting odds ratio, the information component given by a Bayesian confidence propagation neural network, and the empirical Bayes geometric mean. Based on 22017956 co-occurrences, i.e., drug-adverse event pairs, found in 1644220 AERs from 2004 to 2009, 248 adverse events were suggested as tigecycline-associated ones. Adverse events with a relatively high frequency included nausea, vomiting, pancreatitis, hepatic failure, hypoglycemia, and increase in levels of alanine aminotransferase, bilirubin, alkaline phosphatase, aspartate aminotransferase, and gamma-glutamyltransferase. It is noted that cholestasis, jaundice, an increase in International Normalized Ratio, and Stevens-Johnson syndrome were also, although they were infrequent. The adverse events suggested were in agreement with information provided by the manufacturer, suggesting that off-label use hardly results in unexpected adverse events, presumably due to usage with extreme caution. © 2012 The Pharmaceutical Society of Japan.

AUTHOR KEYWORDS: Adverse event; Data mining; Pharmacovigilance; Tigecycline

DOCUMENT TYPE: Article

SOURCE: Scopus

Kruger, R., Stonehouse, W., Von Hurst, P.R., Coad, J.

Combining food records with in-depth probing interviews improves quality of dietary intake reporting in a group of South Asian women

(2012) Australian and New Zealand Journal of Public Health, 36 (2), pp. 135-140.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84861174581&partnerID=40&md5=cf2c9730853aa8b77ee20b852b1f6fb6

AFFILIATIONS: Institute of Food, Nutrition and Human Health, Massey University, North Shore Mail Centre, Private Bag 102 904, Auckland 0745, New Zealand

ABSTRACT: Objective: To investigate if the addition of an in-depth interview focused on cultural dietary practices could improve the quality of dietary data from food records among South Asian women in New Zealand. Methods: Cross-sectional data were collected from 134 South Asian women (=20 years), living in Auckland. Dietary data were collected using four-day food records. Nutritional analysis revealed 33.6% under-reporting of energy intakes. All women were recalled for an in-depth probing interview focused on culturespecific foods and dietary practices. Results: The interview revealed extensive use of dairy products and plant oils. The nutrient content of the food record alone and the food record plus interview were compared; median energy intakes were 6,852 kJ vs 7,246 kJ (p<0.001); underreporting decreased by 14.2%, and total fat and protein intakes (g/day) increased (p<0.001). Estimates of poly- and mono-unsaturated fatty acids increased significantly (p<0.001) due to greater use of plant oils due to greater use of plant oils replacing saturated fatty acid-rich fats in food preparation. A significant increase (17%) (p<0.001) in calcium intake reflects the higher dairy intake identified with the interview. Conclusion: The addition of an in-depth probing interview to a four-day food record enhanced food intake reporting. Selfreported dietary assessments in immigrant population groups require quality control for accuracy. Implications: Methods to ensure highquality dietary data are essential to assess health outcomes and to inform public health interventions, especially in immigrant populations. © 2012 Public Health Association of Australia.

AUTHOR KEYWORDS: Dietary assessment methods; Food records; Immigrant; Probing interviews; South Asian women

DOCUMENT TYPE: Article

SOURCE: Scopus

Duggirala, H.J.a , Herz, N.D.a , Caños, D.A.a , Sullivan, R.A.a , Schaaf, R.b , Pinnow, E.a , Marinac-Dabic, D.a

Disproportionality analysis for signal detection of implantable cardioverter-defibrillator-related adverse events in the Food and Drug Administration Medical Device Reporting System

(2012) Pharmacoepidemiology and Drug Safety, 21 (1), pp. 87-93.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84855341387&partnerID=40&md5=ec9af55710f371e0ee975e565e530ab3

AFFILIATIONS: Division of Postmarket Surveillance, Center for Devices and Radiological Health Food and Drug Administration, Silver Spring, MD, United States;

Oracle Health Sciences Global Business Unit, Oracle Corporation, Waltham, United States

ABSTRACT: Background: The Food and Drug Administration (FDA) became aware of lead fracture and inappropriate shock events related to Sprint Fidelis leads in January 2007. The manufacturer announced a voluntary market withdrawal in October 2007. Aim: Our aim was to retrospectively evaluate this safety signal using disproportionality analysis to estimate whether disproportionality analysis could have detected this particular safety signal earlier than actually occurred. Materials and Methods: The Manufacturer and User Facility Device Experience (MAUDE) database contains reports on device-related adverse events, of which, FDA receives several hundred thousand every year. For each manufacturer, a list of the top lead brand names was ranked by frequency of reports. We used the Multi-item Gamma Poisson Shrinker (MGPS) method for analysis. We isolated 11 top-reported implantable cardioverter defibrillator (ICD) lead brand names. Using MGPS methodology, we calculated the one-sided 95% lower confidence bound EB05 on the empirical Bayes geometric mean of the reporting ratio. Results: We performed individual MGPS analysis for each of the top reported adverse events in 2006 for ICD leads. Fidelis had the highest EB05 scores for lead fractures and inappropriate shock. Discussion: Through disproportionality analysis of the MAUDE database, we were able to identify known safety signals associated with the Medtronic Sprint Fidelis lead. Conclusion: If utilized at the time, this disproportionality analysis would have identified signals earlier for lead fractures, oversensing, high impedance, and inappropriate shock. © 2011 John Wiley & Sons, Ltd.

AUTHOR KEYWORDS: Adverse events; Data mining; Disproportionality analysis; Leads; MAUDE; Safety

DOCUMENT TYPE: Article

SOURCE: Scopus

Lamba, S., Gupta, A.K., Shetty, R., Kumar, N.

Antiretroviral prophylaxis and the risk of cleft lip and palate: Preliminary signal detection in the food and drug administration's adverse events reporting system database

(2012) Cleft Palate-Craniofacial Journal, 49 (1), p. 123.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84863409471&partnerID=40&md5=a9c8b5836da80f90623183b898e42a10

AFFILIATIONS: Department of Plastic Surgery, Christian Medical College, Vellore, Tamil Nadu, India

DOCUMENT TYPE: Letter

SOURCE: Scopus

Cartsos, V.M.a , Palaska, P.K.b , Zavras, A.I.c

Antiretroviral prophylaxis and the risk of cleft lip and palate: Preliminary signal detection in the food and drug administration's adverse events reporting system database

(2012) Cleft Palate-Craniofacial Journal, 49 (1), pp. 118-121. Cited 1 time.

http://www.scopus.com/inward/record.url?eid=2-s2.0-84855899524&partnerID=40&md5=7fe8d9c178d002825667ca687874def2

AFFILIATIONS: Tufts University School of Dental Medicine, Boston, MA, United States;

Combined Certificate/Masters Program, Tufts University School of Dental Medicine, Department of Orthodontics, Boston, MA, United States;

Division of Oral Epidemiology and Biostatistics, Columbia College of Dental Medicine, 622 West 113 Street, New York, NY 10032, United States

ABSTRACT: Objective: Antiretroviral prophylaxis has been found to be effective in preventing vertical HIV transmission to the offspring of infected mothers. Because medicine and the art of public health require benefits to outweigh any plausible risks, our study aimed to explore and quantify preliminary associations between antiretroviral medications and clefting. Methods: We analyzed 5 years of available data from the Food and Drug Administration's Adverse Events Reporting System (Medwatch program) and calculated reporting odds ratios (RORs) and their associated 95% confidence intervals (CIs). Results: The medications with the highest effects were efavirenz with an ROR of 196 (95% CI, 86 to 447), lamivudine with an ROR of 60.2 (95% CI, 14.25 to 148), the combination abacavir sulfate/lamivudine/zidovudine with an ROR of 59.3, and nelfinavir with and ROR of 50.5, followed by nevirapine, lopinavir/ritonavir, and lamivudine/zidovudine. Conclusion: Given the multifactorial etiology of cleft lip and palate, further studies are needed to assess the relative safety of antiretroviral prophylaxis and the specific conditions or potential synergies that might lead to the development of this defect.

AUTHOR KEYWORDS: Adverse event; Antiretroviral; Cleft; FDA; HIV; Lip; Medwatch; Offspring; Palate; Pregnancy; Prophylaxis; Reporting odds ratio; Safety

DOCUMENT TYPE: Article

SOURCE: Scopus

# Appendix B: Literature Retrieved Using Sciencedirect Engine

#### Food AND Reporting

Derrick J. Stobaugh, Parakkal Deepak, Eli D. Ehrenpreis, Alleged isotretinoin-associated inflammatory bowel disease: Disproportionate reporting by attorneys to the Food and Drug Administration Adverse Event Reporting System, Journal of the American Academy of Dermatology, Volume 69, Issue 3, September 2013, Pages 393-398, ISSN 0190-9622, http://dx.doi.org/10.1016/j.jaad.2013.04.031.

(http://www.sciencedirect.com/science/article/pii/S0190962213004234)

Abstract: Background: Some studies have purported to link isotretinoin prescribed for acne with the development of inflammatory bowel disease (IBD). Objective: We sought to identify existence of disproportionate attorney-initiated reporting of isotretinoin-associated IBD in the Food and Drug Administration Adverse Event Reporting System (FAERS). Methods:A total of 3,338,835 cases (2003-2011) were downloaded from the FAERS. These were queried for IBD cases reported with isotretinoin for a usage indication of acne while recording reporter category. Trends were analyzed over time for reports by attorneys for all medications compared with reports of IBD with isotretinoin. Signal inflation factor was calculated to determine the distortion of pharmacovigilance signals for IBD with isotretinoin. Results: There were 2214 cases of IBD resulting from isotretinoin. Attorneys reported 1944 (87.8%) cases whereas physicians reported 132 (6.0%) and consumers reported 112 (5.1%) cases (P value &lt; .01). For the entire FAERS, only 87,905 of the total 2,451,314 (3.6%) reports for all drug reactions during the same time period were reported by attorneys (P value &lt; .01). The signal inflation factor for IBD with isotretinoin for attorney-initiated reports was 5.82, signifying a clear distortion. Limitations: The accuracy of reports was not ascertained. Conclusions: Attorney-initiated reports inflate the pharmacovigilance signal of isotretinoin-associated IBD in the FAERS.

Keywords: acne vulgaris; acne vulgaris/drug therapy; dermatologic agents/adverse effects; inflammatory bowel diseases; inflammatory bowel diseases/chemically induced; isotretinoin; postmarketing; product surveillance

Lois Steinfeldt, Jaswinder Anand, Theophile Murayi, Food Reporting Patterns in the USDA Automated Multiple-Pass Method, Procedia Food Science, Volume 2, 2013, Pages 145-156, ISSN 2211-601X, http://dx.doi.org/10.1016/j.profoo.2013.04.022.

(http://www.sciencedirect.com/science/article/pii/S2211601X13000230)

Abstract: Complete and accurate 24-hour dietary recalls are essential for nutrition monitoring in the United States. The USDA Automated Multiple-Pass Method (AMPM) uses a five-step multiple-pass approach to collect dietary data. The first step is an unstructured, uninterrupted listing of all foods and beverages consumed. The next 3 steps use a structured approach to data collection including memory cues. The Final Probe step is an unstructured question for any other foods recalled and includes several additional memory cues. The objective of this analysis is to describe patterns of food reporting in the AMPM in a nationally representative sample. This analysis uses data from the 2007-2008 What We Eat in America, National Health and Nutrition Examination Survey for males and females ages 12 and older. The step in the AMPM interview where a food is first recalled and reported is determined and assigned a value. These values are summed to create an AMPM reporting score which reflects the use of the five steps in AMPM in the 24- hour dietary intake recall. There are signficant differences in the AMPM reporting score by day of interview, gender, age and race/ethnicity. The patterns described in this analysis demonstrate the importance of the multiple-pass method in obtaining complete 24-hour dietary recalls.

Keywords: AMPM; dietary recall methodology; What We Eat In America; NHANES

Jeanine L. Mincher, Cynthia W. Symons, Amy Thompson, A Comparison of Food Policy and Practice Reporting between Credentialed and Noncredentialed Ohio School Foodservice Directors, Journal of the Academy of Nutrition and Dietetics, Volume 112, Issue 12, December 2012, Pages 2035-2041, ISSN 2212-2672, http://dx.doi.org/10.1016/j.jand.2012.06.366.

(http://www.sciencedirect.com/science/article/pii/S2212267212011896)

Abstract: With rising childhood obesity rates and the increasing complexity of the school food environment, practitioners working in school nutrition need adequate preparation for their responsibilities. School foodservice directors (SFSDs) vary widely in their academic preparation, and there are no established standards for individuals in this occupation. Credentialing provides a way in which baseline knowledge of SFSDs can be established; however, little is known about the influence of such credentials on food-related policies and practices in public schools. Our cross-sectional study compared the reported food policies and practices between credentialed and noncredentialed SFSDs within all districts (N=364) of the Ohio public school system during the 2009-2010 school year. Using a Likert-type format, policy and practice scores were measured by asking participants to respond to statements adapted from the School Health Index assessment tool. Differences in the policy and practice scores reported by SFSDs holding a food-related credential and those not holding a credential were determined by t test. Results indicated that respondents with a food-related credential were more likely to report both comprehensive food-related policies (14.51 vs 13.39; range=0 to 21) and practices (33.86 vs 32.50; range=0 to 39). These findings support the value of credentialing SFSDs. However, further research is required to establish which credential provides the optimal match in the provision of high quality nutrition care to schoolchildren.

Keywords: School foodservice; Policy; Credentials

T.L. Burrows, H. Truby, P.J. Morgan, R. Callister, P.S.W. Davies, C.E. Collins, A comparison and validation of child versus parent reporting of children's energy intake using food frequency questionnaires versus food records: Who's an accurate reporter?, Clinical Nutrition, Volume 32, Issue 4, August 2013, Pages 613-618, ISSN 0261-5614, http://dx.doi.org/10.1016/j.clnu.2012.11.006.

(http://www.sciencedirect.com/science/article/pii/S0261561412002385)

Abstract: SummaryBackground &amp; aims: The aim of this study was to (i) to compare the accuracy of reporting for child's total energy intake from a food frequency questionnaire (FFQ) completed independently by the mother, father and child in comparison to total energy expenditure (TEE) measured using doubly labeled water (DLW) (ii) compare the accuracy of the weighed food record (WFR) and DLW. Methods: Healthy weight children (mean ± SD age 9.8 ± 1.3years, n = 6 girls/3 boys) and their parents independently completed an FFQ about children's intake. A 4-day WFR of child intake was recorded simultaneously. The accuracy of energy intakes reports were determined by the absolute and percentage differences between estimated energy intake and TEE measured by DLW. Results: The mean difference (limits of agreement LOA, ±2SD) when compared to DLW was; child 130 (−1518, 1258) kcal or (113 ± 35% of TEE); father 398 (0,796) kcal or (121 ± 13%); mother 807 (−213, 1824) kcal or (144 ± 26%) and for the WFR −153 (1089, −1395) kcal or 95 ± 32%. Conclusions : Children were the most accurate reporters when compared to their parents, with fathers more accurate than mothers. The 4-day WFR was approximately equal to the child report FFQ in estimating EI in children 8–11 years.

Keywords: Dietary assessment; Child; FFQ

Derrick J. Stobaugh, Parakkal Deepak, Eli D. Ehrenpreis, Su1319 Intestinal Adverse Outcomes With Pancreatic Enzymes: An Analysis of the Food and Drug Administration Adverse Event Reporting System, Gastroenterology, Volume 144, Issue 5, Supplement 1, May 2013, Page S-457, ISSN 0016-5085, http://dx.doi.org/10.1016/S0016-5085(13)61686-8.

(http://www.sciencedirect.com/science/article/pii/S0016508513616868)

L. Stockert, A. Del Parigi, A.M. Anskis, J.A. Nasser, Effect of Food Deprivation State on Food Intake Recall and Total Energy Reporting in Lean and Obese Women, Journal of the Academy of Nutrition and Dietetics, Volume 112, Issue 9, Supplement, September 2012, Page A13, ISSN 2212-2672, http://dx.doi.org/10.1016/j.jand.2012.06.046.

(http://www.sciencedirect.com/science/article/pii/S2212267212008416)

Parakkal Deepak, Derrick J. Stobaugh, Eli D. Ehrenpreis, Sa1222 Pharmacotherapy for Inflammatory Disorders and the Risk for Invasive Parasitic Infections: A Review of the Food and Drug Administration Adverse Event Reporting System (FDA AERS) From the REFURBISH Study, Gastroenterology, Volume 142, Issue 5, Supplement 1, May 2012, Page S-247, ISSN 0016-5085, http://dx.doi.org/10.1016/S0016-5085(12)60929-9.

(http://www.sciencedirect.com/science/article/pii/S0016508512609299)

Parakkal Deepak, Derrick J. Stobaugh, Eli D. Ehrenpreis, Su1159 Risk of Infections With Natalizumab Therapy Among Patients With Crohn's Disease: An Analysis of the Food and Drug Administration Adverse Event Reporting System, Gastroenterology, Volume 144, Issue 5, Supplement 1, May 2013, Page S-415, ISSN 0016-5085, http://dx.doi.org/10.1016/S0016-5085(13)61526-7.

(http://www.sciencedirect.com/science/article/pii/S0016508513615267)

Parakkal Deepak, Derrick J. Stobaugh, Eli D. Ehrenpreis, Su1158 Risk of Leukemia With Pharmacotherapy Among Inflammatory Bowel Disease Patients: An Analysis of the Food and Drug Administration Adverse Event Reporting System, Gastroenterology, Volume 144, Issue 5, Supplement 1, May 2013, Page S-414, ISSN 0016-5085, http://dx.doi.org/10.1016/S0016-5085(13)61525-5.

(http://www.sciencedirect.com/science/article/pii/S0016508513615255)

Parakkal Deepak, Derrick J. Stobaugh, Eli D. Ehrenpreis, Su1154 Maternal and Fetal Adverse Outcomes With Tumor Necrosis Factor Alpha Inhibitors in Inflammatory Bowel Disease Patients: An Analysis of the Food and Drug Administration Adverse Event Reporting System, Gastroenterology, Volume 144, Issue 5, Supplement 1, May 2013, Page S-413, ISSN 0016-5085, http://dx.doi.org/10.1016/S0016-5085(13)61521-8.

(http://www.sciencedirect.com/science/article/pii/S0016508513615218)

Parakkal Deepak, Derrick J. Stobaugh, Eli D. Ehrenpreis, 623 Pharmacotherapy and Invasive Fungal Infections in Patients Receiving TNF-Alpha Blockers, Immunomodulators and Systemic Corticosteroids: A Review of the Food and Drug Administration Adverse Event Reporting System (FDA AERS) From the REFURBISH Study, Gastroenterology, Volume 142, Issue 5, Supplement 1, May 2012, Page S-122, ISSN 0016-5085, http://dx.doi.org/10.1016/S0016-5085(12)60463-6.

(http://www.sciencedirect.com/science/article/pii/S0016508512604636)

Kevin McConeghy, Adam Bress, Coady Wing, REPORTS OF BLEEDING-RELATED FATALITIES WITH DABIGATRAN AND WARFARIN: AN ANALYSIS USING THE FOOD AND DRUG ADMINISTRATION ADVERSE EVENTS REPORTING SYSTEM, Journal of the American College of Cardiology, Volume 61, Issue 10, Supplement, 12 March 2013, Page E319, ISSN 0735-1097, http://dx.doi.org/10.1016/S0735-1097(13)60319-8.

(http://www.sciencedirect.com/science/article/pii/S0735109713603198)

Derrick J. Stobaugh, Parakkal Deepak, Eli D. Ehrenpreis, Su1160 Risk of Melanoma and Non-Melanoma Skin Cancers With Pharmacotherapy Among Inflammatory Bowel Disease Patients: An Analysis of the Food and Drug Administration Adverse Event Reporting System, Gastroenterology, Volume 144, Issue 5, Supplement 1, May 2013, Page S-415, ISSN 0016-5085, http://dx.doi.org/10.1016/S0016-5085(13)61527-9.

(http://www.sciencedirect.com/science/article/pii/S0016508513615279)

Derrick J. Stobaugh, Parakkal Deepak, Eli D. Ehrenpreis, Su1161 Risk of Solid Cancers With Tumor Necrosis Factor Alpha Inhibitor Therapy Among Inflammatory Bowel Disease Patients: An Analysis of the Food and Drug Administration Adverse Event Reporting System, Gastroenterology, Volume 144, Issue 5, Supplement 1, May 2013, Page S-416, ISSN 0016-5085, http://dx.doi.org/10.1016/S0016-5085(13)61528-0.

(http://www.sciencedirect.com/science/article/pii/S0016508513615280)

Parakkal Deepak, Derrick J. Stobaugh, Brett D. Riederman, Eli D. Ehrenpreis, Su1149 Drug Induced Lupus (DIL) With Adalimumab and Certolizumab in Infliximab Naïve Inflammatory Bowel Disease Patients: An Analysis of the Food and Drug Administration Adverse Event Reporting System, Gastroenterology, Volume 144, Issue 5, Supplement 1, May 2013, Pages S-411-S-412, ISSN 0016-5085, http://dx.doi.org/10.1016/S0016-5085(13)61516-4.

(http://www.sciencedirect.com/science/article/pii/S0016508513615164)

Pranav K. Gandhi, William M. Gentry, Michael B. Bottorff, Investigation of Pitavastatin-associated Muscular and Renal Adverse Events Compared to Other Statins: Cases from the Food and Drug Administration Adverse Event Reporting System Database, Journal of Clinical Lipidology, Volume 7, Issue 3, May–June 2013, Page 255, ISSN 1933-2874, http://dx.doi.org/10.1016/j.jacl.2013.03.043.

(http://www.sciencedirect.com/science/article/pii/S1933287413001049)

Heather N. Hartman, Caitlin Dodd, Amal H. Assa'ad, Parental Reporting of Allergenic Food Introduction: A Study of Urban and Suburban Populations, Journal of Allergy and Clinical Immunology, Volume 131, Issue 2, Supplement, February 2013, Page AB99, ISSN 0091-6749, http://dx.doi.org/10.1016/j.jaci.2012.12.1021.

(http://www.sciencedirect.com/science/article/pii/S0091674912030229)

R.M. Arabyat, V. Garg, D.W. Raisch, C. Bennett, PMS1 - Fluoroquinolone-Associated Tendon-Rupture: A Summary Of Reports In The Food And Drug Administration's (Fda's) Adverse Event Reporting System, Value in Health, Volume 16, Issue 3, May 2013, Page A217, ISSN 1098-3015, http://dx.doi.org/10.1016/j.jval.2013.03.1101.

(http://www.sciencedirect.com/science/article/pii/S1098301513011728)

#### Food AND Procurement

Teevrat Garg, Christopher B. Barrett, Miguel I. Gómez, Erin C. Lentz, William J. Violette, Market Prices and Food Aid Local and Regional Procurement and Distribution: A Multi-Country Analysis, World Development, Volume 49, September 2013, Pages 19-29, ISSN 0305-750X, http://dx.doi.org/10.1016/j.worlddev.2013.01.018.

(http://www.sciencedirect.com/science/article/pii/S0305750X13000247)

Abstract: Summary

To date, no research has rigorously addressed the concern that local and regional procurement (LRP) of food aid could affect food prices and food price volatility in food aid source and recipient countries. We assemble spatially and temporally disaggregated data and estimate the relationship between food prices and their volatility and local food aid procurement and distribution across seven countries for several commodities. In most cases, LRP activities have no statistically significant relationship with either local price levels or food price volatility. The few exceptions underscore the importance of market monitoring.

Keywords: food assistance; price analysis; local and regional procurement and distribution; spatial price transmission

Aurélie P. Harou, Joanna B. Upton, Erin C. Lentz, Christopher B. Barrett, Miguel I. Gómez, Tradeoffs or Synergies? Assessing Local and Regional Food Aid Procurement through Case Studies in Burkina Faso and Guatemala, World Development, Volume 49, September 2013, Pages 44-57, ISSN 0305-750X, http://dx.doi.org/10.1016/j.worlddev.2013.01.020.

(http://www.sciencedirect.com/science/article/pii/S0305750X13000260)

Abstract: Summary

We compare the impacts across a range of criteria of local and regional procurement (LRP) relative to transoceanic shipment of food aid in Burkina Faso and Guatemala. We find that neither instrument dominates the other across all criteria in either country, although LRP commonly performs at least as well as transoceanic shipment with respect to timeliness, cost, market price impacts, satisfying recipients’ preferences, food quality and safety, and in benefiting smallholder suppliers. LRP is plainly a valuable food assistance tool, but its advantages and disadvantages must be carefully weighed, compared, and prioritized depending on the context and program objectives.

Keywords: farmer based organizations; food aid; food assistance; response analysis; school feeding; local and regional procurement; smallholder farmers; Burkina Faso; Guatemala

Aniruddha Bagchi, Jomon Aliyas Paul, Michael Maloni, Corrigendum to “Improving bid efficiency for humanitarian food aid procurement”: [Int. J. Production Economics 134 (2011) 238–245]., International Journal of Production Economics, Volume 136, Issue 1, March 2012, Page 254, ISSN 0925-5273, http://dx.doi.org/10.1016/j.ijpe.2011.12.027.

(<http://www.sciencedirect.com/science/article/pii/S0925527311005494>)

#### Food AND Solutions

Hui Fang, Existence of eight positive periodic solutions for a food-limited two-species cooperative patch system with harvesting terms, Communications in Nonlinear Science and Numerical Simulation, Volume 18, Issue 7, July 2013, Pages 1857-1869, ISSN 1007-5704, http://dx.doi.org/10.1016/j.cnsns.2012.12.002.

(http://www.sciencedirect.com/science/article/pii/S1007570412005527)

Abstract: This paper is concerned with a food-limited two-species cooperative patch system with harvesting terms. By using Mawhin’s coincidence degree theory, this paper establishes a new criterion on the existence of at least eight positive periodic solutions for this system under the assumption of periodicity of the parameters. An example is given to illustrate the effectiveness of the result. The ecological interpretation of the result is also given.

Keywords: Coincidence degree; Periodic solution; Food-limited supply; Cooperative patch system; Harvesting term

Sumitha Nair Balan, Leong-Siong Chua, Stella Sinn-Yee Choong, Yun-Fah Chang, Yee-How Say, Demographic differences in the saltiness intensity perception and pleasantness ratings of salty solutions and foods among Malaysian subjects, Food Quality and Preference, Volume 28, Issue 1, April 2013, Pages 154-160, ISSN 0950-3293, http://dx.doi.org/10.1016/j.foodqual.2012.09.003.

(http://www.sciencedirect.com/science/article/pii/S0950329312001863)

Abstract: In order to determine how individual differences in saltiness intensity perception and pleasantness rating might be associated with demographics and anthropometric measurements among Malaysians, 300 university students (114 males, 186 females; 259 ethnic Chinese, 41 Indians) tasted three increasing suprathreshold concentrations of NaCl aqueous solutions and low and high sodium versions of chicken stock soups, eggs and biscuits. They then rated the saltiness intensity perception and pleasantness using the generalised Labeled Magnitude Scale and Labeled Affective Magnitude scales, respectively. Taken together, as the sodium content of solutions/foods increases, the saltiness intensity perception increased; while the opposite was only true for the pleasantness ratings of NaCl solutions and eggs. Principle Component Analysis showed that food stimuli that were generally perceived as ‘tasted less salty’ did not predict the differences among genders, ethnicities and BMI groups, but those that ‘tasted more salty’ were perceived as significantly higher among females and those with normal weight. The pleasantness of soups and high sodium food stimuli was rated significantly higher by males, while the pleasantness of low and high sodium foods was rated significantly higher by Chinese. Finally, it also seemed that the intensity perception and pleasantness ratings of salty foods did not correlate well with the obesity and cardiovascular health indices. Taken together, saltiness intensity perception and pleasantness rating are dependent on the demographics, but not on anthropometric measurements and blood pressures of the young Malaysian subjects in this study.

Keywords: Saltiness intensity perception; Saltiness pleasantness rating; Food sodium content; Anthropometric measurements; Malaysia

Mohammed Aider, Elena Gnatko, Marzouk Benali, Gennady Plutakhin, Alexey Kastyuchik, Electro-activated aqueous solutions: Theory and application in the food industry and biotechnology, Innovative Food Science & Emerging Technologies, Volume 15, July 2012, Pages 38-49, ISSN 1466-8564, http://dx.doi.org/10.1016/j.ifset.2012.02.002.

(http://www.sciencedirect.com/science/article/pii/S1466856412000227)

Abstract: The present review highlights the state-of-the-art electro-activation as a science and the applications of electro-activated aqueous solutions in biotechnology and the food industry. The science behind electro-activation remains unknown. Hence, this review focuses on understanding the mechanisms governing the process of obtaining electro-activated aqueous solutions. Several applications in biotechnology and the food industry are discussed. Among the potential applications of this technology, reagentless chemical catalysis and food safety seem to be the most promising.

Industrial relevance: Electro-activated solution can be successfully used in the food industry and biotechnology for:• Selective protein and fiber extraction from different meal residues. - Self-generation of acidic and alkaline conditions for different catalytic applications. - Electro-activated solutions can be used as sanitizing agents for work area cleaning in food processing industries.- Electro-activated solutions can be used for prevention of bio-films formation in food processing equipments. - Keywords: Electro-activation; Aqueous solution; Acidic anolyte; Alkaline catholyte; Reagentless chemical reaction; Sanitizing

Darshika Amarakoon, Dil Thavarajah, Kevin McPhee, Pushparajah Thavarajah, Iron-, zinc-, and magnesium-rich field peas (Pisum sativum L.) with naturally low phytic acid: A potential food-based solution to global micronutrient malnutrition, Journal of Food Composition and Analysis, Volume 27, Issue 1, August 2012, Pages 8-13, ISSN 0889-1575, http://dx.doi.org/10.1016/j.jfca.2012.05.007.

(http://www.sciencedirect.com/science/article/pii/S0889157512000890)

Abstract: Biofortification of commonly eaten foods with iron (Fe) and zinc (Zn) might be a solution to global “hidden hunger”. This study was carried out to determine the micronutrient biofortification potential of US-grown field peas (Pisum sativum L.). We analyzed seed Fe, Zn, calcium (Ca), magnesium (Mg), total phosphorus (P), and phytic acid (PA) concentrations of six commercial field pea genotypes grown at seven locations in North Dakota, USA. These US-grown field peas were naturally rich in Fe (46–54&#xa0;mg&#xa0;kg–1), Zn (39–63&#xa0;mg&#xa0;kg–1), and Mg (1350–1427&#xa0;mg&#xa0;kg–1). A single serving of field pea could provide of 28–68% the recommended daily allowance (RDA) for Fe, 36–78% of the RDA for Zn, and 34–46% of the RDA for Mg. Field pea is not a good source of Ca (622–1219&#xa0;mg&#xa0;kg–1; 6–12% of RDA). In addition, these field peas are naturally low in PA (4.9–7.1&#xa0;mg&#xa0;g–1 of PA or 1.4–2&#xa0;mg&#xa0;g–1 of phytic-P) despite very high total P concentrations (3.5–5&#xa0;mg&#xa0;g–1). Overall, field pea is a good food source of Fe, Zn, and Mg, and selection of genetic material to enrich micronutrients in conjunction with growing location may further enhance mineral concentrations.

Keywords: Biofortification; Field pea; Pulse; Legume; Mineral composition; Iron; Zinc; Calcium; Magnesium; Phytic acid; Micronutrients; Bioavailability; Food composition; Food analysis

Zijian Liu, Shouming Zhong, Xiaoyun Liu, Permanence and periodic solutions for an impulsive reaction–diffusion food-chain system with ratio-dependent functional response, Communications in Nonlinear Science and Numerical Simulation, Volume 19, Issue 1, January 2014, Pages 173-188, ISSN 1007-5704, http://dx.doi.org/10.1016/j.cnsns.2013.05.030.

(http://www.sciencedirect.com/science/article/pii/S1007570413002529)

Abstract: Abstract

An impulsive reaction–diffusion periodic food-chain system with ratio-dependent functional response is investigated in the present paper. Sufficient conditions for the ultimate boundedness and permanence of the food-chain system are established based on the comparison theory of differential equation and upper and lower solution method. By constructing appropriate auxiliary function, the conditions for the existence of a unique globally stable positive periodic solution are also obtained. Some numerical examples are presented to verify our results. A discussion is given in the end of the paper.

Keywords: <!-- Tag Not Handled --><keyword id="k0005">Reaction–diffusion; <!-- Tag Not Handled --><keyword id="k0010">Ratio-dependent functional response; <!-- Tag Not Handled --><keyword id="k0015">Food-chain system; <!-- Tag Not Handled --><keyword id="k0020">Permanence; <!-- Tag Not Handled --><keyword id="k0025">Stability

Jacqui Dibden, David Gibbs, Chris Cocklin, Framing GM crops as a food security solution, Journal of Rural Studies, Volume 29, January 2013, Pages 59-70, ISSN 0743-0167, http://dx.doi.org/10.1016/j.jrurstud.2011.11.001.

(http://www.sciencedirect.com/science/article/pii/S0743016711001045)

Abstract: The spectre of a food security crisis has raised important questions about future directions for agriculture and given fresh impetus to a long-standing debate about the potential contribution of agricultural biotechnology to food security. This paper considers the discursive foundations for promotion of agricultural biotechnology, arguing that notions of progress and ‘science-based’ risk assessment act as ‘anti-political’ strategies to remove consideration of genetically modified organisms (GMOs) from the cut and thrust of politics, while the concept of ‘food security’ reconstitutes agricultural biotechnology as a moral imperative. We argue that a debate ostensibly focussed on developing countries in fact largely arises from discordant views about the future of farming and rural areas in the developed countries where these arguments are taking place. These debates are examined through a comparative study of the UK and Australia. Whereas acceptance of GM crops and foods at government and industry level has not led to commercial adoption in the UK due to consumer resistance and the influence of EU regulations, Australian governments at federal and state level have increasingly embraced GM crops, potentially locking Australia into a food and farming trajectory based on agricultural biotechnology.

Keywords: Agricultural biotechnology; Agri-food paradigms; Food security; Genetically modified crops; Farming trajectories; Progress

Z. Ismail, R. Karim, Consolidation of heat transfer coefficients of viscoelastic simulated food solutions in helical exchangers, Journal of Food Engineering, Volume 108, Issue 1, January 2012, Pages 122-127, ISSN 0260-8774, http://dx.doi.org/10.1016/j.jfoodeng.2011.07.016.

(http://www.sciencedirect.com/science/article/pii/S026087741100392X)

Abstract: Heat transfer of viscoelastic liquids in helical exchangers attracted limited work in the past. Most heat transfer equations proposed do not reduce to the Graetz–Leveque equation for the straight tubes. Heat transfer coefficients were obtained for seven copper helical coil heat exchangers with different diameters and diameter ratios. Hot water was used as the heating medium; and dilute polyacrylamide solutions were used to simulate the food solutions. Results showed increased heat transfer coefficients but the magnitudes were lower than those obtained by previous workers. A unified form of the Graetz–Leveque equation obtained was:

Nu&#xa0;=&#xa0;1.75 Gz1/3[1&#xa0;+&#xa0;0.5421Dn0.45(d/D)0.54] for water. The heat transfer equation for the 250&#xa0;ppm solution is represented by, Nu&#xa0;=&#xa0;1.75 Gz1/3[1&#xa0;+&#xa0;0.3515Dn0.45(d/D)0.54]; and for the 500&#xa0;ppm solution the results can be represented by Nu&#xa0;=&#xa0;1.75 Gz1/3[1&#xa0;+&#xa0;0.3615Dn0.45(d/D)0.54]. Viscoelasticity reduces heat transfer performance.

Keywords: Graetz–Leveque equation; Heat transfer coefficient; Helical exchanger; Viscoelastic liquid

I. Azaiez, G. Meca, L. Manyes, F.B. Luciano, M. Fernández-Franzón, Study of the chemical reduction of the fumonisins toxicity using allyl, benzyl and phenyl isothiocyanate in model solution and in food products, Toxicon, Volume 63, 1 March 2013, Pages 137-146, ISSN 0041-0101, http://dx.doi.org/10.1016/j.toxicon.2012.12.010.

(http://www.sciencedirect.com/science/article/pii/S0041010112008392)

Abstract: Fumonisins (FBs) are bioactive compounds produced by several strains of Fusarium spp. which contain a polyketide structure similar to sphinganine. These mycotoxins contain a free amino group that could work as an electron donor and react with the electrophile carbon present within the isothiocyanate (ITC) group. The objective of this study was to determine the effect of ITCs (allyl, benzyl and phenyl) on the stability of FB1, FB2 and FB3. Firstly, PBS solutions at three pH levels (4, 7 and 9) were prepared and added with pairs of one FB (1 mg/L) plus one ITC (1 mg/L). Then, gaseous ITC was used to fumigate corn kernels and corn flour contaminated with FBs produced by Gibberella moniliformis CECT 2987 in situ. Mycotoxin levels were evaluated using liquid chromatography coupled to mass spectrometry in tandem (LC-MS/MS), while products formed from the reaction of FBs and ITCs were examined by liquid chromatography coupled to mass spectrometry-linear ion trap (LC-MS-LIT). The reduction of FB1 and FB2 in solution ranged from 42 to 100% on a time-dependent manner. This variance was greatly influenced by pH. In general, lower pH levels eased the reaction between ITCs and FBs. ITC fumigation treatment (50, 100 and 500 μL/L) was able to reduce 53–96% of FB1 levels, 29–91% of FB2 and 29–96% of FB3. Four reaction products between the bioactive compounds employed in this study were identified, corresponding to FB + ITC conjugates.

Keywords: Fumonisins; Isothiocyanates; Mycotoxin reduction; LC-MS/MS; LC-MS-LIT

Poonam Sharma, Varun Bhardwaj, Tanvi Chaudhary, Ishita Sharma, P. Kumar, S. Chauhan, Micellar interaction study of synthetic antioxidant (BHA) and sodium dodecyl sulfate (SDS) in aqueous solution for potential pharmaceutical/food applications, Journal of Molecular Liquids, Volume 187, November 2013, Pages 287-293, ISSN 0167-7322, http://dx.doi.org/10.1016/j.molliq.2013.08.007.

(http://www.sciencedirect.com/science/article/pii/S0167732213002705)

Abstract: Abstract

Butylated hydroxyanisole (BHA) is a potential phenolic antioxidant which has a wide range of pharmacological actions, whereas, sodium dodecyl sulfate (SDS) is well known to form colloidal aggregates which can be employed for biological processes, and as effective vehicles for delivery and transport phenomena. Therefore, it would be interesting to evaluate the interactions between BHA-SDS and impact of BHA-SDS micellar properties. Aggregation in terms of CMCs and thermo-acoustic properties via specific conductivity (κ), viscosity (η), compressibility coefficient (β), apparent molar volume (ϕv) and apparent molar adiabatic compressibility (ϕk) of SDS in aqueous solutions containing BHA at different temperatures (25, 30, 35 and 40&#xa0;°C) have been measured. Proton NMR analysis was performed in the absence and presence of BHA. Interactions were evaluated in terms of chemical shifts and moreover provided perceptivity on the location of BHA within the micelle. The results revealed the significant contribution of BHA to promoting the micelle formation much earlier with regard to increase in concentration and temperature. Convincingly, this study not only casts light on the binding interactions but also provides a hint to utilizing the micellar system in stabilization and maintenance of pharmaceutical and food materials.

Keywords: <!-- Tag Not Handled --><keyword id="kw0025">Butylatedhydroxyanisole; <!-- Tag Not Handled --><keyword id="kw0030">Sodium dodecyl sulfate; <!-- Tag Not Handled --><keyword id="kw0035">Micellization; <!-- Tag Not Handled --><keyword id="kw0040">Interaction

Jen-Yi Huang, Y.M. John Chew, D. Ian Wilson, A spinning disc study of fouling of cold heat transfer surfaces by gel formation from model food fat solutions, Journal of Food Engineering, Volume 109, Issue 1, March 2012, Pages 49-61, ISSN 0260-8774, http://dx.doi.org/10.1016/j.jfoodeng.2011.09.034.

(http://www.sciencedirect.com/science/article/pii/S0260877411005280)

Abstract: The formation of immobile gels on heat transfer surfaces (‘coring’) caused by cooling fat solutions below their cloud point was studied using a novel spinning disc apparatus (SDA). The SDA features a cooled, removable heat transfer surface with well defined heat and mass transfer characteristics. Measurements of heat flux were combined with computational fluid dynamics simulations to yield reliable estimates of the surface temperature and shear stress. Fouling studies were performed with model solutions of 5&#xa0;wt.% tripalmitin in a paraffin oil operating in the ‘cold start’ mode, wherein the experiment starts with the surface colder than the steady state, simulating one mode of operating a standard ‘cold finger’ experiment. Local heat flux measurements allowed the thermal fouling resistance to be monitored: deposit mass coverage and composition were also measured. The cold surface promotes the rapid formation of an initial gel layer, followed by a period of linear fouling, and finally falling rate fouling behaviour. The linear fouling rate was relatively insensitive to temperature and shear rate, while the fouling rate in the falling rate regime was found to depend on the temperature driving force for crystallisation kinetics. The solids fraction within the deposit layer increased over the duration of a 12&#xa0;h fouling test, indicating rapid ageing. The rheological properties of the deposits were highly sensitive to solids fraction.

Keywords: Crystallisation; Fats; Fouling; Freezing; Gel

15th IUFoST World Congress of Food Science and Technology — Food Science Solutions in an Evolving World, Food Research International, Volume 47, Issue 2, July 2012, Page 127, ISSN 0963-9969, http://dx.doi.org/10.1016/j.foodres.2012.05.010.

(http://www.sciencedirect.com/science/article/pii/S0963996912001512)

G.L. Dotto, J.M. Moura, T.R.S. Cadaval, L.A.A. Pinto, Application of chitosan films for the removal of food dyes from aqueous solutions by adsorption, Chemical Engineering Journal, Volume 214, 1 January 2013, Pages 8-16, ISSN 1385-8947, http://dx.doi.org/10.1016/j.cej.2012.10.027.

(http://www.sciencedirect.com/science/article/pii/S1385894712013642)

Abstract: Chitosan films were applied to remove acid red 18 and FD&amp;C blue no. 2 dyes from aqueous solutions. The films were prepared by casting technique and characterized. Batch adsorption equilibrium experiments were carried out at different temperatures (298–328&#xa0;K). Freundlich, Langmuir and Redlich–Peterson models were fitted to the experimental data. The thermodynamic parameters (ΔG0, ΔH0 and ΔS0) were also estimated. Kinetic study was realized using pseudo-first order, pseudo-second order and Elovich models. The possible films–dyes interactions were investigated by Fourier transform infrared spectroscopy, differential scanning calorimetry and color parameters. The maximum experimental adsorption capacities were 194.6&#xa0;mg&#xa0;g−1 and 154.8&#xa0;mg&#xa0;g−1 for the acid red 18 and FD&amp;C blue no. 2, respectively, obtained at 298&#xa0;K. It was found that the Redlich–Peterson isotherm model presented satisfactory fit with the experimental data (R2&#xa0;&gt;&#xa0;0.98 and ARE&#xa0;&lt;&#xa0;9.00%). The adsorption process was spontaneous, favorable, exothermic, and occurred by electrostatic interactions. The Elovich model was the more appropriate to represent the adsorption kinetic data (R2&#xa0;&gt;&#xa0;0.95 and ARE&#xa0;&lt;&#xa0;5.00%). The chitosan films maintained its structure and were easily separated from the liquid phase after the adsorption process.

Keywords: Acid red 18; Adsorption; Chitosan films; FD&amp;C blue no. 2; Phase separation

Sanitary solutions for food and beverage, World Pumps, Volume 2013, Issue 5, May 2013, Page 6, ISSN 0262-1762, http://dx.doi.org/10.1016/S0262-1762(13)70167-6.

(http://www.sciencedirect.com/science/article/pii/S0262176213701676)

Grant D. Stentiford, Diseases in aquatic crustaceans: Problems and solutions for global food security, Journal of Invertebrate Pathology, Volume 110, Issue 2, June 2012, Page 139, ISSN 0022-2011, http://dx.doi.org/10.1016/j.jip.2012.04.014.

(http://www.sciencedirect.com/science/article/pii/S0022201112001206)

Peter H Verburg, Ole Mertz, Karl-Heinz Erb, Helmut Haberl, Wenbin Wu, Land system change and food security: towards multi-scale land system solutions, Current Opinion in Environmental Sustainability, Available online 1 August 2013, ISSN 1877-3435, http://dx.doi.org/10.1016/j.cosust.2013.07.003.

(http://www.sciencedirect.com/science/article/pii/S1877343513000821)

Abstract: Land system changes are central to the food security challenge. Land system science can contribute to sustainable solutions by an integrated analysis of land availability and the assessment of the tradeoffs associated with agricultural expansion and land use intensification. A land system perspective requires local studies of production systems to be contextualised in a regional and global context, while global assessments should be confronted with local realities. Understanding of land governance structures will help to support the development of land use policies and tenure systems that assist in designing more sustainable ways of intensification. Novel land systems should be designed that are adapted to the local context and framed within the global socio-ecological system. Such land systems should explicitly account for the role of land governance as a primary driver of land system change and food production.

Ismail Daoud, Mourad Mesmoudi, Said Ghalem, MM/QM study: Interactions of copper(II) and mercury(II) with food dyes in aqueous solutions, International Journal of Chemical and Analytical Science, Volume 4, Issue 2, June 2013, Pages 49-56, ISSN 0976-1209, http://dx.doi.org/10.1016/j.ijcas.2013.04.003.

(http://www.sciencedirect.com/science/article/pii/S0976120913000168)

Abstract: AbstractAim

In this work we studied four azo dyes which are proposed for synthetic colorants in foods applications and named L1: Sunset Yellow, E110, L2: Tartrazin, E102, L3: Amaranth, E123, L4: Red Ponceau 4R, E124. In addition, electron density analysis has been carried out to highlight the possible strengths of interaction of these four azo dyes with metal ions.

Materials and methods: Density Functional Theory (DFT) was utilized, using the B3LYP functional and the 6-31G(d) basis set. This level of calculation was used to find the optimized molecular structure and to predict the molecular orbitals energies, dipole moment, Fukui function values f − k , locals nucleophilicity indexes Nk and the chemical reactivity parameters that arise from Conceptual DFT. Also, the steric energies values from the four complexes were calculated with the EMO program using MM2 method.

Results: Complexes forms with mercury are easier to form and more stable than copper. These show that the mercury intoxication is faster than the copper, knowing that mercury is toxic even with low dose. For that, the men who carry amalgams, we advise may be avoid to eat food and drugs which contain azo dyes because there exists a high trend between these azo dyes and the metal ions which released by the amalgams.

Keywords: <!-- Tag Not Handled --><keyword id="kwrd0010">Azo dyes; <!-- Tag Not Handled --><keyword id="kwrd0015">Conceptual DFT; <!-- Tag Not Handled --><keyword id="kwrd0020">Heavy metals; <!-- Tag Not Handled --><keyword id="kwrd0025">Interactions; <!-- Tag Not Handled --><keyword id="kwrd0030">Molecular mechanics

Styliani Valili, George Siavalas, Hrissi K. Karapanagioti, Ioannis D. Manariotis, Kimon Christanis, Phenanthrene removal from aqueous solutions using well-characterized, raw, chemically treated, and charred malt spent rootlets, a food industry by-product, Journal of Environmental Management, Volume 128, 15 October 2013, Pages 252-258, ISSN 0301-4797, http://dx.doi.org/10.1016/j.jenvman.2013.04.057.

(http://www.sciencedirect.com/science/article/pii/S0301479713003071)

Abstract: Abstract

Malt spent rootlets (MSR) are biomaterials produced in big quantities by beer industry as by-products. A sustainable solution is required for their management. In the present study, MSR are examined as sorbents of a hydrophobic organic compound, phenanthrene, from aqueous solutions. Raw MSR sorb phenanthrene but their sorptive properties are not competitive with the respective properties of commercial sorbents (e.g., activated carbons). Organic petrography is used as a tool to characterize MSR after treatment in order to produce an effective sorbent for phenanthrene. Chemical and thermal (at low temperature under nitrogen atmosphere) treatments of MSR did not result in highly effective sorbents. Based on organic petrography characterization, the pores of the treated materials were filled with humic colloids. When pyrolysis at 800 °C was used to treat MSR, a sorbent with new and empty pores was produced. Phenanthrene sorption capacity was 2 orders of magnitude higher for the pyrolized MSR than for raw MSR.

Keywords: <!-- Tag Not Handled --><keyword id="kwrd0010">Sustainable management; <!-- Tag Not Handled --><keyword id="kwrd0015">Biosorption; <!-- Tag Not Handled --><keyword id="kwrd0020">Polycyclic aromatic hydrocarbons (PAH); <!-- Tag Not Handled --><keyword id="kwrd0025">Biochar; <!-- Tag Not Handled --><keyword id="kwrd0030">Wastewater treatment

Xiao Dong Chen, Aditya Putranto, Comments on “A new solution approach for simultaneous heat and mass transfer during convective drying of mango” by E. Barati, J.A. Esfahani, Journal of Food Engineering 102 (2011) 302–309; “A novel approach to evaluate the temperature during drying of food products with negligible external resistance to mass transfer” by E. Barati, J.A. Esfahani, Journal of Food Engineering 114 (2013) 39–46, Journal of Food Engineering, Available online 8 February 2013, ISSN 0260-8774, http://dx.doi.org/10.1016/j.jfoodeng.2013.01.030.

(http://www.sciencedirect.com/science/article/pii/S0260877413000472)

Marcus Vinícius C. Alves, Jader R. Barbosa Jr., Alvaro T. Prata, Corrigendum to ‘‘Analytical solution of single screw extrusion applicable to intermediate values of screw channel aspect ratio’’ [J. Food Eng. 92 (2009) 152–156], Journal of Food Engineering, Volume 116, Issue 1, May 2013, Page 253, ISSN 0260-8774, http://dx.doi.org/10.1016/j.jfoodeng.2012.11.012.

(http://www.sciencedirect.com/science/article/pii/S026087741200564X)

B. Wansink, D. Just, The Limits of Changing Defaults in Fast-Food Restaurants and the Surprising Solution for a Better Happy Meal, Journal of Nutrition Education and Behavior, Volume 44, Issue 4, Supplement, July–August 2012, Page S62, ISSN 1499-4046, http://dx.doi.org/10.1016/j.jneb.2012.03.142.

(http://www.sciencedirect.com/science/article/pii/S1499404612002357)

Leia Minaker, Kim D. Raine, The Food Environment in Canada: The Problem, Solutions, and The Battle Ahead, Canadian Journal of Diabetes, Volume 37, Supplement 2, April 2013, Page S245, ISSN 1499-2671, http://dx.doi.org/10.1016/j.jcjd.2013.03.169.

(<http://www.sciencedirect.com/science/article/pii/S1499267113003481>)

#### Food AND Tools

P. Trematerra, Aspects related to decision support tools and Integrated Pest Management in food chains, Food Control, Volume 34, Issue 2, December 2013, Pages 733-742, ISSN 0956-7135, http://dx.doi.org/10.1016/j.foodcont.2013.06.020.

(http://www.sciencedirect.com/science/article/pii/S0956713513003034)

Abstract: Abstract

There are a number of tools available for pest management in stored product protection and in the food industry, but often the effectiveness of these approaches and how best to integrate them into a coherent and effective Integrated Pest Management (IPM) programme are not well understood. Many questions remain about the use of these tools, from the very practical issues such as how many traps are needed and which types work best, to fundamental issues concerning the relationship between trap captures and pest population density, distribution and level of product infestation. Limited acceptance of IPM in food facilities is partially explained by a combination of: costs of responsive pest control interventions; difficulty in sampling properly, combined with unreliable sampling data; calculations of action thresholds being too simplistic. In operational practice precise treatment thresholds and economic injury levels have not been developed, and standards and rejection criteria are inconsistent and difficult to apply. As a result, treatments based on an economic threshold are not typically performed and control strategies are often applied preventively, even when using tactics that do not have any residual effect. In current practice, many locations still rely on calendar-based pesticide applications and have little understanding of the basis of pest management.

Keywords: <!-- Tag Not Handled --><keyword id="kwrd0010">IPM; <!-- Tag Not Handled --><keyword id="kwrd0015">Pests; <!-- Tag Not Handled --><keyword id="kwrd0020">Stored products; <!-- Tag Not Handled --><keyword id="kwrd0025">Food industry; <!-- Tag Not Handled --><keyword id="kwrd0030">Decision support tools; <!-- Tag Not Handled --><keyword id="kwrd0035">Practical application

Noemi Spagnoletti, Elisabetta Visalberghi, Michele P. Verderane, Eduardo Ottoni, Patricia Izar, Dorothy Fragaszy, Stone tool use in wild bearded capuchin monkeys, Cebus libidinosus. Is it a strategy to overcome food scarcity?, Animal Behaviour, Volume 83, Issue 5, May 2012, Pages 1285-1294, ISSN 0003-3472, http://dx.doi.org/10.1016/j.anbehav.2012.03.002.

(http://www.sciencedirect.com/science/article/pii/S0003347212001169)

Abstract: To determine whether tool use varied in relation to food availability in bearded capuchin monkeys, we recorded anvil and stone hammer use in two sympatric wild groups, one of which was provisioned daily, and assessed climatic variables and availability of fruits, invertebrates and palm nuts. Capuchins used tools to crack open encased fruits, mostly palm nuts, throughout the year. Significant differences between wet and dry seasons were found in rainfall, abundance of invertebrates and palm nuts, but not in fruit abundance. Catulè nuts were more abundant in the dry season. We tested the predictions of the necessity hypothesis (according to which tool use is maintained by sustenance needs during resource scarcity) and of the opportunity hypothesis (according to which tool use is maintained by repeated exposure to appropriate ecological conditions, such as preferred food resources necessitating the use of tools). Our findings support only the opportunity hypothesis. The rate of tool use was not affected by provisioning, and the monthly rate of tool use was not correlated with the availability of fruits and invertebrates. Conversely, all capuchins cracked food items other than palm nuts (e.g. cashew nuts) when available, and adult males cracked nuts more in the dry season when catulè nuts (the most common and exploited nut) are especially abundant. Hence, in our field site capuchins use tools opportunistically.

Keywords: bearded capuchin; <span style='font-style: italic'>Cebus libidinosus</span>; fallback food; necessity hypothesis; nut cracking; opportunity hypothesis; tool use

Kenjiro Kunieda, Tomohisa Ohno, Ichiro Fujishima, Kyoko Hojo, Tatsuya Morita, Reliability and Validity of a Tool to Measure the Severity of Dysphagia: The Food Intake LEVEL Scale, Journal of Pain and Symptom Management, Volume 46, Issue 2, August 2013, Pages 201-206, ISSN 0885-3924, http://dx.doi.org/10.1016/j.jpainsymman.2012.07.020.

(http://www.sciencedirect.com/science/article/pii/S0885392412004678)

Abstract: Context: Dysphagia is one of the most prevalent and distressing symptoms among palliative care patients, and a practical assessment tool is required. Objectives: The aim of this study was to examine the reliability and validity of a tool to measure the severity of dysphagia: the Food Intake LEVEL Scale (FILS), a 10-point observer-rating scale. Methods: The inter- and intrarater reliability was evaluated by three clinicians in 30 patients using weighted kappa statistics. The convergent validity was evaluated by examining correlations of FILS with the Functional Oral Intake Scale (FOIS) and patient-reported satisfaction levels with oral intake. Results: Weighted kappa coefficients for interrater reliability ranged from 0.70 to 0.90 and those for intrarater reliability ranged from 0.83 to 0.90. The FILS score was highly associated with the FOIS (ρ = 0.96–0.99) and patient-reported satisfaction (ρ = 0.89).Conclusion: The FILS seems to have fair reliability and validity as a practical tool for assessing the severity of dysphagia. Further study on the reliability, validity, and sensitivity of the FILS compared with the FOIS is needed.

Keywords: Dysphagia; food intake; measurement tool; validation

J.M. Soon, W.P. Davies, S.A. Chadd, R.N. Baines, Field application of farm-food safety risk assessment (FRAMp) tool for small and medium fresh produce farms, Food Chemistry, Volume 136, Issues 3–4, 15 February 2013, Pages 1603-1609, ISSN 0308-8146, http://dx.doi.org/10.1016/j.foodchem.2012.01.029.

(http://www.sciencedirect.com/science/article/pii/S0308814612000623)

Abstract: The objective of this study was to develop a farm food safety-risk assessment tool (FRAMp) which serves as a self-assessment and educational tool for fresh produce farms. FRAMp was developed in Microsoft® Excel spreadsheet software using standard mathematical and logical functions and utilised a qualitative risk assessment approach for farmers to evaluate their food safety practices. The FRAMp tool has since been tested on 12 fresh produce farms throughout UK. All the farms determined that FRAMp was interesting but 17% found it too long while 25% of the farms felt the tool was too complicated. The instructions on FRAMp usage were revised and farmers were given the options to skip and select specific steps in the farm risk assessment. The end users (farmers/farm managers) determined that developing their own action plans and using it as proof of assessment for future third-party audits were most useful to them. FRAMp tool can be described as an illustrative risk ranking tool to facilitate farms to identify potential risk factors during their crop production.

Keywords: Food safety; Fresh produce; Qualitative risk assessment

Andrea Galimberti, Fabrizio De Mattia, Alessia Losa, Ilaria Bruni, Silvia Federici, Maurizio Casiraghi, Stefano Martellos, Massimo Labra, DNA barcoding as a new tool for food traceability, Food Research International, Volume 50, Issue 1, January 2013, Pages 55-63, ISSN 0963-9969, http://dx.doi.org/10.1016/j.foodres.2012.09.036.

(http://www.sciencedirect.com/science/article/pii/S096399691200395X)

Abstract: Food safety and quality are nowadays a major concern. Any case of food alteration, especially when reported by the media, has a great impact on public opinion. There is an increasing demand for the improvement of quality controls, hence addressing scientific research towards the development of reliable molecular tools for food analysis. DNA barcoding is a widely used molecular-based system, which can identify biological specimens, and is used for the identification of both raw materials and processed food. In this review the results of several researches are critically analyzed, in order to exploit the effectiveness of DNA barcoding in food traceability, and to delineate some best practices in the application of DNA barcoding throughout the industrial pipeline. The use of DNA barcoding for food safety and in the identification of commercial fraud is also discussed.

Keywords: DNA barcoding; Food safety; Food traceability; Raw material; Commercial fraud; Species identification

Patricia Britten, SuperTracker Incorporates Food Composition Data into Innovative Online Consumer Tool, Procedia Food Science, Volume 2, 2013, Pages 172-179, ISSN 2211-601X, http://dx.doi.org/10.1016/j.profoo.2013.04.025.

(http://www.sciencedirect.com/science/article/pii/S2211601X13000266)

Abstract: The SuperTracker online dietary and physical activity assessment tool is a major outreach effort to encourage behavior change and help implement the 2010 Dietary Guidelines. It provides a user-friendly but powerful interface to help individuals enter food intake, compare it to nutrient goals and the USDA Food Patterns, and track intake over time. At its core, the SuperTracker relies on a food database adapted from ARS's Food and Nutrient Database for Dietary Studies (FNDDS) and MyPyramid Equivalents Database (MPED). Modifications and additions increase the database's convenience for users: Food names were simplified and, in some cases, additional names were assigned; portions and portion descriptions were modified; and MPED values were assigned for foods new to FNDDS 2007-08, to assure that these newer foods were included. SuperTracker is multifunctional, allowing for tiered levels of involvement by users, from looking up a single food to comprehensive dietary and physical activity assessment, goal setting, and planning over time. Features include creation of individualized “combos” and favorite foods, to simplify entry of items consumed often. It provides real-time interactive feedback to users, and offers multiple report options to meet varied user needs. The SuperTracker relies on data from FNDDS and MPED to provide accurate feedback, which enables users to take control of their dietary choices. Monitoring food intake can help individuals become more aware of and improve what they eat and drink. The SuperTracker can empower consumers to track their food intake and activity, in order to improve their health.

Keywords: Dietary assessment tools; FNDDS; MPED

A. Acharid, J. Rizkallah, L. Ait-Ameur, B. Neugnot, K. Seidel, M. Särkkä-Tirkkonen, J. Kahl, I. Birlouez-Aragon, Potential of front face fluorescence as a monitoring tool of neoformed compounds in industrially processed carrot baby food, LWT - Food Science and Technology, Volume 49, Issue 2, December 2012, Pages 305-311, ISSN 0023-6438, http://dx.doi.org/10.1016/j.lwt.2012.06.016.

(http://www.sciencedirect.com/science/article/pii/S0023643812002733)

Abstract: The aim of this study was to evaluate the potential of using front face fluorescence (FFF) to monitor the impact of industrial process on carrot baby food, and to calibrate their content in neoformed compounds (NFC). Chromatographically measured NFC included furosine, carboxymethyllysine, and furan. The effect of using different raw material, fresh carrots, frozen cubes or pasteurized puree on NFC content in the resultant sterilized puree was also tested. Bidimensional FFF spectra acquired on the samples were decomposed using multiway PARAFAC model and used to predict the chromatographically measured NFC. FFF PARAFAC sample intensities systematically evolved with successive industrial process steps. The levels of NFC increased the most during heat treatment operations. Frozen cubes resulted in the purees with the lowest content in NFC, compared to fresh or pasteurized carrot cubes. Satisfactory calibration models (R2 &gt; 0.94) of the chromatographically measured NFC were obtained using FFF PARAFAC sample intensities as predictors. The multivariate regression models root mean square of cross validation for furosine, carboxymethyllysine, and furan were 3.98 mg/kg, 1.38 mg/kg and 5.23 µg/kg, respectively. From these first results we conclude that FFF is a promising tool to monitor fast and easily vegetable processing in a quality control approach.

Keywords: Fluorescence; PARAFAC; Neoformed contaminants; Processing; Carrot puree; Organic food

Fernanda Mozzi, Maria Eugenia Ortiz, Juliana Bleckwedel, Luc De Vuyst, Micaela Pescuma, Metabolomics as a tool for the comprehensive understanding of fermented and functional foods with lactic acid bacteria, Food Research International, Available online 16 November 2012, ISSN 0963-9969, http://dx.doi.org/10.1016/j.foodres.2012.11.010.

(http://www.sciencedirect.com/science/article/pii/S0963996912004796)

Abstract: Abstract

Metabolomics, also called metabonomics or metabolic profiling, deals with the simultaneous determination and quantitative analysis of intracellular metabolites or low-molecular-mass molecules. The metabolomics field, which has begun a little more than ten years ago thanks to the development of technologies such as nuclear magnetic resonance (NMR) and mass spectrometry (MS), has been successfully applied in different areas of food science. This review deals with the recent achievements of metabolomics in the comprehensive analysis of fermented foods predominated by lactic acid bacteria, the fermentative capacity of these microorganisms and the beneficial effects of functional foods and probiotics.

Keywords: Metabolomics; Metabolic profiling; Lactic acid bacteria; Fermented foods; Probiotics

Andy Dang, Joseph J. Pesek, Maria T. Matyska, The use of aqueous normal phase chromatography as an analytical tool for food analysis: Determination of histamine as a model system, Food Chemistry, Volume 141, Issue 4, 15 December 2013, Pages 4226-4230, ISSN 0308-8146, http://dx.doi.org/10.1016/j.foodchem.2013.06.005.

(http://www.sciencedirect.com/science/article/pii/S0308814613007656)

Abstract: Abstract

A simple, fast, robust protocol that does not require derivatisation for the determination of histamine, a polar primary bioamine, in red wine and food products is presented. Histamine can be retained and quantified under aqueous normal phase (ANP) conditions, using a Diamond Hydride (DH) column for high performance liquid chromatography/ultraviolet–visible (HPLC–UV) and mass spectrometry (MS) detection. An ANP gradient was developed, allowing for the direct analyses of the wines and food products. The peak shape for this basic compound was also evaluated under optimal analytical conditions. From UV and MS detection, a linear correlation for quantitation is obtained. The basic strategy presented for the analysis of histamine is applicable to a broad range of polar compounds in a variety of foods and beverages.

Keywords: <!-- Tag Not Handled --><keyword id="k0005">Silica hydride stationary phase; <!-- Tag Not Handled --><keyword id="k0010">Hydrophilic analytes; <!-- Tag Not Handled --><keyword id="k0015">Food analysis

Antonello Santini, Ettore Novellino, Vincenzo Armini, Alberto Ritieni, State of the art of Ready-to-Use Therapeutic Food: A tool for nutraceuticals addition to foodstuff, Food Chemistry, Volume 140, Issue 4, 15 October 2013, Pages 843-849, ISSN 0308-8146, http://dx.doi.org/10.1016/j.foodchem.2012.10.098.

(http://www.sciencedirect.com/science/article/pii/S030881461201672X)

Abstract: Therapeutic foodstuff are a challenge for the use of food and functional food ingredients in the therapy of different pathologies. Ready-to-Use Therapeutic Food (RUTF) are a mixture of nutrients designed and primarily addressed to the therapy of the severe acute malnutrition. The main ingredients of the formulation are powdered milk, peanuts butter, vegetal oil, sugar, and a mix of vitamins, salts, and minerals. The potential of this food are the low percentage of free water and the high energy and nutritional density. The high cost of the powdered milk, and the food safety problems connected to the onset of toxigenic moulds on the peanuts butter, slowed down considerably the widespread and homogenous diffusion of this product. This paper presents the state of the art of RUTF, reviews the different proposed recipes, suggests some possible new formulations as an alternative of novel recipes for this promising food.

Keywords: Therapeutic food; Ready-to-Use; RUTF; Severe acute malnutrition; Foodstuff; Nutrients; Functional food; Nutraceuticals

J.M. Soon, W.P. Davies, S.A. Chadd, R.N. Baines, A Delphi-based approach to developing and validating a farm food safety risk assessment tool by experts, Expert Systems with Applications, Volume 39, Issue 9, July 2012, Pages 8325-8336, ISSN 0957-4174, http://dx.doi.org/10.1016/j.eswa.2012.01.189.

(http://www.sciencedirect.com/science/article/pii/S0957417412002175)

Abstract: A farm food safety risk assessment tool for fresh produce and salmon farms were developed and the Delphi-based approach was utilised to identify and aggregate the opinions of experts on the food safety hazards and diseases faced in the farms while simultaneously certifying the scientific contents of the tool. The expert panels also serve to validate the methodology used in the farm food safety risk assessment tool as well as to suggest for improvements. Three rounds of Delphi questionnaire were carried out and the process managed to solicit experts’ agreement on the food safety hazards and diseases associated with UK’s fresh produce and salmon farms and the topics used in the farm food safety risk assessment tool. The results and suggestions obtained from Delphi process were reviewed and subsequently adapted into the risk assessment tool. The Delphi-based technique has proven to be a valuable approach to aggregate multiple experts’ opinions across diverse locations and achieves a wider distribution of experts.

Keywords: Delphi technique; Food safety; Risk assessment

J.M. Soon, R.N. Baines, Aquaculture Farm Food Safety and Diseases Risk Assessment (AquaFRAM): Development of a spreadsheet tool for salmon farms, Aquacultural Engineering, Volume 49, July 2012, Pages 35-45, ISSN 0144-8609, http://dx.doi.org/10.1016/j.aquaeng.2012.02.002.

(http://www.sciencedirect.com/science/article/pii/S0144860912000167)

Abstract: Atlantic salmon (Salmo salar) is the most significant aquaculture species in Europe, both in terms of production and economic value, with Norway, followed by Scotland and Ireland as the three major European producers. The objective of the present study was to develop a spreadsheet tool for aquaculture farm-food safety and diseases risk assessment (AquaFRAM) for salmon farms in the UK, (and possibly more widely) to encourage farms to assess potential hazards and diseases. AquaFRAM functions primarily as a self-assessment risk ranking and risk-learning tool to determine the potential of farm food safety hazards, diseases and the level of possible risk for contamination and infections. AquaFRAM has been developed using MS Excel software utilising a qualitative risk assessment approach for farmers to evaluate their food safety practices and diseases on their farms. The risk assessment is based on the risk matrix of frequency of likelihood&#xa0;×&#xa0;severity, where the farmers can judge the likelihood of the hazards occurring on their farm based on given examples or scenarios. Grounding of the model, based on severity scoring is predicated on relevant reports in the literature and expert opinion derived from a separate Delphi study. The AquaFRAM Tool has since been tested on 9 salmon companies throughout UK. All of the farms which tried and tested the AquaFRAM Tool reported it being farmer-friendly and practical. It was highlighted that the current tool focused mainly on risk reduction and not risk elimination. However, such farm food safety and diseases risk assessment tool would be helpful, and certainly timely, to further encourage farms to assess potential hazards and diseases. It is also appropriate for educational and training of full-time and seasonal farm workers.

Keywords: Atlantic salmon; Biosecurity; Food safety; Good Aquacultural Practices; Likelihood; Qualitative risk assessment

David Ryckembusch, Romeo Frega, Marcio Guilherme Silva, Ugo Gentilini, Issa Sanogo, Nils Grede, Lynn Brown, Enhancing Nutrition: A New Tool for Ex-Ante Comparison of Commodity-based Vouchers and Food Transfers, World Development, Volume 49, September 2013, Pages 58-67, ISSN 0305-750X, http://dx.doi.org/10.1016/j.worlddev.2013.01.021.

(http://www.sciencedirect.com/science/article/pii/S0305750X13000272)

Abstract: Summary

This article presents a new analytical tool for ex-ante comparison of the cost-effectiveness of two transfer modalities in pursuing specific nutritional objectives. It does so by introducing a metric to score the nutrient value of a food basket—the Nutrient Value Score (NVS)—and explains how this metric can be combined with full supply chain analysis and costing to generate a new tool, the Omega Value. The use of the Omega Value allows policy-makers who design a program with nutrition objectives to compare direct food transfers and commodity-based food vouchers in terms of both cost efficiency and cost effectiveness.

Keywords: transfers; vouchers; food; nutrient access; cost effectiveness; response analysis

Chung-Jung Tsai, Mei-Lien Chen, An-Di Ye, I-Fang Mao, Single SnO2 gas sensor as a practical tool for evaluating the efficiency of odor control engineering at food waste composting plants, Sensors and Actuators B: Chemical, Volume 169, 5 July 2012, Pages 248-254, ISSN 0925-4005, http://dx.doi.org/10.1016/j.snb.2012.04.077.

(http://www.sciencedirect.com/science/article/pii/S0925400512004376)

Abstract: The objective of this study was to evaluate the feasibility of using a single tin oxide (SnO2) gas sensor as a simple and reliable tool for evaluating the efficiency of odor control engineering at food waste composting plants, by correlating sensor responses with chemical concentrations of critical odorants and olfactometric data obtained under laboratory and field conditions. Three critical odorants, including dimethylsulfide, trimethylamine and acetic acid, were prepared in various concentrations, ranging from parts per billion, to parts per million levels. Field samples were collected from two large food waste composting plants in Taiwan. The results indicated that the sensor responses showed significant linear correlation with the chemical concentration of the three target odorants (P&#xa0;&lt;&#xa0;0.01) and with the olfactometric data for these odorants at various concentrations (P&#xa0;&lt;&#xa0;0.01). The correlation coefficients were all above 0.940. For field odor measurement, the SnO2 gas sensor responses showed a good linear correlation with the olfactometric data for samples inside the composting plants, at exhaust outlets and at downwind boundaries (P&#xa0;&lt;&#xa0;0.01), and the correlation coefficient was 0.963; the coefficient of variation (CV%) of the sensor for triplicate measurements was 0.9–8.4%.

Keywords: Tin oxide; Food waste composting; Odor measurement; Gas sensor; Electronic nose

Haruo Nakatsuka, Shinichiro Shimbo, Takao Watanabe, Kozue Yaginuma-Sakurai, Masayuki Ikeda, Applicability of food composition tables as a tool to estimate mineral and trace element intake of pre-school children in Japan: A validation study, Journal of Trace Elements in Medicine and Biology, Volume 27, Issue 4, October 2013, Pages 339-345, ISSN 0946-672X, http://dx.doi.org/10.1016/j.jtemb.2013.02.002.

(http://www.sciencedirect.com/science/article/pii/S0946672X13000096)

Abstract: Because dietary intakes of some minerals (including trace elements), especially iron (Fe), are insufficient for the needs of the general Japanese population, accurate estimation of mineral intake is important. This capability is especially necessary to preserve the health of Japanese children. Therefore, the current version of food composition tables (FCT) in Japan was evaluated for validity as tools to estimate dietary intake of minerals for children. For this purpose, 24&#xa0;h food duplicate samples were collected from 292 pre-school children in Miyagi prefecture, Japan. From the weights of items and food codes, intakes of nine minerals were estimated taking advantage of the FCT. In parallel, amounts of minerals in each duplicate samples were instrumentally measured by ICP-AES for Ca, Cu, Fe, Mg, Mn, P and Zn, and by flame AAS for K and Na, both after wet-ashing. The distributions of the mineral amounts were essentially normal. The comparison of the FCT-based estimates (E) and instrumental measures (M) showed that the E/M ratio was close to 1 for Ca, K, Mn, P and Zn, suggesting that E may be a surrogate of M for Ca, K, Mn, P and Zn on a group basis. The ratio being larger than 1.2 for Cu, Fe, Mg and Na indicates that a risk of over-estimation exists when E is relied upon in place of M. On an individual basis, significant differences were detected for all 9 minerals suggesting that the use of E as a surrogate for M should be practiced with care for the estimation of mineral intake.

Keywords: Estimates; Food composition tables; Japan; Measures; Minerals; Pre-school children

Olga Luisa Tavano, Protein hydrolysis using proteases: An important tool for food biotechnology, Journal of Molecular Catalysis B: Enzymatic, Volume 90, June 2013, Pages 1-11, ISSN 1381-1177, http://dx.doi.org/10.1016/j.molcatb.2013.01.011.

(http://www.sciencedirect.com/science/article/pii/S1381117713000192)

Abstract: This review intended to give a brief idea of the importance of proteases applications. Processes that involve protein hydrolysis steps find wide ranging utilizations, such as cleaning process, proteomic studies, or food biotechnology process. Many positive effects hoped for with food processing can be achieved by protein hydrolysis using specific proteases, changing nutritional, bioactive and functional properties of food proteins, which include improved digestibility, modifications of sensory quality (such as texture or taste), improvement of antioxidant capability or reduction in allergenic compounds. Protease applications in industrial processes are constantly being introduced and can be advantageous compared to chemical processes, by increasing hydrolysis specificity, product preservation and purity, and reducing environmental impact. Differences in specificity between proteases are very important to take in to consideration as a guide for the choice of protease according to the protein source to be hydrolyzed or predicted products. In this present review, some aspects of the processes that involve protein hydrolysis steps are discussed, especially considering the application of specific proteases as a tool on food biotechnology.

Keywords: Proteases; Protein hydrolysis; Hydrolysates; Proteases stabilization; Food biotechnology

Jeroen Steenbeek, Marta Coll, Leigh Gurney, Frédéric Mélin, Nicolas Hoepffner, Joe Buszowski, Villy Christensen, Bridging the gap between ecosystem modeling tools and geographic information systems: Driving a food web model with external spatial–temporal data, Ecological Modelling, Volume 263, 10 August 2013, Pages 139-151, ISSN 0304-3800, http://dx.doi.org/10.1016/j.ecolmodel.2013.04.027.

(http://www.sciencedirect.com/science/article/pii/S0304380013002597)

Abstract: Abstract

Research toward the impacts of climate change and human activities on marine ecosystems is challenged by the limitations of present-day ecosystem models to address the interrelated spatial dynamics between climate, ocean chemistry, marine food webs, and human systems. The work presented here, the spatial–temporal data framework, is part of a larger study, the NF-UBC Nereus Program, to develop a new approach to model interoperability for closing the gap between marine ecosystem modeling tools via geographic information systems (GIS) technology. The approach we present simplifies interdisciplinary model interoperability by separating technical and scientific challenges into a flexible and modular software approach. To illustrate capabilities of the new framework, we use a remote-sensing derived spatial and temporal time series to drive the primary production dynamics in an existing food web model of the North-Central Adriatic using the Ecospace module of the Ecopath with Ecosim approach. In general, the predictive capabilities of the food web model to hind-cast ecosystem dynamics are enhanced when applying the new framework by better reflecting observed species population trends and distributions. Results show that changes at the phytoplankton level due to changes in primary production are realistically reproduced and cascade up the pelagic food web. The dynamics of zooplankton and small and large pelagic fish are impacted. Highly exploited demersal species such as European hake do, however, not show clear signs of cascading. This may be due to the high fishing pressure on this species and the resulting strong historical decline in the area. In general, the development of the new framework offers ecosystem modelers with unprecedented capabilities to include spatial–temporal time series into food web analysis with a minimal set of required steps. It is a promising step toward integrating species distribution models and food web dynamics, and future implementations of interdisciplinary model interoperability.

Keywords: <!-- Tag Not Handled --><keyword id="kw0005">Food web model; <!-- Tag Not Handled --><keyword id="kw0010">EwE approach; <!-- Tag Not Handled --><keyword id="kw0015">Ecospace; <!-- Tag Not Handled --><keyword id="kw0020">Adriatic Sea; <!-- Tag Not Handled --><keyword id="kw0025">Mediterranean Sea; <!-- Tag Not Handled --><keyword id="kw0030">GIS

Kristy L. Hogsden, Jon S. Harding, Isotopic metrics as a tool for assessing the effects of mine pollution on stream food webs, Ecological Indicators, Volume 36, January 2014, Pages 339-347, ISSN 1470-160X, http://dx.doi.org/10.1016/j.ecolind.2013.08.003.

(http://www.sciencedirect.com/science/article/pii/S1470160X13003026)

Abstract: Abstract

Most tools used to assess pollution impacts are based on structural, or less frequently, functional aspects of biotic communities. However, the application of measures that take a food web approach to understand the effects of stress on stream ecosystems offers a new perspective and promising insights. We assessed quantitative isotopic metrics, which describe characteristics of food web structure, as indicators of acid mine drainage (AMD) in 12 streams along a stress gradient and compared these metrics with traditional structural and functional metrics. The gradient ranged from highly stressed (pH&#xa0;&lt;&#xa0;3) streams with elevated concentrations of dissolved metals (Fe and Al) to moderately acidic streams (pH 3.6–4.9) with substrata coated in metal hydroxide precipitates and circumneutral reference streams. Key differences in food web structure were detected by the isotopic metrics. Specifically, fewer trophic levels and reduced trophic diversity characterized food webs in all mining impacted streams but the differences were not significant along the gradient. In contrast, most structural and functional metrics were significant predictors of AMD as stress increased. Therefore, our results suggest that isotopic metrics offer little advantage over traditional metrics in terms of detecting impacts for biomonitoring purposes. However, they do provide additional insights into how whole food webs are disrupted, and are likely to be more useful for guiding stream management and rehabilitation strategies.

Keywords: <!-- Tag Not Handled --><keyword id="kw0005">Acid mine drainage (AMD); <!-- Tag Not Handled --><keyword id="kw0010">Stable isotopes; <!-- Tag Not Handled --><keyword id="kw0015">Metrics; <!-- Tag Not Handled --><keyword id="kw0020">Gradient; <!-- Tag Not Handled --><keyword id="kw0025">Food web

César Torres, Antonio Valero, Alicia Valero, Exergoecology as a tool for ecological modelling. The case of the US food production chain, Ecological Modelling, Volume 255, 24 April 2013, Pages 21-28, ISSN 0304-3800, http://dx.doi.org/10.1016/j.ecolmodel.2013.01.021.

(http://www.sciencedirect.com/science/article/pii/S0304380013000483)

Abstract: Exergoecology and in particular, thermoeconomic analysis is used to understand the process of cost formation and to improve the design and the operation of extensive energy consumption systems such as power and chemical plants. This paper shows the capabilities for using the thermoeconomic analysis in environmental systems, and demonstrates that it could become a useful tool for identifying the ways for improving the energy resources cost and the efficiency of a macroeconomic system such as the US food production chain. The environmental impact associated with each process in the food production chain can be quantified through a thermoeconomic approach as a cost function, which represents the required natural resources to obtain a final product. In the example provided, several simulations such as the impact of the change of meat diet basis for a vegetarian diet, and reusing the residual biomass are analyzed.

Keywords: Exergoecology; Thermoeconomics; Second Law; Food production chain; Ecological modelling

Cristiane Patrícia de Oliveira, Angel Rodriguez-Lafuente, Nilda de Fátima Ferreira Soares, Cristina Nerin, Multiple headspace-solid-phase microextraction as a powerful tool for the quantitative determination of volatile radiolysis products in a multilayer food packaging material sterilized with γ-radiation, Journal of Chromatography A, Volume 1244, 29 June 2012, Pages 61-68, ISSN 0021-9673, http://dx.doi.org/10.1016/j.chroma.2012.05.013.

(http://www.sciencedirect.com/science/article/pii/S0021967312007157)

Abstract: A method consisting of multiple headspace solid-phase microextraction followed by gas chromatography–mass spectrometry analysis was developed and used to determine the main volatile radiolysis products formed by γ-irradiation of flexible multilayer food packaging samples. The developed method allows the use of solid-phase microextraction in the quantification of compounds from plastic solid samples. A screening of volatiles in the γ-irradiated and non-irradiated films was performed and 29 compounds were identified in the irradiated packaging, 17 of which were absent in the non-irradiated samples. The main volatile radiolysis products identified were: 1,3-di-tert-butylbenzene; 2,6-di-tert-butyl-1,4-benzoquinone; 4-tert-butyl-phenol and the off-odor compounds butanoic acid and valeric acid. These volatile radiolysis compounds were determined with the proposed method and the results are shown and discussed. Solid–liquid extraction and headspace solid-phase microextraction methods were also studied for comparative purposes. The automated solvent-free multiple HSPME technique here presented can be used to quantify the radiolysis compounds in irradiated plastic solid samples in a simple way with the advantages of being free from matrix influence and environmentally friendly.

Keywords: Multiple solid-phase microextraction; Food packaging material; γ-Irradiation; Volatile radiolysis compounds; GC–MS

V. Cordebar, M. Anton, N. Bocquel, C. Castelain-Hacquet, A. Hoppé, C. Karila, F. Le Pabic, Y. Magar, C. Ridray, I. Mollé Le Vaillant, C. Rolland, D. Sabouraud, Éducation thérapeutique en allergie alimentaire : critères et outils d’évaluation, Revue Française d'Allergologie, Volume 53, Issue 4, June 2013, Pages 424-428, ISSN 1877-0320, http://dx.doi.org/10.1016/j.reval.2013.02.180.

(http://www.sciencedirect.com/science/article/pii/S187703201300242X)

Abstract: Résumé

La prévalence des allergies alimentaires sévères de l’enfant est en augmentation ces dernières années. L’intérêt de l’éducation thérapeutique (ETP) dans la prise en charge des allergies alimentaires n’est plus à démontrer et plusieurs programmes d’ETP dans ce domaine, validés par les ARS, existent en France à l’heure actuelle. Le Groupe de réflexion en ETP dans l’allergie alimentaire (GRETAA), s’appuyant sur les recommandations de la HAS en matière d’ETP, contribue à structurer la démarche éducative dans l’allergie alimentaire, dans le but d’harmoniser les pratiques. Après avoir écrit le référentiel de compétences à acquérir par les patients et leur famille, proposé différents outils éducatifs pour les apprentissages, le GRETAA s’est interrogé sur les modalités d’évaluation de l’ETP en allergie alimentaire. Il a précisé les critères sur lesquels devait porter l’évaluation et validé des outils spécifiques permettant d’évaluer chacun de ces critères afin de proposer une démarche d’évaluation commune à toutes les équipes investies dans l’ETP en allergie alimentaire.

The prevalence of severe food allergies in children has increased in recent years. The importance of therapeutic education (TE) in the management of food allergies is already proven and several TE programs in this field, validated by Regional Health Agencies, exist in France today. Based on recommendations of the HAS concerning TE, the French think tank concerned with food allergy (GRETAA) is helping to organize the educational process in food allergy in order to harmonize these procedures. After writing a manual of skills providing various educational curricula for patients and their families, GRETAA questioned how to assess TE in food allergy. It proposed criteria on which to base an evaluation and it validated specific tools to assess each of these criteria with the aim of providing a common approach to all teams involved in TE in food allergy.

Keywords: Éducation thérapeutique; Allergie alimentaire; Évaluation; Critères; Outils; Food allergy; Management; Therapeutic education; Criteria; Evaluation

Bradley Philip Smith, Robert George Appleby, Carla Anita Litchfield, Spontaneous tool-use: An observation of a dingo (Canis dingo) using a table to access an out-of-reach food reward, Behavioural Processes, Volume 89, Issue 3, March 2012, Pages 219-224, ISSN 0376-6357, http://dx.doi.org/10.1016/j.beproc.2011.11.004.

(http://www.sciencedirect.com/science/article/pii/S0376635711002300)

Abstract: Opportunities to observe non-human animals exhibiting naturalistic ‘high-order’ behaviour are rare. Examples featuring canids, although often anecdotal and involving captive animals are potentially valuable, as they may provide an opportunity to examine complex problem-solving behaviour not easily observed in free-ranging settings. This paper describes observations of two captive male dingoes (Canis dingo), representing possible examples of high-order behaviour. The first set of observations involved a sub-adult male that spontaneously (i.e., without training) learned to move objects around his enclosure, apparently to multiple ends, such as in an effort to gain the additional height required to attain objects otherwise out of reach, or to attain a better view of his surroundings. The second set of observations involved an adult male that learned to open a gate, possibly in an effort to gain access to a female. These observations add to the small number of anecdotal accounts offering a window into the cognitive abilities of canids, and the observations involving the sub-adult male appear to be the first documented cases of tool-use in a canid.

Keywords: Canid; Cognition; Dingo; High-order behaviour; Intelligence; Tool use

Marie Yeung, ADSA Foundation Scholar Award: Trends in culture-independent methods for assessing dairy food quality and safety: Emerging metagenomic tools, Journal of Dairy Science, Volume 95, Issue 12, December 2012, Pages 6831-6842, ISSN 0022-0302, http://dx.doi.org/10.3168/jds.2012-5677.

(http://www.sciencedirect.com/science/article/pii/S0022030212007308)

Abstract: Enhancing the quality and safety of dairy food is critical to maintaining the competitiveness of dairy products in the food and beverage market and in reinforcing consumer confidence in the dairy industry. Raw milk quality has a significant effect on finished product quality. Several microbial groups found in raw milk have been shown to adversely affect the shelf life of pasteurized milk. Current microbiological criteria used to define milk quality are based primarily on culture-dependent methods, some of which are perceived to lack the desired sensitivity and specificity. To supplement traditional methods, culture-independent methods are increasingly being used to identify specific species or microbial groups, and to detect indicator genes or proteins in raw milk or dairy products. Some molecular subtyping techniques have been developed to track the transmission of microbes in dairy environments. The burgeoning “-omics” technologies offer new and exciting opportunities to enhance our understanding of food quality and safety in relation to microbes. Metagenomics has the potential to characterize microbial diversity, detect nonculturable microbes, and identify unique sequences or other factors associated with dairy product quality and safety. In this review, fluid milk will be used as the primary example to examine the adequacy and validity of conventional methods, the current trend of culture-independent methods, and the potential applications of metagenomics in dairy food research.

Keywords: metagenomics; dairy food quality; culture-independent method

E. Canellas, P. Vera, C. Domeño, P. Alfaro, C. Nerín, Atmospheric pressure gas chromatography coupled to quadrupole-time of flight mass spectrometry as a powerful tool for identification of non intentionally added substances in acrylic adhesives used in food packaging materials, Journal of Chromatography A, Volume 1235, 27 April 2012, Pages 141-148, ISSN 0021-9673, http://dx.doi.org/10.1016/j.chroma.2012.02.039.

(http://www.sciencedirect.com/science/article/pii/S0021967312003147)

Abstract: Acrylic adhesives are used to manufacture multilayer laminates that are used in food packaging to form the geometric shape of the package as well as to stick labels on the packages. Once applied on the packaging adhesives can supply potential migrants that could endanger the packaged food. Adhesives are complex matrices where intentionally and non intentionally added substances are present, but the identification of the migrants is required by law. In this study atmospheric pressure gas chromatography coupled to a quadrupole hyphenated to a time of flight mass spectrometer (APGC–MS/Q-TOF) has been explored for identification of unknowns coming from three different acrylic adhesives. The results are compared to those obtained by conventional GC–MS-Q (quadrupole). Sixteen compounds were identified by GC–MS/Q and five of them were confirmed by APGC–MS/Q-TOF as their molecular ions were found. Moreover, additional three new compounds were identified and their structure was elucidated working with the spectra obtained by APGC–MS/Q-TOF. This finding was very relevant as these compounds were biocides suspected to be allergenic and cytotoxic in humans. Migration studies were carried out using Tenax as solid food simulant and the results showed that the three acrylic adhesives tested in this work were safe for being used in food packaging materials since the migration of compounds previously identified was below the limit established in the current legislation.

Keywords: APGC; Q-TOF; NIAS; Food packaging; Acrylic adhesives; Chemical migration

S. Manso, F. Cacho-Nerin, R. Becerril, C. Nerín, Combined analytical and microbiological tools to study the effect on Aspergillus flavus of cinnamon essential oil contained in food packaging, Food Control, Volume 30, Issue 2, April 2013, Pages 370-378, ISSN 0956-7135, http://dx.doi.org/10.1016/j.foodcont.2012.07.018.

(http://www.sciencedirect.com/science/article/pii/S0956713512004148)

Abstract: Cinnamon essential oil has been used for centuries to protect food from microbiological infection, and in the last ten years cinnamon essential oil is also incorporated into food packaging materials as antimicrobial agent. However, very little is known about the real effect that it has on the microorganism cells. This study combines analytical and microbiological tools to elucidate cell damage produced on Aspergillus flavus. First, antifungal activity of cinnamon essential oil was evaluated at 103,104, 105 and 106 CFU/mL. Minimal Inhibitory Concentration (MIC) and Minimal Fungicidal Concentration (MFC) were determined by macrodilution in direct contact with the mold. A strong activity was obtained, with a MIC of 0.05–0.1 mg/mL, and a MFC of 0.05–0.2 mg/mL, both ranges depending on the initial fungal suspensions.

Polyethylene terephthalate films containing cinnamon essential oil were tested in vapor phase, without direct contact with the mold. Active PET started showing activity at 2% CIN EO load and produced total inhibition at 4% CIN EO. SEM and FTIR were used to study the cell damage on the mold exposed to the cinnamon essential oil. Evident damage and a strong decrease in sporulation were found by SEM, while biochemical changes in conidia could be suggested from the FTIR spectra analysis. Two deposition techniques were used to prepare the samples for FTIR. The results obtained are shown and discussed.

Keywords: <span style='font-style: italic'>Aspergillus flavus</span>; Active packaging; Antifungal activity; Cinnamon essential oil; SEM; FTIR

Pietro Stella, Olivier Cerf, Marta Hugas, Kostas P. Koutsoumanis, Christophe Nguyen-The, John N. Sofos, Antonio Valero, Marcel H. Zwietering, Ranking the microbiological safety of foods: A new tool and its application to composite products, Trends in Food Science & Technology, Volume 33, Issue 2, October 2013, Pages 124-138, ISSN 0924-2244, http://dx.doi.org/10.1016/j.tifs.2013.07.005.

(http://www.sciencedirect.com/science/article/pii/S092422441300157X)

Abstract: A methodology based on the combination of two complementary approaches to rank microbiological risks in foods is presented. In the forward approach data on the pathogenicity of hazards and their behaviour in food during processing and following steps, up to consumption, are used in decision trees to qualitatively estimate the risk associated with foods. In the backward approach risks are evaluated based on the analysis of data available on the past occurrence of hazards and foodborne outbreaks. The categorisation of foods using the forward approach should prevail, and whenever it leads to a likely risk for a given food, the risk can be further qualified with the results from the backward approach. The methodology developed was applied to rank the public health risk posed by certain composite products, which contain both processed products of animal origin and products of plant origin (e.g., bread, cakes, chocolate). Despite limitations in the data available for these foods, valuable results were obtained. The method is therefore considered suitable for application with success to other types of food, and is proposed as a tool for risk managers to rank foods based on their potential food safety risks.

Amit Kumar Tyagi, Anushree Malik, Davide Gottardi, Maria Elisabetta Guerzoni, Essential oil vapour and negative air ions: A novel tool for food preservation, Trends in Food Science & Technology, Volume 26, Issue 2, August 2012, Pages 99-113, ISSN 0924-2244, http://dx.doi.org/10.1016/j.tifs.2012.02.004.

(http://www.sciencedirect.com/science/article/pii/S0924224412000507)

Abstract: Present review summarizes studies concerning antimicrobial efficiency of essential oil vapours, Negative air ions (NAI) as well as their combination for food preservation applications. Investigation on antimicrobial activity of essential oil vapours that began only in the last decade, has covered several food spoilage microorganisms and essential oil vapour combinations and also dealt with the mechanism underlying better performance of vapours over the respective oil. These investigations lead to the application of essential oil vapours in active packaging and food preservation. Antimicrobial activity of NAI has been demonstrated against limited strains but ample evidences on the efficacy of air ionizers in air disinfection and disease prevention have been generated. Nevertheless, the activity of NAI and essential oil vapours, both of which suffer from certain inherent disadvantages, has not been reviewed earlier. The present review shows that recent efforts towards combination of both the agents through in vitro studies depicted marked enhancement in antimicrobial efficiency thereby conceiving a novel tool for food preservation.

Yu Zhou, Chun-Yuan Li, Yan-Song Li, Hong-Lin Ren, Shi-Ying Lu, Xiang-Li Tian, Ya-Ming Hao, Yuan-Yuan Zhang, Qing-Feng Shen, Zeng-Shan Liu, Xian-Mei Meng, Jun-Hui Zhang, Monoclonal antibody based inhibition ELISA as a new tool for the analysis of melamine in milk and pet food samples, Food Chemistry, Volume 135, Issue 4, 15 December 2012, Pages 2681-2686, ISSN 0308-8146, http://dx.doi.org/10.1016/j.foodchem.2012.07.053.

(http://www.sciencedirect.com/science/article/pii/S0308814612011673)

Abstract: Stories of recent cases about melamine misuse to raise the false impression of a high protein content of milk in China emerged in September of 2008, have become an international health event. To meet the need for rapid and reliable monitoring of melamine in milk samples, a monoclonal antibody (mAb) was produced and an inhibition enzyme-linked immunosorbent assay (ELISA) was developed based on the mAb. The standard curve was linear in the range from 0.03 to 9&#xa0;ng&#xa0;mL−1 with a detection limit (LOD) of 0.01&#xa0;ng&#xa0;mL−1. The sensitivity of the assay was 0.35&#xa0;ng&#xa0;mL−1. The average recovery values of melamine in the liquid milk, powder milk, dog food and cat food were 99%, 96%, 9% and 98%, respectively and the coefficient of variation (CV) values of all samples were less than 10%. The obtained results showed a potential method as a tool for the rapid and reliable monitoring of melamine in liquid milk and milk powder samples (158 words).

Keywords: Melamine; Milk; Inhibition ELISA; Monoclonal antibody

L. Otero, P. Sanz, B. Guignon, P.D. Sanz, Pressure-shift nucleation: A potential tool for freeze concentration of fluid foods, Innovative Food Science & Emerging Technologies, Volume 13, January 2012, Pages 86-99, ISSN 1466-8564, http://dx.doi.org/10.1016/j.ifset.2011.11.003.

(http://www.sciencedirect.com/science/article/pii/S1466856411001470)

Abstract: Pressure-shift nucleation (PSN) has been evaluated as a potential substitute of the crystallization step at the scraped surface heat exchanger in conventional freeze concentration. To do that, PSN experiments were carried out at different pressure and temperature conditions in orange juices of several concentrations. After crystallization, the final concentration reached and the size and shape of the ice crystals formed were measured. The results obtained showed that the higher the pressure and the lower the temperature employed in the PSN experiments, the higher is the final concentration in the juice and the smaller the ice crystals formed. Four important advantages of pressure-shift nucleation over conventional crystallization were found: temperature in the pressure vessel can be relatively high if pressure is increased enough, the desired concentration can be achieved in the whole sample quasi-instantaneously just after expansion, ice crystals produced are round in shape without pockets and indentations and they are homogeneously distributed throughout the sample.

Industrial relevance

Freeze concentration is the most advantageous technique to obtain high quality food concentrates without appreciable loss in taste, aroma, color, or nutritive value. However, it is hardly employed in the food industry mainly due to economic aspects of the technology. In the last decades, many efforts have been made to improve the crystallization phase, the most expensive step in freeze concentration, without definitive success. The results obtained in this paper show that pressure-shift nucleation presents a number of advantages over the traditional crystallization step at the scraped surface heat exchanger which can be exploited to improve the industrial freeze concentration process.

Keywords: High-pressure; Freeze concentration; Nucleation; Supercooling; Ice crystals; Orange juice

Jure Piškur, Zhihao Ling, Marina Marcet-Houben, Olena P. Ishchuk, Andrea Aerts, Kurt LaButti, Alex Copeland, Erika Lindquist, Kerrie Barry, Concetta Compagno, Linda Bisson, Igor V. Grigoriev, Toni Gabaldón, Trevor Phister, The genome of wine yeast Dekkera bruxellensis provides a tool to explore its food-related properties, International Journal of Food Microbiology, Volume 157, Issue 2, 2 July 2012, Pages 202-209, ISSN 0168-1605, http://dx.doi.org/10.1016/j.ijfoodmicro.2012.05.008.

(http://www.sciencedirect.com/science/article/pii/S0168160512002565)

Abstract: The yeast Dekkera/Brettanomyces bruxellensis can cause enormous economic losses in wine industry due to production of phenolic off-flavor compounds. D. bruxellensis is a distant relative of baker's yeast Saccharomyces cerevisiae. Nevertheless, these two yeasts are often found in the same habitats and share several food-related traits, such as production of high ethanol levels and ability to grow without oxygen. In some food products, like lambic beer, D. bruxellensis can importantly contribute to flavor development. We determined the 13.4&#xa0;Mb genome sequence of the D. bruxellensis strain Y879 (CBS2499) and deduced the genetic background of several “food-relevant” properties and evolutionary history of this yeast. Surprisingly, we find that this yeast is phylogenetically distant to other food-related yeasts and most related to Pichia (Komagataella) pastoris, which is an aerobic poor ethanol producer. We further show that the D. bruxellensis genome does not contain an excess of lineage specific duplicated genes nor a horizontally transferred URA1 gene, two crucial events that promoted the evolution of the food relevant traits in the S. cerevisiae lineage. However, D. bruxellensis has several independently duplicated ADH and ADH-like genes, which are likely responsible for metabolism of alcohols, including ethanol, and also a range of aromatic compounds.

Keywords: Comparative genomics; Wine yeast; Evolution; Ethanol fermentations; Aromatic compounds

E. Gkogka, M.W. Reij, L.G.M. Gorris, M.H. Zwietering, Risk assessment strategies as a tool in the application of the Appropriate Level of Protection (ALOP) and Food Safety Objective (FSO) by risk managers, International Journal of Food Microbiology, Available online 25 April 2013, ISSN 0168-1605, http://dx.doi.org/10.1016/j.ijfoodmicro.2013.04.013.

(http://www.sciencedirect.com/science/article/pii/S0168160513001979)

Abstract: Abstract

In the course of the last decade, the Appropriate Level of Protection (ALOP), the Food Safety Objective (FSO) and their associated metrics have been proposed by the World Trade Organization and Codex Alimentarius as a means for competent authorities to ultimately translate governmental public health policy regarding food safety into risk-based targets for the food industry. The industry needs to meet these targets through the effective choice of control measures that are part of its operational food safety management system. The aim of this study was to put the practical application of ALOP and FSO to the test in the case of Salmonella in chicken meat in the Netherlands. Two different risk assessment approaches were applied to derive potential ALOP and FSO values, a ‘top-down’ approach based on epidemiological data and a ‘bottom-up’ approach based on food supply chain data. To this end, two stochastic models specific to the Dutch situation were built. Comparisons between 23 countries in Europe were also made using the top-down model. The mean estimated current Level Of Protection values were similar for the two approaches applied, with the bottom-up model yielding 87 cases per 100,000 inhabitants per year (95% CI: 0.03, 904) and the top-down model 71 (95% CI: 9.9, 155). The estimated FSO values on the other hand were considerably different with the mean ‘top down’ FSO being −&#xa0;4.6 log CFU/g (95% CI: −&#xa0;5.4, −&#xa0;4.1) and the mean ‘bottom-up’ FSO −&#xa0;6.0 log CFU/g (95% CI: −&#xa0;8.1, −&#xa0;2.9) reflecting major differences in the output distributions of this parameter obtained with the two approaches. Significant differences were observed between current LOP values for different EU countries, although it was not clear whether this was due to actual differences in the factors influencing the risk of salmonellosis or due to the quality of the available data.

Keywords: <!-- Tag Not Handled --><keyword id="kw0030">Risk assessment; <!-- Tag Not Handled --><keyword id="kw0035">Stochastic modelling; <!-- Tag Not Handled --><keyword id="kw0040">Salmonellosis; <!-- Tag Not Handled --><keyword id="kw0045">Foodborne disease; <!-- Tag Not Handled --><keyword id="kw0050">Public health targets

Souhila Ghidouche, Brigitte Rey, Martin Michel, Nico Galaffu, A Rapid tool for the stability assessment of natural food colours, Food Chemistry, Volume 139, Issues 1–4, 15 August 2013, Pages 978-985, ISSN 0308-8146, http://dx.doi.org/10.1016/j.foodchem.2012.12.064.

(http://www.sciencedirect.com/science/article/pii/S0308814613000897)

Abstract: Natural food colours lack stability under a number of conditions such as pH variation, oxidation, hydration, heat treatment and, most importantly, exposure to daylight. Stability tests to assess shelf life of natural colours under light irradiation can be time consuming. Thus, an accelerated test carried out under high light intensity irradiation that can be related to normal daylight irradiation conditions is highly desirable. Samples of various natural colouring solutions were prepared in aqueous model matrices at a range of pH values to mimic the majority of food matrices, pasteurised and irradiated under normal D65 light (0.2&#xa0;W/m2) at 25&#xa0;°C, and in parallel under high light intensity irradiation (30&#xa0;W/m2) at 3 different temperatures (25, 35 and 45&#xa0;°C). Similarly to the already known Q10 parameters for temperature, acceleration factors QL for irradiation, were determined and used for the first time to obtain a link between colour degradation under normal and accelerated conditions. It was possible, using these acceleration factors, to greatly reduce the time required to predict and compare the shelf life stability for a series of natural colours in aqueous model systems.

Keywords: Natural colours; Colour stablity; Daylight irradiation; Accelerated tests; Shelf life prediction; Anthocyanins; Genipin; Carmine; Chlophyllins

Andrea G. Parker, Rebecca E. Grinter, Collectivistic Health Promotion Tools: Accounting for the Relationship Between Culture, Food and Nutrition, International Journal of Human-Computer Studies, Available online 7 September 2013, ISSN 1071-5819, http://dx.doi.org/10.1016/j.ijhcs.2013.08.008.

(http://www.sciencedirect.com/science/article/pii/S1071581913001067)

Abstract: Abstract

Human-Computer Interaction (HCI) researchers are increasingly examining how Information and Communication Technologies (ICTs) can help people eat more healthfully. However, within HCI, there has been little examination of the way that cultural values influence how people think about food and wellness, and how sociocultural context supports or impedes attempts to eat healthfully. Our work focuses on the diet-related health challenges of African Americans within low-income neighborhoods. This population disproportionately experiences diet-related disease, and as such, researchers have consistently advocated research that examines the way in which food practices are culturally situated.

Through formative focus groups with 46 participants we identified several design implications for tools that promote healthy eating while accounting for collectivism, a cultural value often ascribed to the African American community. Based on our design implications we developed, deployed and evaluated two systems that supported the sharing of community-held knowledge about making healthy eating decisions. In our discussion, we present implications for the design of collectivistic systems that address food practices. We conclude with recommendations for HCI research that investigates the relationship between culture and food more broadly.

Jorge Saavedra, Andrés Córdova, Lena Gálvez, César Quezada, Rosa Navarro, Principal Component Analysis as an exploration tool for kinetic modeling of food quality: A case study of a dried apple cluster snack, Journal of Food Engineering, Volume 119, Issue 2, November 2013, Pages 229-235, ISSN 0260-8774, http://dx.doi.org/10.1016/j.jfoodeng.2013.05.036.

(http://www.sciencedirect.com/science/article/pii/S026087741300277X)

Abstract: Abstract

A Multivariate Accelerated shelf-life Testing (MALST) study of a dried apple cereal-like snack (commercially known as cluster) stored at 18&#xa0;°C, 25&#xa0;°C or 35&#xa0;°C for 17.5&#xa0;months was conducted. The measured attributes were water activity (Aw), color DE, moisture and sensory properties (aroma, taste, texture and color). The data were deployed to adjust the multivariate kinetics (including the interactions of the attributes) using Principal Component Analysis (PCA), and the results were compared to those obtained using a univariate kinetic model. The predicted shelf-life for the reference storage condition obtained using the multivariate model was 18.3&#xa0;months, whereas a predicted shelf-life of 15.6&#xa0;months was obtained using the univariate model. Thus, although the results of both methods are similar, the multivariate kinetic model revealed all of the product shelf-life attributes and their interactions. Finally, the multivariate model reflected the variability of the biochemical phenomena underlying product degradation.

Keywords: <!-- Tag Not Handled --><keyword id="k0045">Multivariate kinetics; <!-- Tag Not Handled --><keyword id="k0050">Accelerated; <!-- Tag Not Handled --><keyword id="k0055">Shelf-life; <!-- Tag Not Handled --><keyword id="k0060">PCA; <!-- Tag Not Handled --><keyword id="k0065">Chemometrics; <!-- Tag Not Handled --><keyword id="k0070">Storage

Ryo Momosaki, Masahiro Abo, Wataru Kakuda, Kazushige Kobayashi, Applicability of the Two-Step Thickened Water Test in Patients With Poststroke Dysphagia: A Novel Assessment Tool for Paste Food Aspiration, Journal of Stroke and Cerebrovascular Diseases, Volume 22, Issue 6, August 2013, Pages 817-821, ISSN 1052-3057, http://dx.doi.org/10.1016/j.jstrokecerebrovasdis.2012.05.011.

(http://www.sciencedirect.com/science/article/pii/S1052305712001413)

Abstract: This study evaluated the clinical usefulness of the newly developed Two-Step Thickened Water Test (TTWT) in identifying patients with poststroke dysphagia at risk of aspiration of paste food. The study subjects were 110 poststroke patients (mean age, 73 ± 10 years). The TTWT comprises a bedside pretest (tongue protrusion, vocalization, voluntary cough, and dry swallow) and a direct swallowing test using 4 mL of thickened water. Fiberoptic endoscopic evaluation of swallowing determined the subject's ability to swallow the paste food. Based on the test results and endoscopic evaluation, we calculated the TTWT's sensitivity and specificity in identifying paste food aspiration. We also calculated these values when normal water was used instead of thickened water in a direct swallowing test. The prevalence of dysphagia for paste food was 41% in our study group. The sensitivity and specificity of the TTWT in identifying dysphagia for paste food was 93% and 88%, respectively. The specificity decreased to 78.5% when normal water was used, with no decrease in sensitivity. The test was completed in less than 10 minutes, with no adverse events in any subject. Our data suggest that the TTWT might be a useful assessment tool for evaluating the risk of paste food aspiration in patients with poststroke dysphagia.

Keywords: Swallowing disorder; oral intake; cerebrovascular diseases

Sheila Fleischhacker, Randi R. Byrd, Gowri Ramachandran, Maihan Vu, Amy Ries, Ronny A. Bell, Kelly R. Evenson, Tools for Healthy Tribes: Improving Access to Healthy Foods in Indian Country, American Journal of Preventive Medicine, Volume 43, Issue 3, Supplement 2, September 2012, Pages S123-S129, ISSN 0749-3797, http://dx.doi.org/10.1016/j.amepre.2012.05.015.

(http://www.sciencedirect.com/science/article/pii/S0749379712003789)

Abstract: There is growing recognition that policymakers can promote access to healthy, affordable foods within neighborhoods, schools, childcare centers, and workplaces. Despite the disproportionate risk of obesity and type 2 diabetes among American Indian children and adults, comparatively little attention has been focused on the opportunities tribal policymakers have to implement policies or resolutions to promote access to healthy, affordable foods. This paper presents an approach for integrating formative research into an action-oriented strategy of developing and disseminating tribally led environmental and policy strategies to promote access to and consumption of healthy, affordable foods. This paper explains how the American Indian Healthy Eating Project evolved through five phases and discusses each phase's essential steps involved, outcomes derived, and lessons learned.

Using community-based participatory research and informed by the Social Cognitve Theory and ecologic frameworks, the American Indian Healthy Eating Project was started in fall 2008 and has evolved through five phases: (1) starting the conversation; (2) conducting multidisciplinary formative research; (3) strengthening partnerships and tailoring policy options; (4) disseminating community-generated ideas; and (5) accelerating action while fostering sustainability. Collectively, these phases helped develop and disseminate Tools for Healthy Tribes—a toolkit used to raise awareness among participating tribal policymakers of their opportunities to improve access to healthy, affordable foods. Formal and informal strategies can engage tribal leaders in the development of culturally appropriate and tribe-specific sustainable strategies to improve such access, as well as empower tribal leaders to leverage their authority toward raising a healthier generation of American Indian children.

Madeleine J. Florin, Martin K. van Ittersum, Gerrie W.J. van de Ven, Selecting the sharpest tools to explore the food-feed-fuel debate: Sustainability assessment of family farmers producing food, feed and fuel in Brazil, Ecological Indicators, Volume 20, September 2012, Pages 108-120, ISSN 1470-160X, http://dx.doi.org/10.1016/j.ecolind.2012.02.016.

(http://www.sciencedirect.com/science/article/pii/S1470160X12000623)

Abstract: Continuing interest in sustainable biofuel production is linked with sustainable farming and begs for insights from farming systems research on sustainability assessment and the role of family farms. The aims of this work were two-fold. First, to present a tools and methods selection framework supporting indicator-based sustainability assessment. Second, to apply the framework to the case of castor beans (Ricinus communis L.), family farmers and the biodiesel industry in the southeast of Brazil. The framework synthesizes existing work on sustainability assessment within the agricultural domain. Transparent selection of tools and methods is supported by sequentially accounting for the context of sustainability, dealing with space, classifying the ‘nature of research’ and the degree of integration of different facets of sustainability. The framework is demonstrated with an exploratory assessment of the potential for castor bean cultivation within the current farm type of extensive pasture and fodder crops for dairy cattle. The study accounted for the range of productivity levels within the current farm type and for different management decisions when including castor beans. Assessment was made against economic development, livelihood stability and soil fertility criteria. Selected tools and methods included farm surveys, alternative farming system design and input–output calculations. The results demonstrate the greatest opportunity for castor bean cultivation by currently low productive farms. There is a trade-off of income derived from milk production that is supported by fodder production, and income from castor beans. Decisions regarding areal extent of castor beans and supplementing animal feed, are shown to be farm-specific, and depend upon the interactions between current farm productivity and prioritisation of sustainability criteria. However, generally it is shown that castor bean cultivation should be linked to animal production so that current risk management and income levels can be supported and improved. Further, to maintain soil fertility, castor bean cultivation with nitrogen inputs is necessary. The cyclic nature of the framework supports the next contextualisation of the sustainability question. For our application, constructive future work in a next cycle could include extending to regional level and accounting for temporal variability.

Keywords: Biofuels; Sustainability indicators; Sustainability assessment; Family farmers; Brazil; Castor beans

Tomás Norton, CFD in the Agri-Food Industry: A maturing engineering design tool, Computers and Electronics in Agriculture, Volume 93, April 2013, Pages 149-150, ISSN 0168-1699, http://dx.doi.org/10.1016/j.compag.2013.03.007.

(http://www.sciencedirect.com/science/article/pii/S0168169913000574)

Daniel Ramón Vidal, Model organisms and “OMIC” technologies: new tools for the development of healthy foods, Current Opinion in Biotechnology, Volume 24, Supplement 1, July 2013, Page S19, ISSN 0958-1669, http://dx.doi.org/10.1016/j.copbio.2013.05.021.

(http://www.sciencedirect.com/science/article/pii/S0958166913001377)

Hana Drahovska, Michal Kajsik, Maria Orieskova, Lucia Oslanecova, Eva Kaclikova, Jan Turna, Characterization of Cronobacter bacteriophages as tools in food protection, Current Opinion in Biotechnology, Volume 24, Supplement 1, July 2013, Page S92, ISSN 0958-1669, http://dx.doi.org/10.1016/j.copbio.2013.05.273.

(http://www.sciencedirect.com/science/article/pii/S0958166913003893)

D.L. Habash, A. Headings, C. Spees, K. Prendergast, C. Taylor, K. Wolf, Building a Better Box: Rules, Tools, and Decisions by RDs Building Diabetes-Friendly Food Boxes for Food Insecure Clients, Journal of the Academy of Nutrition and Dietetics, Volume 112, Issue 9, Supplement, September 2012, Page A89, ISSN 2212-2672, http://dx.doi.org/10.1016/j.jand.2012.06.323.

(http://www.sciencedirect.com/science/article/pii/S2212267212011185)

S.E. Ebron, L. Larsen, Development and Evaluation of Carbohydrate Counting Tool for Traditional Bhutanese-Nepali Foods, Journal of the Academy of Nutrition and Dietetics, Volume 113, Issue 9, Supplement, September 2013, Page A18, ISSN 2212-2672, http://dx.doi.org/10.1016/j.jand.2013.06.046.

(http://www.sciencedirect.com/science/article/pii/S2212267213007247)

Tania Robert, P. Robert, G. Masis, M. Zúñiga, X. Fernández, C. Aragón, Design and Pilot Testing of a Cultural Appropriate Evaluation Tool for Elementary School Children’s Food Preferences, Journal of Nutrition Education and Behavior, Volume 45, Issue 4, Supplement, July–August 2013, Page S6, ISSN 1499-4046, http://dx.doi.org/10.1016/j.jneb.2013.04.019.

(<http://www.sciencedirect.com/science/article/pii/S1499404613001954>)

#### Food AND Incidents

Yunhao Dai, Dongmin Kong, Maobin Wang, Investor reactions to food safety incidents: Evidence from the Chinese milk industry, Food Policy, Volume 43, December 2013, Pages 23-31, ISSN 0306-9192, http://dx.doi.org/10.1016/j.foodpol.2013.08.004.

(http://www.sciencedirect.com/science/article/pii/S0306919213001085)

Abstract: Abstract

Using a natural experiment in the Chinese milk industry as background, this paper investigates the reactions of individual and institutional investors to food safety incidents. By classifying firms as either honest or dishonest, we find that: First, honest firms significantly outperform dishonest ones and receive more investment flow. Second, individual investors react to incidents more negatively and intensely, especially toward dishonest firms, compared with institutional investors. This study offers important policy implications: First, our findings directly suggest that the government should enact appropriate policies to strengthen food safety and protect consumers’ health. Second, the government should implement efficient mechanisms to strengthen firms’ incentives to participate in social responsibility activities. Third, having institutional investors as corporate monitors is not a sufficient substitute for legal penalties.

Keywords: <!-- Tag Not Handled --><keyword id="k0005">Food safety incidents; <!-- Tag Not Handled --><keyword id="k0010">Investor reaction; <!-- Tag Not Handled --><keyword id="k0015">Firm values; <!-- Tag Not Handled --><keyword id="k0020">Event study; <!-- Tag Not Handled --><keyword id="k0025">Difference-in-differences

Jianhong Xue, Wenjing Zhang, Understanding China's food safety problem: An analysis of 2387 incidents of acute foodborne illness, Food Control, Volume 30, Issue 1, March 2013, Pages 311-317, ISSN 0956-7135, http://dx.doi.org/10.1016/j.foodcont.2012.07.024.

(http://www.sciencedirect.com/science/article/pii/S0956713512004203)

Abstract: To understand the general trends and status of China's food safety, we analyzed 2387 individual incidents of acute foodborne illnesses that had been reported by medical professionals in published journal papers during the last decade. As a result, 99,487 illnesses and 380 deaths were found in these 2387 incidents. In our analysis, we tried to understand the risks of acute foodborne illnesses and deaths corresponding to food pathogens, food location and settings, implicated food vehicles, sources of contamination and human causes. Based on our analysis, we made recommendations for risk communication, risk management and future research in regard to foodborne illnesses in China.

Keywords: Food safety; Foodborne illness; China

Yu-Hsuan Chen, Shu-Ching Fu, Jhih-Kai Huang, Hwei-Fang Cheng, Jaw-Jou Kang, A review on the response and management of the plasticizer-tainted food incident in Taiwan, Journal of Food and Drug Analysis, Volume 21, Issue 3, September 2013, Pages 242-246, ISSN 1021-9498, http://dx.doi.org/10.1016/j.jfda.2012.11.001.

(http://www.sciencedirect.com/science/article/pii/S1021949813000331)

Abstract: Abstract

While conducting an inspection project on counterfeit drugs in 2011, the Taiwan Food and Drug Administration (FDA) discovered a probiotic product that was contaminated with the plasticizer di-(2-ethylhexyl) phthalate (DEHP). After a thorough investigation, it was confirmed that the plasticizer had been deliberately added to the clouding agent as a substitute for an emulsifier. The illegal use of DEHP contaminated a broad range of foods and nutraceutical products. Subsequent investigation revealed that another plasticizer, di-isononyl phthalate (DINP), was also used. Some contaminated food and beverages had already been exported abroad. This caused panic in the public in Taiwan and drew international attention. The government thus initiated emergency response actions for this food safety incident. Actions were undertaken to perform food source control, to strengthen monitoring and surveillance of the production and marketing chain, to adopt a proactive approach in communicating with the public, and to trade in a highly transparent manner. The Act Governing Food Sanitation was also revised to impose harsher penalties on unscrupulous companies and thereby ensure food safety with more consolidated and stricter regulation. The effort has regained the consumer confidence in Taiwanese products.

Keywords: <!-- Tag Not Handled --><keyword id="kwrd0010">Contaminated food; <!-- Tag Not Handled --><keyword id="kwrd0015">DEHP; <!-- Tag Not Handled --><keyword id="kwrd0020">DINP; <!-- Tag Not Handled --><keyword id="kwrd0025">Emergency response; <!-- Tag Not Handled --><keyword id="kwrd0030">Plasticizer

Wen-Feng Lin, Yao-Cheng Lyu, Ya-Jung Wu, Chi-Huan Lu, Deng-Fwu Hwang, Species identification of snapper: A food poisoning incident in Taiwan, Food Control, Volume 25, Issue 2, June 2012, Pages 511-515, ISSN 0956-7135, http://dx.doi.org/10.1016/j.foodcont.2011.11.028.

(http://www.sciencedirect.com/science/article/pii/S095671351100510X)

Abstract: A snapper (Lutjanidae fish) is a carnivorous coral reef fish that is distributed in sea areas around Taiwan. In December 2008 in southern Taiwan, a food poisoning incident occurred due to the ingestion of snapper, and the causative residue of ciguatera was investigated using a toxicity assay. To identify the species of the causative sample, six suspected species of Lutjanidae fish commonly found in Taiwan were analyzed using both sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) and polymerase chain reaction-restriction fragment length polymorphism (PCR-RFLP) techniques. According to the low molecular weight region (&lt;30.0 kD) of species-specific patterns extracted from myofibrillar and sarcoplasmic proteins, the 6 snapper species could be clearly differentiated by the SDS-PAGE method. Furthermore, a consistent 465 bp sequence of the mitochondrial cytochrome b gene from the 6 snapper species was amplified by the PCR method and was rapidly distinguished by the analysis of restriction enzymes. According to both SDS-PAGE and PCR-RFLP methods, the poisonous sample was identified as Lutjanus bohar, which is also a notorious Lutjanidae species containing ciguateric toxins.

Keywords: Snapper; Species identification; SDS-PAGE; PCR-RFLP

#### Food AND Forensic

Irene Bosmali, Ioannis Ganopoulos, Panagiotis Madesis, Athanasios Tsaftaris, Microsatellite and DNA-barcode regions typing combined with High Resolution Melting (HRM) analysis for food forensic uses: A case study on lentils (Lens culinaris), Food Research International, Volume 46, Issue 1, April 2012, Pages 141-147, ISSN 0963-9969, http://dx.doi.org/10.1016/j.foodres.2011.12.013.

(http://www.sciencedirect.com/science/article/pii/S0963996911006776)

Abstract: Lentil (Lens culinaris) is an important legume crop worldwide, consumed as dried seeds. Correct identification of lentil varieties is important in order to ensure food quality, safety, authenticity and health for consumers as well as high price from elite varieties for farmers and industry. Recently, DNA-based methods like the molecular markers microsatellites (SSRs) for nuclear DNA or the DNA barcoding which uses chloroplast or nuclear DNA have been developed for plant species or variety identification, for genotyping and for identification of their ingredients in the final food products. Here we have integrated High Resolution Melting (HRM) analysis, coupled with five SSR markers in parallel with rpoC1 chloroplast DNA barcode targeting region, in order to facilitate the identification of Protected Geographical Indication (PGI) lentil variety ‘Eglouvi’. The five SSR loci used were informative and generated a unique melting curve profile of microsatellites for each of the ten varieties tested. SSRs enabled the distinction and identification of the “Eglouvi” lentil PGI variety and furthermore they allowed the traceability of “Eglouvi” and the identification of lentil varieties admixtures of 50%. In addition, the application of the Barcode DNA High Resolution Melting (Bar-HRM) method on the species specific plant DNA barcoding region rpoC1, allowed not only the identification of adulterations but also the quantification of the most common lentil admixture. Bar-HRM detected Vicia sativa adulterants in Lens esculentum pure seed mix as low as 1:100. Hence, these assays provided flexible, cost-effective, and closed-tube SSR-HRM and Bar-HRM genotyping methods, well suited to identify adulterants in variety and species level and to food forensic uses in food products.

Keywords: Lentil; Eglouvi; Bar-HRM; Authentication; Adulteration; Microsatellites

#### Food AND corruption

Aashish Mehta, Shikha Jha, Corruption, food subsidies, and opacity: Evidence from the Philippines, Economics Letters, Volume 117, Issue 3, December 2012, Pages 708-711, ISSN 0165-1765, http://dx.doi.org/10.1016/j.econlet.2012.07.023.

(http://www.sciencedirect.com/science/article/pii/S0165176512004089)

Abstract: We argue that subsidized food distribution systems that fail to publicize how much food has been allocated to each local market will experience high rates of theft on the margin as they are expanded. We provide the first comparable cross-section of estimates of subsidized food theft. As predicted, in regions of the Philippines that were allocated more subsidized rice to distribute, a larger percentage of the rice went missing.

Keywords: Pilferage; Transfer program; Food subsidy; Transparency; Opacity

#### Food and authenticity

Mark Woolfe, Tanya Gurung, Michael J. Walker, Can analytical chemists do molecular biology? A survey of the up-skilling of the UK official food control system in DNA food authenticity techniques, Food Control, Volume 33, Issue 2, October 2013, Pages 385-392, ISSN 0956-7135, http://dx.doi.org/10.1016/j.foodcont.2013.03.015.

(http://www.sciencedirect.com/science/article/pii/S0956713513001370)

Abstract: Abstract

That food accurately matches its description or labelling (food authenticity) is increasingly important to consumers and the agrifood sector. Its converse – mislabelling or misdescription or food fraud (when carried out for financial gain), is detrimental to both. A range of activities is used by enforcement authorities to establish authenticity and detect fraud including sampling and analysis. The UK Government, in a 20 year programme, has developed many novel analytical authenticity approaches including high resolution NMR, carbon isotope ratio analysis and DNA techniques. The flexibility, relatively lower costs and probative value of DNA methods render them particularly effective. However their deployment in the forensic environment of UK Official Food Control Laboratories (OCLs), staffed mainly by analytical chemists, required knowledge transfer (KT) of molecular biology techniques. The KT was carried out by the Food Standards Agency's Food Authenticity Programme (now transferred to Defra), and we present here the results of an assessment of its effectiveness. The findings highlight that the KT was well planned and highly effective. Competence in molecular biology in OCLs rose from 22% prior to the KT, based on qualifications and experience, to 69% after the KT based on embedding a suite of DNA methods in 11 out of 16 eligible laboratories. The transfer of 5 DNA methods (fish species, meat and exotic meat species, bushmeat species, Basmati rice, and orange juice adulteration with mandarin juice) have given OCLs an increased range of effectiveness with fish species identification having been particularly successfully applied and resulting in successful prosecutions of fraudulent activity. Given the current financial constraints in UK OCLs, a beneficial outcome has been a strategic refocussing of effort boosting enthusiasm and excitement for food authenticity issues. A further outcome of the transfer and evidence of the uptake of DNA technology has been the adoption of Real Time Polymerase Chain Reaction techniques by a critical mass (31.3%) of OCLs, permitting their advanced application to problematic authenticity issues such as the detection of adulteration of durum wheat pasta with common wheat, detection of meat ingredients in vegetarian foods, and the quantitative determination of GMOs in single ingredient foods such as pasta, rice and soya. Other recommendations arising out of the study are to adapt, to a lab-on-a-chip platform, DNA methods for pig and cattle breed authentication including wild boar, and an improved Basmati rice authentication. Finally, sustainable deployment of DNA methods to address food authenticity and fraud hinges on regulatory salience of the need for it and this, along with future priorities, should be kept under regular review.

Keywords: <!-- Tag Not Handled --><keyword id="kwrd0010">Food authenticity; <!-- Tag Not Handled --><keyword id="kwrd0015">Food fraud; <!-- Tag Not Handled --><keyword id="kwrd0020">Enforcement; <!-- Tag Not Handled --><keyword id="kwrd0025">DNA

Paolo Oliveri, Gerard Downey, Multivariate class modeling for the verification of food-authenticity claims, TrAC Trends in Analytical Chemistry, Volume 35, May 2012, Pages 74-86, ISSN 0165-9936, http://dx.doi.org/10.1016/j.trac.2012.02.005.

(http://www.sciencedirect.com/science/article/pii/S0165993612000684)

Abstract: Food authenticity is a challenging analytical problem normally addressed using sophisticated laboratory methods that produce large data sets. Multivariate mathematical methods are required to process such data sets, typically to answer a question such as “Is sample X, which claims to be of type A, compatible with type-A samples on the basis of its analytical measurements?”.We recommend class-modeling methods to answer this type of question and discuss the principles, the practice and the results of several types of such methods. We also compare them, in terms of advantages and short-comings, with the discriminant-classification approach.Keywords: Chemometrics; Class modeling; Class space; Discriminant classification; Food authenticity; Fraud detection; Multivariate quality control; Pattern recognition; Performance evaluation; Verification

Nicolette Pegels, Isabel González, Teresa García, Rosario Martín, Avian-specific real-time PCR assay for authenticity control in farm animal feeds and pet foods, Food Chemistry, Volume 142, 1 January 2014, Pages 39-47, ISSN 0308-8146, http://dx.doi.org/10.1016/j.foodchem.2013.07.031.

(http://www.sciencedirect.com/science/article/pii/S030881461300959X)

Abstract: Abstract

A highly sensitive TaqMan real-time PCR assay targeting the mitochondrial 12S rRNA gene was developed for detection of an avian-specific DNA fragment (68&#xa0;bp) in farm animal and pet feeds. The specificity of the assay was verified against a wide representation of animal and plant species. Applicability assessment of the avian real-time PCR was conducted through representative analysis of two types of compound feeds: industrial farm animal feeds (n&#xa0;=&#xa0;60) subjected to extreme temperatures, and commercial dog and cat feeds (n&#xa0;=&#xa0;210). Results obtained demonstrated the suitability of the real-time PCR assay to detect the presence of low percentages of highly processed avian material in the feed samples analysed. Although quantification results were well reproducible under the experimental conditions tested, an accurate estimation of the target content in feeds is impossible in practice. Nevertheless, the method may be useful as an alternative tool for traceability purposes within the framework of feed control.

Keywords: <!-- Tag Not Handled --><keyword id="k0005">TaqMan real-time PCR; <!-- Tag Not Handled --><keyword id="k0010">12S rRNA gene; <!-- Tag Not Handled --><keyword id="k0015">Avian; <!-- Tag Not Handled --><keyword id="k0020">Farm animal feeds; <!-- Tag Not Handled --><keyword id="k0025">Pet feeds; <!-- Tag Not Handled --><keyword id="k0030">Traceability

Keith Warriner, Case studies in food safety and authenticity: Lessons from real-life situations. J. Hoorfar. Published by: Woodhead Publishing, Inc., ISBN 978-1-84569-962-6A478 Price: $255., Food Research International, Volume 52, Issue 1, June 2013, Page 198, ISSN 0963-9969, http://dx.doi.org/10.1016/j.foodres.2013.02.046.

(http://www.sciencedirect.com/science/article/pii/S0963996913001543)

Mehmet Fatih Cengiz, Cennet Pelin Boyaci, Identification methods of food authenticity control by using the isotope ratio mass spectrometry (IR-MS), Journal of Biotechnology, Volume 161, Supplement, November 2012, Pages 41-42, ISSN 0168-1656, http://dx.doi.org/10.1016/j.jbiotec.2012.07.132.

(<http://www.sciencedirect.com/science/article/pii/S0168165612005275>)

#### Food AND adulteration

Carolina V. Di Anibal, Itziar Ruisánchez, Mailén Fernández, Rafel Forteza, Victor Cerdà, M. Pilar Callao, Standardization of UV–visible data in a food adulteration classification problem, Food Chemistry, Volume 134, Issue 4, 15 October 2012, Pages 2326-2331, ISSN 0308-8146, http://dx.doi.org/10.1016/j.foodchem.2012.03.100.

(http://www.sciencedirect.com/science/article/pii/S0308814612005833)

Abstract: This study evaluates the performance of multivariate calibration transfer methods in a classification context. The spectral variation caused by some experimental conditions can worsen the performance of the initial multivariate classification model but this situation can be solved by implementing standardization methods such as Piecewise Direct Standardization (PDS). This study looks at the adulteration of culinary spices with banned dyes such as Sudan I, II, III and IV. The samples are characterised by their UV–visible spectra and Partial Least Squares–Discriminant Analysis (PLS–DA) is used to discriminate between unadulterated samples and samples adulterated with any of the four Sudan dyes. Two different datasets that need to be standardised are presented. The standardization process yields positive classification results comparable to those obtained from the initial PLS–DA model, in which high classification performance was achieved.

Keywords: Multivariate standardization; PDS; PLS–DA; Food adulteration; Sudan dyes

Shaun MacMahon, Timothy H. Begley, Gregory W. Diachenko, Selen A. Stromgren, A liquid chromatography–tandem mass spectrometry method for the detection of economically motivated adulteration in protein-containing foods, Journal of Chromatography A, Volume 1220, 13 January 2012, Pages 101-107, ISSN 0021-9673, http://dx.doi.org/10.1016/j.chroma.2011.11.066.

(http://www.sciencedirect.com/science/article/pii/S0021967311017845)

Abstract: A new analytical method was developed to determine the presence of six (6) compounds with the potential to be used in economic adulteration to enhance the nitrogen content in milk products and bulk proteins. Residues were extracted from the matrix with 2% formic acid, after which acetonitrile (ACN) was added to induce precipitation of the proteins. Extracts were analyzed by liquid chromatography using a ZIC-HILIC column with tandem mass spectrometry (LC–MS/MS) using electrospray ionization (ESI). Single-laboratory method validation data was collected in six matrices fortified at concentrations down to 1.0&#xa0;μg/g (ppm). Average recoveries and average relative standard deviations (RSD) using spiked matrix calibration standard curves were the following: cyromazine (CY) 95.9% (7.5% RSD), dicyandiamide (DC) 98.1% (5.6% RSD), urea 102.5% (8.6% RSD), biuret (BU) 97.2% (6.6% RSD), triuret (TU) 97.7% (5.7% RSD), and amidinourea (AU) 93.4% (7.4% RSD). This method provides a rapid and effective approach to proactively combat economically motivated adulteration in protein-containing products.

Keywords: Melamine; Economic adulteration; Mass spectrometry; Protein

Lu Xu, Zi-Hong Ye, Si-Min Yan, Peng-Tao Shi, Hai-Feng Cui, Xian-Shu Fu, Xiao-Ping Yu, Combining local wavelength information and ensemble learning to enhance the specificity of class modeling techniques: Identification of food geographical origins and adulteration, Analytica Chimica Acta, Volume 754, 19 November 2012, Pages 31-38, ISSN 0003-2670, http://dx.doi.org/10.1016/j.aca.2012.10.011.

(http://www.sciencedirect.com/science/article/pii/S0003267012014560)

Abstract: Class modeling techniques are required to tackle various one-class problems. Because the training of class models is based on the target class and the origins of future test objects usually cannot be exactly predefined, the criteria for feature selection of class models are not very straightforward. Although feature reduction can be expected to improve class models performance, more features retained can provide a sufficient description of the sought-for class. This paper suggests a strategy to balance class description and model specificity by ensemble learning of sub-models based on separate local wavelength intervals. The acceptance or rejection of a future object can be explicitly determined by examining its acceptance frequency by sub-models. Considering the lack of information about sub-model independence, we propose to use a data-driven method to control the sensitivity of the ensemble model by cross validation. In this way, all the wavelength intervals are used for class description and the local wavelength intervals are highlighted to enhance the ability to detect out-of-class objects.

The proposed strategy was performed on one-class partial least squares (OCPLS) and soft independent modeling of class analogy (SIMCA). By analysis of two infrared spectral data sets, one for geographical origin identification of white tea and the other for discrimination of adulterations in pure sesame oil, the proposed ensemble class modeling method was demonstrated to have similar sensitivity and better specificity compared with total-spectrum SIMCA and OCPLS models. The results indicate local spectral information can be extracted to enhance class model specificity.

Keywords: Ensemble class models; Spectral interval selection; Soft independent modeling of class analogy; One-class partial least squares; Infrared spectroscopy