

Occurrence of Polycyclic Aromatic Hydrocarbons in Herbs, Spices, Supplements and Tea

Report to Food Standards Agency

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Glossary of Main Terms

Term or Acronym	General Meaning Of Term
BaP	Benzo[a]pyrene
EFSA	European Food Safety Authority
FAPAS	Food Analysis Performance Assessment Scheme
JRC-IRMM	Joint Research Centre - Institute for Reference Materials and Measurements
PAHs	Polycyclic aromatic hydrocarbons
PAH 4	Sum of 4 PAHs (benzo[a]pyrene, benz[a]anthracene, benzo[b]fluoranthene, chrysene)
Whole weight	Values based on the sample as received 'whole'.
Lower bound	assumes values at less than the limit of detection are zero (e.g.<0.01=0)
Upper bound	assumes values at less than the limit of detection are equal to the limit of detection (e.g. <0.07=0.07)
µg/kg	Microgram per kilogram (x 10 ⁻⁶ / part per billion)
HRGC-LRMS	High resolution gas chromatography – low (unit) resolution mass spectrometry
UKAS	United Kingdom Accreditation Service

Executive Summary

PAHs constitute a large class of organic compounds with two or more fused aromatic rings and occur in complex mixtures consisting of hundreds of compounds. As contaminants of food they are of concern because some of these compounds have been identified as genotoxic carcinogens, mutagens and teratogens. Elevated levels of PAHs can arise in supplements, herbs, spices and teas as a result of the heating and drying processes that allow combustion products to come into direct contact with the food. In addition, environmental pollution may cause contamination with PAH. These environmental PAHs may be concentrated by the extraction steps applied in the production process of the botanical preparation. The resulting concentrations of PAHs are variable and depend on the specific type of food supplements, herbs, spices or tea. This work was done in order to gather further data on these food stuffs to help with setting maximum levels for PAH in food supplements, herbs, spices and tea.

200 food supplements, herbs, spices and tea were purchased by Hallmark (a sample collection agency) and sent to FERA. The samples included 50 samples of herbal supplements, 20 samples of algae-based supplements, 10 samples of propolis and bee products, 25 samples dried spices and herbs, 68 herbal teas and 27 teas.

The samples were homogenised and analysed using an established, validated analytical procedure for PAHs that is UKAS accredited to the ISO 17025 standard and has been reported before in detail to the FSA. The methodology is based on internal standardisation (13-Carbon) with measurement by GC-MS (Rose et al, 2007).

All the food groups tested showed a wide range of concentrations with the highest being found in tea and algae based supplements. Of the 28 PAH compounds monitored, those with lower molecular weight were found to occur in the majority of the samples. Of the more toxicologically significant and regulated compounds, benzo[a]pyrene concentrations ranged from; <0.08 µg/kg to 80.54 µg/kg and PAH4 concentrations ranged from 0.18 µg/kg to 385.93 µg/kg.

1. Background to Study

PAHs are a complex group of chemicals with two or more fused aromatic ring systems. The molecules do not contain heteroatoms and are not substituted. PAHs occur naturally in coal, crude oil and tar deposits, and can be inadvertently produced as by-products of incomplete fossil fuel or biomass combustion. As environmental pollutants, they are of concern because some compounds have been identified as genotoxic carcinogens, mutagens and teratogens. They occur widely in the environment and their environmental transport is governed by their volatility and chemical reactivity. They are also lipophilic with poor aqueous solubility and tend to occur in the lipid rich tissues of plants and animals although they are usually metabolised by animals (except shellfish).

Elevated levels of PAHs can arise in supplements, herbs, spices and teas as a result of the heating and drying processes that allow combustion products to come into direct contact with the food. In addition, environmental pollution may cause contamination with PAHs. These environmental PAHs may be concentrated by the extraction steps applied in the production process of the botanical preparation. Nevertheless, the levels are variable and depend on the specific type of food supplements, herbs, spices or tea.

Following a scientific opinion published by EFSA, the PAH content of some food is regulated in the EU. The regulations include maximum permitted levels for the sum of four substances (PAH4; the sum of benzo(a)pyrene, benz(a)anthracene, benzo(b)fluoranthene and chrysene) whilst maintaining a separate maximum level for benzo(a)pyrene (BaP).

In 2005 the FSA carried out a survey on PAHs in food supplements and found highest levels in plant, bee and marine products (not fish oils). Since that study was undertaken, supplements have continued to be a concern, and data from the current study will provide updated information on background concentrations. This data along with the additional data for herbs, spices and teas can be used to assist risk assessment and with discussions of any potential regulation for PAHs in these foods.

2. Method

2.1 Sample Collection and Preparation

A list of samples including a description and FERA sample number is given in Table 1.

200 food supplements, herbs, spices and tea were purchased by Hallmark and sent to FERA. The samples included 50 samples of herbal supplements, 20 samples of algae-based supplements, 10 samples of propolis and bee products, 25 samples dried spices and herbs, 68 herbal teas and 27 teas.

On receipt at the laboratory, each sample was given a unique laboratory reference number and the sample details were logged into a database. All samples were ground to a small particle size (<1 mm), and were then thoroughly homogenised. Approximately 3 g aliquots of sample were taken for analysis.

2.2 Contaminants Measured – Specific Analytes

The following analytes were determined: Regulated contaminants are highlighted in bold.

PAHs - acenaphthene, acenaphthylene, fluorene, phenanthrene, anthracene, fluoranthene, benzo[c]fluorene, pyrene, benzo[e]pyrene, benzo[b]naptho[2,1-d]thiophene, anthanthrene, coronene, benzo[ghi]fluoranthene, **benz[a]anthracene**, **chrysene**, **benzo[b]fluoranthene**, benzo[j]fluoranthene, benzo[k]fluoranthene, **benzo[a]pyrene**, cyclopenta[c,d]pyrene, indeno[123cd]pyrene, dibenzo[ah]anthracene, benzo[ghi]perylene, dibenzo[al]pyrene, dibenzo[ae]pyrene, dibenzo[ai]pyrene, dibenzo[ah]pyrene and the substituted PAH, 5-methylchrysene.

2.3 Analytical Methodology

The analytical methodology for the PAHs has been published (Rose et al, 2007) and reported before in detail to the FSA. The methodology is based on internal standardisation (13-Carbon) with GC-MS measurement. An aliquot of the homogenised sample was fortified with ¹³C-labelled analogues of target compounds and saponified with methanolic potassium hydroxide. The extracted PAH solutions were purified in two stages with a DMF/cyclohexane partition followed by adsorption chromatography on activated silica. A sensitivity standard was added to the purified extracts and these were measured using HRGC LRMS.

2.4 Quality Control

Fera is the UK National Reference Laboratory for PAHs in food. The analytical procedure for PAHs is UKAS accredited to the ISO 17025 standard and includes the assessment of method blanks and reference materials, (RM0654, PAHs in palm oil – FAPAS 2013) for compliance with the accreditation criteria. The methodology also meets the criteria required for evaluating data against the maximum permitted limits for benzo[a]pyrene and PAH4 as specified in EU Commission Regulations. Additionally, FERA has also participated in recent international inter-comparison exercises (JRC-IRMM 2013, 2014 FAPAS 2013, 2014) where results reported by the laboratory were in good agreement with consensus data.

3. Results

3.1 Overview

The concentrations of the 28 PAH compounds measured in this study are given in Tables 2.1 to 2.5.

The concentrations are reported in µg/kg of whole product. Data was rounded to two decimal places for all analytes. Measurement uncertainty has been included for each sample. The reporting limit quoted (as “<”) for all analytes was the limit of determination that prevailed in that instance. The limit is calculated dynamically for each compound in each sample, and takes into account instrument signal-to-noise levels, sample weight, analytical recovery and concentrations detected in method blanks.

At present there are no EU maximum permitted levels for supplements, herbs, spices and teas. To put the data collated in this report into perspective; the current EU maximum limits in oils and fats for direct human consumption for BaP and PAH4 are 2 µg/kg and up to 20 µg/kg respectively, but these foods are generally consumed in larger quantities than supplements, herbs, spices and teas. All the food groups tested showed a wide range of concentrations with the highest being found in tea and algae based supplements. Below is a brief breakdown of the PAH concentrations measured in each group.

3.2 Herbal Supplements

Of the 28 PAH compounds monitored, those with lower molecular weight were found to occur in over half of the 49 samples. BaP concentrations for the regulated compounds ranged from <0.08µg/kg to 3.36µg/kg and PAH4 concentrations ranged from 0.18µg/kg to 26.15µg/kg. Approximately three quarters of the samples showed relatively low levels with BaP concentrations below 1µg/kg and PAH4 concentrations below 10 µg/kg. Approximately 10% of the samples showed both BaP and PAH 4 concentrations above 2 µg/kg and 20 µg/kg respectively.

3.3 Algae Based Supplements

PAHs with lower molecular weight were found to occur in 18 of the 21 algae based supplements. BaP concentrations ranged from <0.15 µg/kg to 11.05 µg/kg with a mean of 3.57 µg/kg and PAH4

concentrations ranged from 0.45 µg/kg to 124.62 µg/kg with a mean of 30.26 µg/kg. Over half of the samples showed both BaP and PAH 4 concentrations above 2 µg/kg and 20 µg/kg respectively.

3.4 Propolis and bee products

With only 10 propolis and bee products this group had the smallest pool of samples. In 6 of the 10 samples, all 28 PAHs monitored were detected at background or relatively low levels. In the remaining 4 samples, PAH compounds with lower molecular weight were found to occur. All showed BaP concentrations above 2 µg/kg and 3 of the 4 samples gave PAH4 concentrations above 20 µg/kg. One sample, a bee propolis, showed both BaP and PAH4 concentrations several times higher than the rest at 12.12 µg/kg and 83.83 µg/kg respectively.

3.5 Herbs and spices

The majority of the 25 samples in this group showed PAHs with lower molecular weight to occur at elevated levels. BaP concentrations ranged from <0.14 µg/kg to 14.49 µg/kg with a mean of 3.00 µg/kg and PAH4 concentrations ranged from 0.44 µg/kg to 74.21 µg/kg with a mean of 17.76 µg/kg. Approximately a third of the samples showed BaP and PAH4 concentrations above 2 µg/kg and 20 µg/kg respectively.

3.6 Teas and herbal teas

PAHs were measured in 92 of the 95 teas tested. The 3 teas that had concentrations either at limit of detection or very low levels were intended for consumption by babies. Of the remaining 92 the majority showed PAHs with lower molecular weight to occur at elevated levels. BaP concentrations ranged from <0.13 µg/kg to 80.54 µg/kg with a mean of 6.00 µg/kg and PAH4 concentrations ranged from 0.40 µg/kg to 385.93 µg/kg with a mean of 32.73 µg/kg. Approximately a third of the samples showed BaP and PAH4 concentrations above 2 µg/kg and 20 µg/kg respectively.

4. References

European Commission (2011).Commission Regulation (EU) No 835/2011 of 19 August 2011 amending Regulation (EC) No 1881/2006 as regards maximum levels for polycyclic aromatic hydrocarbons in food stuffs.

FAPAS Proficiency Test 0654 Report, Environmental Contaminants, PAHs in palm oil, June 2013 (Consensus value data from participating laboratories used for establishing acceptance criteria for use as an in-house reference material.)

Rose M, White S, MacArthur R, Petch R, Holland J, & Damant A.(2007). Single -laboratory validation of a GC/MS Method for the determination of 27 polycyclic aromatic hydrocarbons in oils and fats. *Food Additives & Contaminants Vol 24 Number 6 June 2007*, 635-651

Table 1: Overview of Samples

Fera LIMS No.	Food Group	Product description	Batch code	Expiry date
S14-010782	Plant based supplements	Cranberry tablets	72966103	Mar-16
S14-010795	Plant based supplements	St Johns Wort	BN 14279	May-16
S14-010810	Plant based supplements	Ginko Biloba	11975	Feb-16
S14-010686	Plant based supplements	Elder Berry Herbal Supplement	130147	Feb-17
S14-010820	Plant based supplements	Olive Leaf Extract	747373-03	Aug-16
S14-010606	Plant based supplements	Fenugreek	73096601	Sep-16
S14-010620	Plant based supplements	Raspberry leaf	332840-03	Feb-15
S14-010718	Plant based supplements	Triple Strength Liquid Chlorophyll	1566690 2117	Aug-15
S14-010792	Plant based supplements	Saw palmetto	751937-01	Jul-16
S14-010697	Plant based supplements	Beyond Greens	102313	Oct-14
S14-010598	Plant based supplements	Barley Grass	S557	20/02/2016
S14-010699	Plant based supplements	Wheat Grass	S643	31/10/2016
S14-010715	Plant based supplements	Wheat Grass powder	25017	Nov-15
S14-010796	Plant based supplements	Maca Powder	408011	Nov-15
S14-010696	Plant based supplements	Sage leaf, Number	73058102	Sep-16
S14-010635	Plant based supplements	Organic Gotu Kola & Turmeric	lot 12/26/9	Aug-14
S14-010642	Plant based supplements	Ginger root	73076601	Sep-16
S14-010633	Plant based supplements	Fennel Seed capsules	73055701	Jul-16
S14-010803	Plant based supplements	Siberian Ginseng	73012503	Jun-15
S14-010802	Plant based supplements	Triple Ginseng	72881601	Oct-14
S14-010569	Plant based supplements	Organic Andrographis & Holy Basil	B:110636	Mar-15
S14-010579	Plant based supplements	Organic Andrographis	lot 13/42/12	Jan-16
S14-010797	Plant based supplements	Acai	72710604	Sep-14
S14-010580	Plant based supplements	Organic Ginger	lot:13/42/10	Jan-16
S14-010615	Plant based supplements	Artichoke Leaf	1300328	Nov-16
S14-010819	Plant based supplements	Garlic	13507	Nov-16
S14-010570	Plant based supplements	Echinaforce	01072B	Aug-14

Fera LIMS No.	Food Group	Product description	Batch code	Expiry date
S14-010789	Plant based supplements	Liquorice root	501451-01	Apr-16
S14-010706	Plant based supplements	Avena Sativa	25083	Jun-17
S14-010576	Plant based supplements	Extra Strength Peppermint Oil	72817401 & 72653101	Feb 15 & Dec 14
S14-010698	Plant based supplements	Dandelion	16113	Jun-16
S14-010578	Plant based supplements	Ginkgo Bilboa	10092	Dec-15
S14-010571	Plant based supplements	Milk Thistle	3083	Feb-16
S14-010713	Plant based supplements	Plantago	12014	Sep-18
S14-010714	Plant based supplements	Neem Oil	12K2208 & 14A1606	Nov 15 & Jan 17
S14-010791	Plant based supplements	Beetroot extract	73052001	Sep-16
S14-010790	Plant based supplements	Hawthorn berries	333958-01	Jan-15
S14-010781	Plant based supplements	Odour controlled Garlic	73067303	Oct-16
S14-010787	Plant based supplements	Manchurian Ginseng	72978902	Apr-16
S14-010689	Plant based supplements	Papaya Enzyme	1243621	May-15
S14-010641	Plant based supplements	Slippery Elm	73053303	Jul-16
S14-010644	Plant based supplements	Whole Leaf Aloe Vera	10412E	May-15
S14-010581	Plant based supplements	Aloe vera Gel Whole Leaf	29433	Oct-15
S14-010786	Plant based supplements	Guarana	72923002	Jan-16
S14-010619	Plant based supplements	Cayenne capsules	752228	Jul-17
S14-010716	Plant based supplements	Aloe vera Juice with Manuka Honey	3009-2	09/01/2015
S14-010688	Plant based supplements	Marshmallow	73023501	Apr-14
S14-010700	Plant based supplements	Agnus Castus	3D340323S	Sep-14
S14-010626	Plant based supplements	Evening Primrose Oil	73085201	Jul-16
S14-010691	algae-based supplements	Chlorella	S607	31/07/2016
S14-010568	algae-based supplements	Spirulina powder	B129188	Nov-15
S14-010563	algae-based supplements	Chlorella Tablets	lot 13/9/16	Mar-15
S14-010572	algae-based supplements	Spirulina	72586701 & 73112003	Nov 14 & nov 16
S14-010703	algae-based supplements	Super Greens	S630	30/09/2016

Fera LIMS No.	Food Group	Product description	Batch code	Expiry date
S14-010799	algae-based supplements	Kelp Tablets	72715203	Nov-15
S14-010709	algae-based supplements	Spirulina powder	24248	Aug-16
S14-010575	algae-based supplements	Super Greens Powder	(B) S656	30/11/2016
S14-010562	algae-based supplements	Shatavari for women - seaweed, spirulina & ginger	lot 13/38/4	Nov-15
S14-010566	algae-based supplements	Tulsi for the mind- seaweed, spirulina & ginger	B107974	Sep-14
S14-010564	algae-based supplements	Reg Ginseng for energy-seaweed, spirulina & ginger	B116005	May-15
S14-010565	algae-based supplements	Mushroom Formula with seaweed, spirulina & ginger	lot 13/24/43	Sep-15
S14-010567	algae-based supplements	Spirulina tablets	B111392	Jun-15
S14-010637	algae-based supplements	Spirulina Powder	409021	Sep-16
S14-010818	algae-based supplements	Chlorella Powder	304072	Mar-16
S14-010800	algae-based supplements	Spirulina tablets	73112103	Nov-16
S14-010801	algae-based supplements	Spirulina Powder	783978-01A	Nov-15
S14-010599	algae-based supplements	Spirulina Capsules	B120976	Jun-15
S14-010783	algae-based supplements	Chlorella & Spirulina Powder	130915	14/09/2016
S14-010643	algae-based supplements	Sea Kelp	73094002	Nov-16
S14-010798	algae-based supplements	Natural Chinese Chlorella	73153603	Oct-16
S14-010702	propolis and bee products	Propoli EVSP Balsamic Syrup	33211	Nov-14
S14-010708	propolis and bee products	Propolis Herbal Elixir	17075291	01/11/2014
S14-010586	propolis and bee products	Pollen de Fleurs	1226353	Aug-15
S14-010682	propolis and bee products	Organic Vita Complex honey with pollen, royal jelly and propolis	Not declared	04/11/2017
S14-010573	propolis and bee products	Propolis Herbal Elixir	17663191	20/08/2016
S14-010574	propolis and bee products	Childrens Propolis herbal Elixir	18209530	17/01/2016
S14-010636	propolis and bee products	Propolis Capsules	17631411	27/06/2017
S14-010770	propolis and bee products	Propolis Throat Mix	4461	Sep-15
S14-010788	propolis and bee products	Bee Propolis	121042-1	Mar-15
S14-010769	propolis and bee products	Pure Bee Pollen	6107	Dec-16

Fera LIMS No.	Food Group	Product description	Batch code	Expiry date
S14-010616	dried spices and herbs	Ground Ginger	L3267	23/09/2016
S14-010746	dried spices and herbs	Nigella seeds	1837-12	Jul-16
S14-010613	dried spices and herbs	Ground white pepper	L:E P046170	Jan-17
S14-010624	dried spices and herbs	Cracked black pepper	L:E P045455	Dec-16
S14-010814	dried spices and herbs	Star anise	524-121	Jul-16
S14-010805	dried spices and herbs	Marjoram	2132	Jul-16
S14-010625	dried spices and herbs	Chef's Larder Chilli Powder	L:E P044335	Nov-16
S14-010617	dried spices and herbs	Paprika Powder	GAPP12131118	Nov-15
S14-010658	dried spices and herbs	Whole black peppercorns	4017 MAA	Jan-16
S14-010719	dried spices and herbs	Ground Cayenne Pepper	3337	Dec-15
S14-010754	dried spices and herbs	Whole Cloves	3331	Nov-15
S14-010753	dried spices and herbs	Ground Cinnamon	4006	Jan-16
S14-010721	dried spices and herbs	Value Dried Basil	4011	Jan-16
S14-010654	dried spices and herbs	Cardamom pods	3339	Dec-15
S14-010720	dried spices and herbs	Mustard Seeds	3351	Dec-15
S14-010608	dried spices and herbs	Value Ground Cumin	4051	Feb-16
S14-010610	dried spices and herbs	Rosemary	4037 MAA	Feb-16
S14-010612	dried spices and herbs	Mixed Spice	4009 MAA	Dec-15
S14-010748	dried spices and herbs	Turmeric, Fairtrade	L3317C	13/11/2015
S14-010749	dried spices and herbs	Ground Mace 38g	L3324B	20/11/2015
S14-010750	dried spices and herbs	Garlic Granules 58g	L3311D	07/11/2015
S14-010651	dried spices and herbs	Ground Coriander	3310	Nov-15
S14-010747	dried spices and herbs	Ground Allspice	4982	Jul-16
S14-010752	dried spices and herbs	Hot curry powder	L 3291 A	18/10/2015
S14-010751	dried spices and herbs	Ground nutmeg	L2293A	19/10/2014
S14-010561	Teas	Zesty Lemon flavour Green Tea	L33363L620	01/12/2015
S14-010584	Teas	The Strong One	L33311C132 06:43	01/04/2015
S14-010545	Teas	Assam Loose Tea	3661623 2213 13:08	01/02/2015
S14-010589	Teas	Blend of Both Tea Bags	L3326 17:51	01/05/2015
S14-010758	Teas	Breakfast Earl Grey Loose Tea	062015 302257	24/02/2015

Fera LIMS No.	Food Group	Product description	Batch code	Expiry date
S14-010547	Teas	Green Tea Decaf	L3316 09:10	01/11/2015
S14-010548	Teas	Estate Selection	3176C	01/12/2014
S14-010552	Teas	EverydayTea	E9647	06/10/2015
S14-010557	Teas	Earl Grey Tea	3240C 17:29	01/02/2015
S14-010588	Teas	Gold Loose Tea	L3301 E 16 09:09	31/03/2015
S14-010647	Teas	Extra Strong tea bags	L3329 2	01/04/2015
S14-010724	Teas	Decaf Pyramid tea bags	L33471F132 08:17	01/05/2015
S14-010729	Teas	Fair Trade Black Leaf Tea	L3255 2	01/12/2014
S14-010731	Teas	Easy Squeeze	L4024	01/07/2015
S14-010760	Teas	English Breakfast Loose Tea	112015 302174	24/02/2015
S14-010551	Teas	Leaf Tea	L3204 B3 11:14	01/07/2016
S14-010555	Teas	Instant Peach Tea	4016 01:06	01/07/2015
S14-010583	Teas	English Breakfast tea	4007	01/01/2015
S14-010683	Teas	Tea Bags	3346WB0 12:43	01/05/2015
S14-010725	Teas	Regular Pyramid	L40342P132 09:00	01/07/2015
S14-010726	Teas	Loose Tea	L40091 A620	01/06/2015
S14-010730	Teas	Original Loose Tea	L4037 P1	01/05/2015
S14-010734	Teas	Green Tea Lemon	L4027	01/01/2016
S14-010740	Teas	Strong Cuppa	3332C	01/05/2015
S14-010779	Teas	Luxury supreme Earl Grey black loose tea 125g	not declared	31/07/2017
S14-010560	Teas	Pure Green Tea	L33403L620	01/12/2015
S14-010733	Teas	Green Tea Pure	L4028	42370
S14-010622	Herbal teas	Abundance Organic herbal blend for nursing moms (with borage)	not declared	Not declared
S14-010649	Teas	Aromatic Green tea	L3339 9C	01/05/2015
S14-010655	Herbal teas	Calming Camomile	120000006195 UK 269	01/09/2015
S14-010704	Herbal teas	Detsky caj s klidne sny-Children restful	41248	05/12/2014

Fera LIMS No.	Food Group	Product description	Batch code	Expiry date
		sleep Herbal Tea		
S14-010738	Herbal teas	Camomile	3171; 4015	Dec-14; Jun-15
S14-010762	Herbal teas	Organic Sleep Infusion	H0806 11:07	21/02/2016
S14-010763	Herbal teas	Aromatic Spices & Mint	L33473L620	01/12/2015
S14-010774	Herbal teas	Tension Tamer Herbal Tea	not declared	18/07/2015
S14-010775	Herbal teas	Baby stomach tea	521303329	01/12/2016
S14-010816	Herbal teas	Calming Tea For Children, Organic	L0029	01/12/2015
S14-010600	Herbal teas	Dandelion & Burdock Tea, Organic	K0327	27/05/2015
S14-010607	Herbal teas	Cleanse organic nettle fennel & peppermint	L3339 22:44	05/12/2016
S14-010653	Herbal teas	Citrus Ginseng Sling	L3355 9B; L3282 9B	March-15; May-15
S14-010761	Herbal teas	Comfrey Leaves (Loose Tea)	6797	01/03/2015
S14-010764	Herbal teas	Comforting Liquorice Tea bags	0000011423 UK014 17:54	01/01/2016
S14-010807	Herbal teas	Organic Genmaicha Tea	41479	24/07/2015
S14-010811	Teas	Ceylon tea Pure loose tea from Luaka tea 125g	B/N 6191	01/07/2016
S14-010812	Herbal teas	Clipper organic Nettle Tea 20 tea bags 30g	L0788 08:55	18/02/2016
S14-010813	Herbal teas	Clipper Green Tea with Ginseng 20 bag	V0990	22/03/2015
S14-010817	Herbal teas	Detox organic aniseed fennel & cardamom	15:16 L4014	14/01/2017
S14-010618	Herbal teas	Large Refill Bag Organic Lactation Blend for Nursing Mommy Loose Leaf Tea	Not declared	Not declared
S14-010645	Herbal teas	Invigorating Peppermint	120000004654 UK 241	01/08/2015
S14-010652	Herbal teas	Hint of Mint Green tea	L3269 9B; L4020 9B; L3303 9B	Feb-15; Mar-15; Jun 15
S14-010656	Teas	Green Tea Decaf	L3351	01/12/2015
S14-010687	Herbal teas	Instant Fennel tea for babies	L307860	30/06/2015
S14-010707	Herbal teas	Instant Digestion Facilitating Tea for Babies	L307816	30/06/2015
S14-010711	Herbal teas	Instant Calming Tea for Babies	L307525	31/08/2015

Fera LIMS No.	Food Group	Product description	Batch code	Expiry date
S14-010722	Herbal teas	Rooibos Vanilla Tea	3294 17:33	01/10/2016
S14-010778	Herbal teas	Lemon Balm (Melissa Officinalis) Loose Herbal Tea	IH3014516	01/10/2015
S14-010809	Herbal teas	Naturally Caffeine Free Rooibos Earl Grey Tea	3294 19:38	01/10/2016
S14-010559	Herbal teas	Refreshing Peppermint (Fresh Peppermint)	L33473L620 (x8), L33433L620(x7)	01/12/2015
S14-010614	Herbal teas	Organic Rosehip Hibiscus	L4031, L3294, L3224	31/1/17, 12/8/16, 21/10/16
S14-010632	Teas	Green Tea	MFD 21/2/14	21/02/2016
S14-010712	Herbal teas	Organic Baby Teas - Herbal Baby Tea	1023151113 CS	30/11/2015
S14-010737	Herbal teas	Settling Ginger Tea bags	120000011559 UK 020	01/01/2016
S14-010755	Herbal teas	Nettle, Fennel & Peppermint Tag & Envelope Teabags	15/08/2013; 01/10/2013	Aug-15; Oct15
S14-010794	Herbal teas	Natural Cherry Tea,herbal tea for babies and children from 9 months+	L0015 A	01/03/2015
S14-010808	Herbal teas	Organic Fairtrade Green Tea With Ginkgo	P171013E 64746262	17/04/2016
S14-010822	Herbal teas	Peppermint Infusion	4037 00:57	01/07/2015
S14-010823	Herbal teas	Liquorice infusion	4007	01/06/2015
S14-010596	Herbal teas	Snore & Peace	S1156 12:08	06/09/2015
S14-010630	Herbal teas	Hibiscus-herbal tea Loose leaf	not declared	01/08/2015
S14-010705	Herbal teas	White hibiscus herbal loose leaf tea	FB029	11/01/2015
S14-010710	Herbal teas	Avena Dream herbal Loose leaf	MB1957	01/12/2015
S14-010723	Herbal teas	Rooibos	3345	01/11/2016
S14-010773	Herbal teas	Three Fennel	L3354 11:24	20/12/2016
S14-010815	Herbal teas	Tea for kids Easy digestion	L0026 A	01/11/2015
S14-010611	Herbal teas	WildPower Tea	Lot E12206	01/07/2015
S14-010623	Herbal teas	Ginseng herbal tea	23/04/2013, 22/04/2016,	

Fera LIMS No.	Food Group	Product description	Batch code	Expiry date
			22/2/12	21/2/15
S14-010628	Herbal teas	Sencha Kyoto Cherry Rose Luxury loose tea Leaf	not declared	01/09/2015
S14-010629	Herbal teas	Red Ginseng Green Sencha Loose Leaf Wellness Tea	not declared	01/09/2015
S14-010638	Herbal teas	Organic Nettle Tea	L4057	26/02/2017
S14-010646	Herbal teas	Rooibos tea bags caffeine free	05-D2	01/01/2015
S14-010648	Herbal teas	Redbush & Vanilla (rooibos)	L3291; L3228	Aug-15; Oct-15
S14-010650	Herbal teas	Pure Peppermint	L4002 9B; L4042 9C	Jun-15; Jul-15
S14-010657	Herbal teas	Camomile	L3228	01/08/2015
S14-010659	Herbal teas	Peppermint	L3364	01/12/2015
S14-010701	Teas	Suki tea Loose green tea Sencha 100g (organic)	L1400904	01/07/2015
S14-010756	Herbal teas	Cinnamon Chai Caffeine Free Herbal Infusion	201290	01/06/2015
S14-010759	Herbal teas	Crème Caramel Flavour Rooibos Loose Tea	022015 301432	24/02/2015
S14-010765	Herbal teas	Delicate Camomile	L33441L620 (x14), L33443L620 (x1)	01/12/2015
S14-010767	Herbal teas	Lemon Balm Tea	not declared	24/02/2015
S14-010768	Herbal teas	Camomile	L4022 9A	01/06/2015
S14-010777	Herbal teas	Ginseng Vitality Tea	43826161	12/04/2016
S14-010793	Herbal teas	Heath & Heather Fennel Herbal Infusions	L4014 9C	01/01/2017
S14-010804	Herbal teas	Heath & Heather Rosehip & Hibiscus Herbal Infusions	L4015 9C	01/01/2017
S14-010806	Herbal teas	Clearspring Organic Loose Sencha Tea	41479	24/07/2015
S14-010821	Herbal teas	Yummy Berry Fruit tea for all the family	not declared	01/09/2015

Table 2.1: Plant based supplements PAH concentrations µg/kg whole weight

FERA LIMS No.	S14-010782	S14-010795	S14-010810	S14-010686				
Description	Cranberry tablets	St Johns Wort	Ginko Biloba	Elder Berry Herbal Supplement				
µg/kg whole weight		U%	U%	U%				
acenaphthylene	<0.13	201	0.29	92	7.86	21	<0.13	201
acenaphthene	<1.22	201	1.27	195	2.96	86	<1.23	201
fluorene	<1.12	201	2.39	97	4.64	53	<1.13	201
phenanthrene	<1.7	201	21.87	26	21.12	27	<1.7	201
anthracene	<0.11	201	0.54	46	3.79	22	<0.11	201
fluoranthene	<0.85	201	8.50	29	19.18	23	<0.86	201
benzo[c]fluorene	<0.02	201	0.42	23	0.46	23	<0.02	201
pyrene	<0.94	201	5.06i	43	12.34i	26	<0.95	201
benzo[ghi]fluoranthene	0.05	82	0.63	17	1.87	16	<0.07	201
benz (a) anthracene	<0.08	201	0.51	32	4.23	16	<0.07	201
benzo[b]naphtho[2,1-d]thiophene	<0.04	201	0.15	21	1.11	16	<0.02	201
cyclopenta[c,d]pyrene	<0.01	201	0.01	201	0.04	52	<0.01	201
chrysene	0.10	181	1.01	24	6.77	16	<0.09	201
5-methylchrysene	0.11	24	<0.01	201	<0.01	201	<0.01	201
benzo[b]fluoranthene	0.15	134	0.48	45	3.46	18	<0.1	201
benzo[j]fluoranthene	<0.15	201	0.28	22	1.57	17	<0.02	201
benzo[k]fluoranthene	<0.11	201	0.17	131	1.58	22	<0.11	201
benzo[e]pyrene	0.09	179	0.45	39	2.81	18	<0.08	201
benzo[a]pyrene	<0.13	201	0.19	138	2.63	20	<0.13	201
indeno[1,2,3-cd]pyrene	<0.14	201	0.26	79	1.81	19	<0.1	201
dibenz[ah]anthracene	<0.08	201	<0.08	201	0.42	41	<0.08	201
benzo-[g,h,i]perylene	<0.08	201	0.28	59	1.71	18	<0.08	201
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	0.24	85	<0.1	201
dibenzo[a,e]pyrene	<0.1	201	<0.1	201	<0.27	201	<0.1	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	<0.1	201	<0.1	201	0.18	112	<0.1	201
PAH 4 Sum Lower µg/kg	0.25		2.19		17.09		<0.07	
PAH 4 Sum Upper µg/kg	0.46	89	2.19	20	17.09	9	0.39	103

FERA LIMS No.	S14-010820	S14-010606	S14-010620	S14-010718	Triple Strength Liquid Chlorophyll			
Description	Olive Leaf Extract	Fenugreek	Raspberry leaf			U%		
µg/kg whole weight		U%	U%	U%		U%		
acenaphthylene	2.21	24	0.16	164	2.07	24	0.17	154
acenaphthene	2.28	109	<1.23	201	3.18	80	<1.22	201
fluorene	4.78	51	<1.13	201	7.64	36	<1.12	201
phenanthrene	70.02	22	5.05	71	35.70	23	7.00	53
anthracene	2.50	23	0.42	56	3.07	22	0.53	47
fluoranthene	20.44	23	2.22i	80	16.69i	23	3.58	52
benzo[c]fluorene	0.09	49	0.10	45	0.59	22	0.05	83
pyrene	<0.94	201	3.26i	62	22.12i	23	2.67	73
benzo[ghi]fluoranthene	3.13	16	0.52	18	3.33	16	0.48	18
benz (a) anthracene	2.11	17	0.38	40	4.93	16	0.82	23
benzo[b]naphtho[2,1-d]thiophene	1.42	16	3.05	16	1.36	16	0.41	17
cyclopenta[c,d]pyrene	0.23	18	0.03	69	0.10	25	<0.01	201
chrysene	8.79	16	0.84	27	10.18	16	1.57	20
5-methylchrysene	<0.01	201	<0.01	201	<0.01	201	<0.01	201
benzo[b]fluoranthene	1.35	22	0.34	61	6.89	17	1.93	20
benzo[j]fluoranthene	0.94	17	0.14	33	3.63	17	0.79	18
benzo[k]fluoranthene	0.53	45	<0.11	201	2.76	19	0.62	39
benzo[e]pyrene	1.53	19	1.58	20	6.16	17	2.23	18
benzo[a]pyrene	0.38	70	0.27	98	3.36	19	1.01	31
indeno[1,2,3-cd]pyrene	0.50	43	0.34	61	4.95	16	1.71	20
dibenz[ah]anthracene	0.34	50	<0.08	201	0.65	29	0.21	78
benzo-[g,h,i]perylene	3.98	16	0.54	34	4.55	16	2.06	18
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	0.80	30	0.33	63
dibenzo[a,e]pyrene	<0.1	201	<0.11	201	0.52	42	0.34	61
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	2.56	18	0.13	155	0.79	30	0.43	49
PAH 4 Sum Lower µg/kg	12.63		1.83		25.36		5.33	
PAH 4 Sum Upper µg/kg	12.63	12	1.83	24	25.36	9	5.33	11

FERA LIMS No.	S14-010792	S14-010792	S14-010697	S14-010697	S14-010598	S14-010598	S14-010699	S14-010699
Description	Saw palmetto	Beyond Greens		Barley Grass		Wheat Grass		
µg/kg whole weight		U%		U%		U%		U%
acenaphthylene	0.74	41	0.87i	37	<0.8	201	<0.79	201
acenaphthene	<1.22	201	<1.23	201	1.47	140	1.07	190
fluorene	<1.12	201	1.97	117	3.09	74	<1.08	201
phenanthrene	5.14	69	8.53	45	10.52	44	<2.01	201
anthracene	0.49	50	0.86	33	0.74	39	0.28	88
fluoranthene	3.33	56	2.92	63	2.02i	122	<1.19	201
benzo[c]fluorene	0.06	70	0.09	49	0.39	46	<0.07	201
pyrene	4.30	49	3.78	54	2.04	131	<1.31	201
benzo[ghi]fluoranthene	0.70	17	0.36	19	0.17	154	0.25	97
benz (a) anthracene	0.41	38	0.46	34	<0.25	201	0.16	126
benzo[b]naphtho[2,1-d]thiophene	0.17	20	0.07	33	<0.08	201	<0.09	201
cyclopenta[c,d]pyrene	0.16	20	<0.05	201	<0.01	201	<0.01	201
chrysene	0.71	30	0.97	24	0.19	148	0.21	134
5-methylchrysene	<0.01	201	<0.01	201	<0.02	201	<0.02	201
benzo[b]fluoranthene	0.42	51	0.31	67	<0.14	201	0.25	113
benzo[j]fluoranthene	0.21	25	0.15	32	<0.08	201	0.14	116
benzo[k]fluoranthene	0.13	170	<0.11	201	<0.1	201	0.12	168
benzo[e]pyrene	0.52	35	0.29	58	<0.16	201	<0.16	201
benzo[a]pyrene	0.26	101	0.16	163	<0.12	201	<0.12	201
indeno[1,2,3-cd]pyrene	0.29	71	0.19	106	<0.15	201	0.15	161
dibenz[ah]anthracene	<0.08	201	<0.08	201	<0.09	201	<0.09	201
benzo-[g,h,i]perylene	0.41	42	0.17	95	<0.11	201	0.16	138
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.11	201	<0.11	201	<0.1	201	<0.1	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
PAH 4 Sum Lower µg/kg	1.80		1.90		0.19		0.62	
PAH 4 Sum Upper µg/kg	1.80	24	1.90	23	0.70	98	0.74	69

FERA LIMS No.	S14-010715	S14-010796	S14-010696	S14-010635				
Description	Wheat Grass powder	Maca Powder	Sage leaf	Organic Gotu Kola & Turmeric				
µg/kg whole weight	U%	U%	U%	U%				
acenaphthylene	1.53	107	<0.8	201	0.88	38	3.30	53
acenaphthene	2.88	73	<1.02	201	<0.71	201	4.27	52
fluorene	7.19	37	<1.09	201	1.44	135	<1.09	201
phenanthrene	49.64	23	<2.03	201	14.37	29	97.01	21
anthracene	7.01	21	<0.12	201	1.52	23	11.63	21
fluoranthene	30.93i	22	<1.21	201	10.80	27	49.83i	22
benzo[c]fluorene	2.83	22	<0.08	201	0.40	23	1.17	25
pyrene	20.68i	25	<1.32	201	9.19i	28	44.47i	22
benzo[ghi]fluoranthene	4.35	17	<0.13	201	1.33	20	7.19	16
benz (a) anthracene	3.77	17	<0.10	201	3.21	16	6.77	16
benzo[b]naphtho[2,1-d]thiophene	1.22	21	<0.08	201	1.08	22	0.87	24
cyclopenta[c,d]pyrene	0.40	17	<0.01	201	0.07	33	0.73	16
chrysene	4.85	17	<0.14	201	5.14	16	8.11	16
5-methylchrysene	<0.02	201	<0.02	201	<0.04	201	<0.02	201
benzo[b]fluoranthene	5.50	18	<0.14	201	2.69	19	3.11	19
benzo[j]fluoranthene	1.86	19	<0.08	201	1.42	17	2.25	18
benzo[k]fluoranthene	1.99	20	<0.1	201	1.34	17	1.34	23
benzo[e]pyrene	4.16	19	<0.16	201	2.43	21	2.29	22
benzo[a]pyrene	2.49	19	<0.12	201	2.30	22	2.16	20
indeno[1,2,3-cd]pyrene	2.83	18	<0.12	201	1.59	19	1.71	21
dibenz[ah]anthracene	0.51	39	<0.09	201	0.28	87	<0.24	201
benzo-[g,h,i]perylene	3.08	17	<0.11	201	1.45	19	1.37	23
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	0.23	88	<0.1	201	<0.1	201	0.12	167
dibenzo[a,e]pyrene	0.29	71	<0.1	201	0.33	86	<0.2	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.57	38	<0.1	201	0.33	63	0.22	92
PAH 4 Sum Lower µg/kg	16.61		<0.10		13.34		20.15	
PAH 4 Sum Upper µg/kg	16.61	9	0.50	101	13.34	9	20.15	9

FERA LIMS No.	S14-010642	S14-010633	S14-010803	s14-010802
Description	Ginger root	Fennel Seed capsules	Siberian Ginseng	Triple Ginseng
µg/kg whole weight		U%	U%	U%
acenaphthylene	<0.8	201	1.05i	154
acenaphthene	<1.01	201	1.65	124
fluorene	2.51	89	6.99	38
phenanthrene	24.52	27	57.06	22
anthracene	2.06	24	4.21	22
fluoranthene	19.61i	24	22.87i	23
benzo[c]fluorene	2.85	22	0.74	30
pyrene	15.42i	27	16.54i	26
benzo[ghi]fluoranthene	1.96	20	2.42	19
benz (a) anthracene	4.49	16	4.85	16
benzo[b]naphtho[2,1-d]thiophene	1.72	18	2.33	17
cyclopenta[c,d]pyrene	0.13	22	0.10	25
chrysene	6.47	16	9.00	16
5-methylchrysene	<0.02	201	<0.02	201
benzo[b]fluoranthene	4.79	18	6.45	17
benzo[j]fluoranthene	1.72	19	2.90	18
benzo[k]fluoranthene	1.83	20	2.37	19
benzo[e]pyrene	3.75	19	4.99	18
benzo[a]pyrene	2.21	20	2.56	19
indeno[1,2,3-cd]pyrene	1.42	23	3.23	17
dibenz[ah]anthracene	0.34	55	0.54	37
benzo-[g,h,i]perylene	1.23	24	3.15	17
anthanthrene	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	0.31	66
dibenzo[a,e]pyrene	<0.18	201	0.44	48
dibenzo[a,i]pyrene	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	0.12	167	0.53	41
PAH 4 Sum Lower µg/kg	17.96		22.86	
PAH 4 Sum Upper µg/kg	17.96	9	22.86	9
			12.93	
			12.93	10
			20.34	
				9

FERA LIMS No.	S14-010569	S14-010579	S14-010797	S14-010580				
Description	Organic Andrographis & Holy Basil	Organic Andrographis	Acai	Organic Ginger				
µg/kg whole weight								
acenaphthylene	2.09i	79	1.66i	119	3.02	28	7.13i	34
acenaphthene	5.05	46	3.41	60	1.56	168	2.65	75
fluorene	5.37	46	4.71	47	4.89	71	1.05i	188
phenanthrene	123.82i	21	25.27	27	13.00	43	50.83	23
anthracene	7.62	21	2.26	22	2.20	24	6.15	21
fluoranthene	73.14i	21	10.71i	28	5.44	69	23.58i	23
benzo[c]fluorene	0.42	44	0.95	21	0.23	89	0.63	21
pyrene	48.33i	22	9.68i	29	4.65	74	22.55i	23
benzo[ghi]fluoranthene	4.32	17	1.82	19	0.57	55	4.37	16
benz (a) anthracene	8.63	16	1.32	16	1.10	17	4.16	16
benzo[b]naphtho[2,1-d]thiophene	3.14	17	2.12	16	0.20	111	1.75	16
cyclopenta[c,d]pyrene	0.69	16	<0.18	201	0.06	69	0.83	16
chrysene	9.89	16	2.49	17	0.92	63	5.03	16
5-methylchrysene	<0.02	201	<0.01	201	<0.03	201	<0.01	201
benzo[b]fluoranthene	4.74	18	1.73	20	0.61	61	2.41	19
benzo[j]fluoranthene	2.83	18	1.02	17	0.31	26	1.67	17
benzo[k]fluoranthene	2.02	20	0.57	36	0.25	29	1.04	24
benzo[e]pyrene	3.19	20	0.95	24	0.37	120	1.79	19
benzo[a]pyrene	2.89	19	0.56	46	0.44	92	1.75	22
indeno[1,2,3-cd]pyrene	2.01	20	0.97	23	0.24	109	1.19	21
dibenz[ah]anthracene	0.24	77	<0.12	201	<0.17	201	<0.19	201
benzo-[g,h,i]perylene	1.70	20	0.86	23	0.22	110	1.11	20
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	0.13	155	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.21	201	<0.15	201	<0.25	201	<0.16	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.28	73	0.17	119	<0.1	201	0.22	92
PAH 4 Sum Lower µg/kg	26.15		6.10		3.07		13.35	
PAH 4 Sum Upper µg/kg	26.15	9	6.10	11	3.07	27	13.35	9

FERA LIMS No.	S14-010615	S14-010819	S14-010570	S14-010789			
Description	Artichoke Leaf	Garlic	Echinaforce	Liquorice root			
µg/kg whole weight		U%	U%	U%	U%	U%	U%
acenaphthylene	0.32	170	<0.95	201	<0.58	201	1.31
acenaphthene	<1.31	201	<0.94	201	<0.57	201	<0.96
fluorene	<1.69	201	<0.96	201	0.94	127	5.09
phenanthrene	4.38	115	<2.06	201	1.98	129	20.76
anthracene	0.21	135	<0.09	201	0.10	122	0.99
fluoranthene	<1.81	201	<0.96	201	1.03	116	4.44i
benzo[c]fluorene	<0.1	201	<0.01	201	0.08	33	0.12
pyrene	2.02i	166	<0.95	201	1.30	92	5.11i
benzo[ghi]fluoranthene	0.35	87	<0.08	201	0.12	85	0.94
benz (a) anthracene	0.16	41	<0.04	201	0.14	21	0.57
benzo[b]naphtho[2,1-d]thiophene	<0.11	201	<0.02	201	0.22	18	0.39
cyclopenta[c,d]pyrene	0.17	28	<0.01	201	0.01	201	0.11
chrysene	<0.29	201	<0.09	201	0.29	44	1.05
5-methylchrysene	<0.03	201	<0.01	201	<0.01	201	<0.01
benzo[b]fluoranthene	<0.18	201	<0.1	201	0.16	77	0.39
benzo[j]fluoranthene	0.19	36	<0.02	201	0.07	33	0.26
benzo[k]fluoranthene	0.09	69	<0.09	201	0.05	201	0.15
benzo[e]pyrene	<0.22	201	<0.08	201	0.19	55	0.42
benzo[a]pyrene	0.24	168	<0.12	201	0.11	128	0.29
indeno[1,2,3-cd]pyrene	<0.28	201	<0.08	201	<0.12	201	0.27
dibenz[ah]anthracene	<0.17	201	<0.07	201	<0.04	201	<0.07
benzo-[g,h,i]perylene	0.29	91	<0.07	201	0.12	69	0.31
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,e]pyrene	<0.25	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
coronene	0.13	155	<0.1	201	<0.1	201	<0.1
PAH 4 Sum Lower µg/kg	0.40		<0.04		0.70		2.30
PAH 4 Sum Upper µg/kg	0.87	92	0.35	106	0.70	33	2.30
							18

FERA LIMS No.	S14-010706	S14-010576	Extra Strength Peppermint Oil	S14-010698	Dandelion	S14-010578	Ginkgo Bilboa
Description	Avena Sativa						
µg/kg whole weight		U%		U%		U%	U%
acenaphthylene	<0.58	201	8.85i	30	<0.58	201	0.24
acenaphthene	<0.57	201	7.52i	33	<0.57	201	<0.61
fluorene	<0.59	201	1.54i	129	<0.59	201	<0.68
phenanthrene	<1.26	201	<2.09	201	<1.25	201	1.14
anthracene	<0.06	201	<0.17	201	<0.06	201	<0.06
fluoranthene	<0.59	201	<0.97	201	0.62	188	0.94
benzo[c]fluorene	<0.01	201	<0.02	201	<0.01	201	0.02
pyrene	<0.58	201	<0.97	201	0.60	194	1.54
benzo[ghi]fluoranthene	<0.05	201	<0.09	201	<0.08	201	0.22
benz (a) anthracene	<0.02	201	<0.09	201	<0.04	201	0.19
benzo[b]naphtho[2,1-d]thiophene	<0.01	201	<0.06	201	<0.01	201	0.23
cyclopenta[c,d]pyrene	<0.01	201	<0.01	201	<0.01	201	<0.01
chrysene	<0.06	201	<0.09	201	<0.06	201	0.54
5-methylchrysene	<0.01	201	<0.01	201	<0.01	201	<0.01
benzo[b]fluoranthene	<0.06	201	<0.1	201	<0.06	201	0.14
benzo[j]fluoranthene	<0.02	201	0.04	53	<0.02	201	0.07
benzo[k]fluoranthene	<0.05	201	<0.09	201	<0.05	201	<0.05
benzo[e]pyrene	<0.05	201	<0.08	201	<0.05	201	0.19
benzo[a]pyrene	<0.08	201	<0.12	201	<0.08	201	<0.07
indeno[1,2,3-cd]pyrene	<0.05	201	<0.08	201	<0.05	201	<0.07
dibenz[ah]anthracene	<0.04	201	<0.07	201	<0.04	201	<0.04
benzo-[g,h,i]perylene	<0.04	201	<0.07	201	<0.04	201	0.07
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,e]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
coronene	<0.1	201	<0.1	201	<0.1	201	<0.1
PAH 4 Sum Lower µg/kg	<0.02		<0.09		<0.04		0.87
PAH 4 Sum Upper µg/kg	0.22	108	0.40	101	0.24	103	0.94
							26

FERA LIMS No.	S14-010571	S14-010713	S14-010714	S14-010791			
Description	Milk Thistle	Plantago	Neem Oil	Beetroot extract			
µg/kg whole weight		U%	U%	U%	U%	U%	U%
acenaphthylene	0.22	76	0.27	63	6.65	21	0.29
acenaphthene	<0.62	201	<0.6	201	0.67	186	<1.01
fluorene	<0.69	201	<0.67	201	2.38	62	<1.13
phenanthrene	<1.02	201	<0.99	201	9.59	30	<1.66
anthracene	<0.06	201	<0.06	201	1.65	22	<0.1
fluoranthene	<0.58	201	<0.56	201	4.65	32	<0.94
benzo[c]fluorene	<0.01	201	<0.01	201	0.16	24	<0.02
pyrene	<0.53	201	<0.52	201	5.12i	30	<0.87
benzo[ghi]fluoranthene	0.03	69	0.03	69	1.03	16	0.05
benz (a) anthracene	<0.04	201	<0.04	201	0.67	20	<0.07
benzo[b]naphtho[2,1-d]thiophene	<0.05	201	<0.04	201	0.22	40	<0.07
cyclopenta[c,d]pyrene	<0.01	201	<0.01	201	1.10	16	<0.01
chrysene	<0.05	201	<0.05	201	0.73	21	<0.09
5-methylchrysene	<0.01	201	<0.01	201	0.01	201	<0.01
benzo[b]fluoranthene	<0.06	201	<0.06	201	0.51	29	<0.1
benzo[j]fluoranthene	<0.01	201	0.01	201	0.36	18	0.03
benzo[k]fluoranthene	<0.05	201	<0.05	201	0.25	43	<0.08
benzo[e]pyrene	0.04	53	0.04	53	0.55	17	0.06
benzo[a]pyrene	<0.08	201	<0.08	201	0.69	26	<0.13
indeno[1,2,3-cd]pyrene	<0.03	201	<0.03	201	0.49	16	<0.07
dibenz[ah]anthracene	<0.05	201	<0.04	201	<0.09	201	<0.07
benzo-[g,h,i]perylene	0.02	101	<0.01	201	0.62	16	0.05
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	0.13	155	<0.1
dibenzo[a,e]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
coronene	<0.1	201	<0.1	201	<0.1	201	<0.1
PAH 4 Sum Lower µg/kg	<0.04		<0.04		2.60		<0.07
PAH 4 Sum Upper µg/kg	0.23	104	0.23	104	2.60	12	0.39
							103

FERA LIMS No.	S14-010790	S14-010781		S14-010787		S14-010689		
Description	Hawthorn berries		Odour controlled Garlic		Manchurian Ginseng	Papaya Enzyme		
µg/kg whole weight		U%		U%		U%		
acenaphthylene	0.85	39	0.83	59	0.41	71	0.35	83
acenaphthene	<1.04	201	<1.7	201	<1.04	201	<1.04	201
fluorene	2.72	87	<1.89	201	3.63	67	<1.16	201
phenanthrene	22.17	26	<2.8	201	2.32	149	<1.72	201
anthracene	1.13	29	<0.17	201	0.51	48	<0.11	201
fluoranthene	7.70	33	<1.58	201	<0.97	201	<0.97	201
benzo[c]fluorene	0.16	33	<0.06	201	<0.02	201	<0.02	201
pyrene	4.92	42	<1.46	201	<0.89	201	<0.89	201
benzo[ghi]fluoranthene	0.76	17	0.08	77	0.04	101	0.03	134
benz (a) anthracene	0.56	30	<0.11	201	<0.07	201	<0.07	-201
benzo[b]naphtho[2,1-d]thiophene	0.48	37	<0.12	201	<0.08	201	<0.08	201
cyclopenta[c,d]pyrene	<0.01	201	<0.02	201	<0.01	201	<0.01	201
chrysene	1.21	22	<0.14	201	<0.09	201	<0.09	-201
5-methylchrysene	0.02	101	<0.01	201	<0.01	201	<0.01	201
benzo[b]fluoranthene	0.40	53	<0.16	201	<0.1	201	<0.1	-201
benzo[j]fluoranthene	0.32	18	0.03	134	0.03	69	<0.01	201
benzo[k]fluoranthene	0.16	101	<0.14	201	<0.08	201	<0.08	201
benzo[e]pyrene	0.44	19	0.47i	21	0.11	40	0.05i	82
benzo[a]pyrene	0.19	127	<0.2	201	<0.16	201	<0.12	-201
indeno[1,2,3-cd]pyrene	0.27	22	<0.12	201	<0.09	201	<0.04	201
dibenz[ah]anthracene	<0.11	201	0.32	77	0.15	108	<0.09	201
benzo-[g,h,i]perylene	0.39	19	0.08	77	0.06	69	<0.02	201
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	0.13	155	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.1	201	<0.15	201	<0.1	201	<0.1	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
PAH 4 Sum Lower µg/kg	2.36		<0.11		<0.07		<0.07	
PAH 4 Sum Upper µg/kg	2.36	19	0.61	103	0.42	105	0.38	102

FERA LIMS No.	S14-010641	s14-010644	S14-010581	S14-010786				
Description	Slippery Elm	Whole Leaf Aloe Vera	Aloe vera Gel Whole Leaf	Guarana				
µg/kg whole weight		U%	U%	U%				
acenaphthylene	0.33	87	<0.69	201	<0.69	201	<1.15	201
acenaphthene	<1.04	201	<0.94	201	<0.94	201	<1.58	201
fluorene	<1.16	201	<0.82	201	<0.82	201	<1.38	201
phenanthrene	<1.71	201	<1.01	201	<1.01	201	<1.7	201
anthracene	<0.11	201	<0.07	201	<0.07	201	0.12	185
fluoranthene	<0.97	201	<0.51	201	<0.51	201	<0.86	201
benzo[c]fluorene	<0.02	201	<0.01	201	<0.01	201	0.01	201
pyrene	<0.89	201	<0.62	201	<0.62	201	<1.04	201
benzo[ghi]fluoranthene	0.10	43	<0.06	201	<0.06	201	<0.1	201
benz (a) anthracene	0.10	141	<0.01	201	<0.02	201	0.03	134
benzo[b]naphtho[2,1-d]thiophene	<0.08	201	<0.01	201	<0.01	201	0.02	101
cyclopenta[c,d]pyrene	<0.01	201	<0.01	201	<0.01	201	<0.01	201
chrysene	0.17	107	<0.04	201	<0.04	201	0.08	176
5-methylchrysene	<0.01	201	<0.01	201	<0.01	201	<0.01	201
benzo[b]fluoranthene	0.15	134	<0.05	201	<0.05	201	<0.09	201
benzo[j]fluoranthene	0.07	33	<0.01	201	<0.01	201	<0.03	201
benzo[k]fluoranthene	<0.08	201	<0.05	201	<0.05	201	<0.08	201
benzo[e]pyrene	0.24	24	<0.01	201	<0.01	201	0.04	101
benzo[a]pyrene	<0.18	-201	<0.08	201	<0.08	201	<0.16	201
indeno[1,2,3-cd]pyrene	<0.15	201	<0.05	201	<0.05	201	<0.08	201
dibenz[ah]anthracene	0.08	201	<0.04	201	<0.04	201	<0.07	201
benzo-[g,h,i]perylene	0.13	35	<0.01	201	<0.02	201	0.05	82
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	0.13	155	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
PAH 4 Sum Lower µg/kg	0.42		<0.01		<0.02		0.11	
PAH 4 Sum Upper µg/kg	0.60	79	0.18	115	0.19	110	0.36	110

FERA LIMS No.	S14-010619	S14-010716	S14-010688	S14-010700				
Description	Cayenne capsules	Aloe vera Juice with Manuka Honey	Marshm allow	Agnus Castus				
µg/kg whole weight		U%	U%	U%	U%	U%		
acenaphthylene	1.66	137	<0.69	201	<1.14	201	<1.15	201
acenaphthene	2.46	126	<0.95	201	<1.56	201	<1.58	201
fluorene	6.13	49	<0.83	201	1.46	187	<1.38	201
phenanthrene	45.38	22	<1.02	201	19.57	27	3.40	102
anthracene	2.90	22	<0.07	201	0.48	50	0.20	112
fluoranthene	22.22i	22	<0.51	201	9.91	27	0.90	192
benzo[c]fluorene	1.03	21	<0.02	201	0.18	24	0.02	102
pyrene	15.73i	25	<0.62	201	7.14	36	<1.04	201
benzo[ghi]fluoranthene	2.97	17	<0.06	201	1.30	22	0.10	201
benz (a) anthracene	2.09	16	<0.02	201	1.09	16	0.10	43
benzo[b]naphtho[2,1-d]thiophene	1.11	16	<0.01	201	0.32	17	<0.01	201
cyclopenta[c,d]pyrene	0.64	16	<0.01	201	0.08	30	0.01	201
chrysene	5.75	16	<0.04	201	1.99	17	0.18	79
5-methylchrysene	0.08	30	<0.01	201	<0.04	201	<0.01	201
benzo[b]fluoranthene	2.05	19	<0.05	201	1.79	20	0.14	130
benzo[j]fluoranthene	1.64	17	<0.01	201	0.76	17	0.06	37
benzo[k]fluoranthene	0.81	26	<0.05	201	0.64	30	<0.08	201
benzo[e]pyrene	1.08	17	<0.01	201	1.46	17	0.10	43
benzo[a]pyrene	0.82	34	<0.08	201	0.86	33	<0.13	201
indeno[1,2,3-cd]pyrene	0.91	24	<0.05	201	1.13	21	<0.13	201
dibenz[ah]anthracene	<0.13	201	<0.04	201	0.18	79	<0.07	201
benzo-[g,h,i]perylene	0.80	17	<0.01	201	1.25	16	0.10	43
anthanthrene	0.13	155	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	0.25	82	<0.1	201	0.46	46	<0.1	201
dibenzo[a,e]pyrene	<0.15	201	<0.1	201	<0.23	201	<0.1	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	0.10	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.14	144	<0.1	201	0.26	79	<0.1	201
PAH 4 Sum Lower µg/kg	10.71		<0.02		5.73		0.42	
PAH 4 Sum Upper µg/kg	10.71	10	0.19	110	5.73	10	0.55	64

FERA LIMS No.	S14-010626	
Description	Evening Primrose Oil	
µg/kg whole weight		U%
acenaphthylene	12.60	25
acenaphthene	23.25	23
fluorene	18.49	24
phenanthrene	52.48	22
anthracene	4.92	21
fluoranthene	10.26i	24
benzo[c]fluorene	0.04	54
pyrene	6.61i	32
benzo[ghi]fluoranthene	0.43	40
benz (a) anthracene	0.42	17
benzo[b]naphtho[2,1-d]thiophene	<0.2	201
cyclopenta[c,d]pyrene	0.09	27
chrysene	0.66	22
5-methylchrysene	<0.02	201
benzo[b]fluoranthene	0.16	77
benzo[j]fluoranthene	0.07	33
benzo[k]fluoranthene	<0.06	201
benzo[e]pyrene	0.18	20
benzo[a]pyrene	0.09	201
indeno[1,2,3-cd]pyrene	<0.08	201
dibenz[ah]anthracene	<0.05	201
benzo-[g,h,i]perylene	0.05	43
anthanthrene	<0.1	201
dibenzo[a,l]pyrene	<0.1	201
dibenzo[a,e]pyrene	<0.1	201
dibenzo[a,i]pyrene	<0.1	201
dibenzo[a,h]pyrene	<0.1	201
coronene	<0.1	201
PAH 4 Sum Lower µg/kg	1.33	
PAH 4 Sum Upper µg/kg	1.33	20

Table 2.2: Algae based supplements PAH concentrations µg/kg whole weight

FERA LIMS No.	S14-010691	S14-010568	S14-010563	S14-010572
Description	Chlorella	Spirulina powder	Chlorella Tablets	Spirulina
µg/kg whole weight		U%	U%	U%
acenaphthylene	0.52	76	0.58i	53
acenaphthene	<1.14	201	7.40	28
fluorene	2.80	105	14.78	25
phenanthrene	8.78	48	49.54	22
anthracene	0.40	54	3.74	21
fluoranthene	4.00	58	22.74	23
benzo[c]fluorene	0.06	39	9.86	21
pyrene	4.83	44	14.76i	24
benzo[ghi]fluoranthene	0.61	28	3.40	16
benz (a) anthracene	0.22	18	8.30	16
benzo[b]naphtho[2,1-d]thiophene	0.12	52	9.52i	16
cyclopenta[c,d]pyrene	0.02	101	<0.06	201
chrysene	0.50	25	13.03	16
5-methylchrysene	<0.01	201	0.34	17
benzo[b]fluoranthene	0.25	58	14.18	17
benzo[j]fluoranthene	0.12	24	3.47	17
benzo[k]fluoranthene	0.09	28	3.96i	17
benzo[e]pyrene	0.25	23	18.00	17
benzo[a]pyrene	<0.2	201	3.83	19
indeno[1,2,3-cd]pyrene	<0.18	201	3.45	17
dibenz[ah]anthracene	<0.09	201	1.04i	28
benzo-[g,h,i]perylene	0.21	18	5.47	16
anthanthrene	<0.1	201	0.17	119
dibenzo[a,l]pyrene	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.11	201	0.58	51
dibenzo[a,i]pyrene	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	<0.1	201	0.96	26
PAH 4 Sum Lower µg/kg	0.97		39.34	
PAH 4 Sum Upper µg/kg	1.17	38	39.34	9
			14.37	9
			47.62	9

FERA LIMS No.	S14-010703	S14-010799	S14-010709	S14-010575			
Description	Super Greens	Kelp Tablets	Spirulina powder	Super Greens Powder			
µg/kg whole weight		U%	U%	U%			U%
acenaphthylene	4.96	51	<0.19	201	0.39	100	<0.86
acenaphthene	11.60	34	<1.14	201	<1.14	201	<1.12
fluorene	59.38	22	<1.44	201	2.30	127	2.68
phenanthrene	59.17	22	<1.88	201	16.43	31	13.95
anthracene	7.61	21	<0.1	201	0.90	31	1.13
fluoranthene	59.45i	21	<1.09	201	18.61	24	10.01
benzo[c]fluorene	1.09	21	0.02	102	0.50	21	0.36
pyrene	26.07i	22	1.16i	165	8.12i	31	7.88i
benzo[ghi]fluoranthene	9.63	16	0.09	156	4.67	16	2.59
benz (a) anthracene	10.21	16	0.06	37	3.77	16	2.64
benzo[b]naphtho[2,1-d]thiophene	4.52	16	0.04	151	7.35	16	1.90
cyclopenta[c,d]pyrene	1.21	16	<0.01	201	0.22	18	0.17
chrysene	18.64	16	0.11	92	10.76	16	5.41
5-methylchrysene	<0.21	201	<0.01	201	<0.46	201	<0.31
benzo[b]fluoranthene	14.03	17	0.08	176	9.50	17	4.52
benzo[j]fluoranthene	6.18	17	0.03	69	3.55	17	1.83
benzo[k]fluoranthene	5.88i	17	<0.02	201	3.65i	17	1.79i
benzo[e]pyrene	10.22	17	0.38	20	10.53	17	4.99
benzo[a]pyrene	5.89	17	<0.2	201	2.00	26	1.64
indeno[1,2,3-cd]pyrene	7.39	16	<0.07	201	4.43	16	2.36
dibenz[ah]anthracene	1.03	21	0.57	35	0.62	33	0.32
benzo-[g,h,i]perylene	6.57	16	0.06	37	4.11	16	2.18
anthanthrene	0.82	29	<0.1	201	<0.1	201	<0.1
dibenzo[a,l]pyrene	2.23	18	<0.1	201	0.11	183	0.19
dibenzo[a,e]pyrene	0.68	33	<0.1	201	0.18	112	<0.11
dibenzo[a,i]pyrene	0.50	43	<0.1	201	0.14	144	<0.11
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
coronene	1.01	25	<0.1	201	0.85	28	0.56
PAH 4 Sum Lower µg/kg	48.77		0.25		26.03		14.21
PAH 4 Sum Upper µg/kg	48.77	9	0.45	97	26.03	10	14.21
							9

FERA LIMS No.	S14-010562 Shatavari for women - seaweed, spirulina & ginger	S14-010566 Tulsi for the mind-seaweed, spirulina & ginger	S14-010564 Reg Ginseng for energy-seaweed, spirulina & ginger	S14-010565 Mushroom Formula with seaweed, spirulina & ginger				
μg/kg whole weight		U%	U%	U%				
acenaphthylene	5.93	22	2.48i	26	8.28	22	2.77	25
acenaphthene	<1.14	201	1.81i	127	<1.13	201	1.28	179
fluorene	4.34	69	9.54	37	26.79	24	2.86	103
phenanthrene	33.77	24	41.05	23	125.96	21	17.79	30
anthracene	2.46	23	2.81	22	11.79	21	2.70	22
fluoranthene	11.67	28	19.88	24	95.87	21	20.42	24
benzo[c]fluorene	0.40	22	0.29	22	2.27	21	0.50	21
pyrene	9.67i	29	16.80i	24	59.84	21	19.04i	23
benzo[ghi]fluoranthene	1.57	18	3.92	16	8.61	16	3.46	16
benz (a) anthracene	0.93	16	3.00	16	10.65	16	5.05	16
benzo[b]naphtho[2,1-d]thiophene	<0.05	201	1.97	16	3.34	16	1.12	17
cyclopenta[c,d]pyrene	0.05	43	0.28	17	0.57	16	2.04	16
chrysene	1.59	17	5.61	16	14.47	16	6.54	16
5-methylchrysene	<0.04	201	<0.12	201	<0.47	201	<0.21	201
benzo[b]fluoranthene	0.98	22	3.68	17	7.79	17	4.39	17
benzo[j]fluoranthene	0.57	17	2.29	17	3.80	17	2.86	17
benzo[k]fluoranthene	0.45	17	1.70	17	3.46i	17	2.30	17
benzo[e]pyrene	1.58	17	3.93	17	10.47	17	4.08	17
benzo[a]pyrene	0.60	69	2.19	25	5.23	19	4.43	19
indeno[1,2,3-cd]pyrene	0.86	23	2.78	17	4.33	16	3.49	16
dibenz[ah]anthracene	<0.13	201	0.29	64	0.80	28	0.51	39
benzo-[g,h,i]perylene	0.85	16	2.81	16	5.03	16	3.34	16
anthanthrene	<0.1	201	0.14	144	<0.1	201	0.50	43
dibenzo[a,l]pyrene	0.29	71	0.16	126	0.22	92	<0.1	201
dibenzo[a,e]pyrene	<0.17	201	0.36	58	0.72	32	0.40	52
dibenzo[a,i]pyrene	<0.12	201	0.18	112	0.56	39	0.28	73
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.32	64	0.95	26	1.19	23	0.74	31
PAH 4 Sum Lower μg/kg	4.10		14.48		38.14		20.41	
PAH 4 Sum Upper μg/kg	4.10	14	14.48	9	38.14	9	20.41	9

FERA LIMS No.	S14-010567 Spirulina tablets	S14-010637 Spirulina Powder	S14-010818 Chlorella Powder	S14-010800 Spirulina tablets		
Description						
µg/kg whole weight		U%	U%	U%	U%	U%
acenaphthylene	1.57	32	5.81	33	1.67i	91
acenaphthene	<1.14	201	<0.87	201	9.37i	28
fluorene	4.72	64	5.74i	48	20.55	24
phenanthrene	27.29	25	43.15	22	64.88	22
anthracene	2.32	23	4.18	21	6.70	21
fluoranthene	29.58	22	48.64	21	21.71	23
benzo[c]fluorene	1.09	21	0.99	21	0.49	21
pyrene	16.87i	24	30.77i	22	20.51i	23
benzo[ghi]fluoranthene	7.40	16	14.08	16	3.37	17
benz (a) anthracene	9.33	16	9.68	16	2.27	16
benzo[b]naphtho[2,1-d]thiophene	13.08	16	4.44	16	1.16	16
cyclopenta[c,d]pyrene	<0.19	201	4.09	16	0.37	17
chrysene	21.42	16	16.18	16	5.38	16
5-methylchrysene	<0.1	201	<0.11	201	<0.03	201
benzo[b]fluoranthene	16.67	17	13.38	17	4.39	17
benzo[j]fluoranthene	6.28	17	6.33	17	2.13	17
benzo[k]fluoranthene	18.82	17	6.15i	17	1.72	17
benzo[e]pyrene	21.92	17	11.83	17	3.60	18
benzo[a]pyrene	6.35	18	7.90	17	1.70	24
indeno[1,2,3-cd]pyrene	10.40	16	9.88	16	2.89	17
dibenz[ah]anthracene	1.54	20	1.14	34	<0.16	201
benzo-[g,h,i]perylene	11.64	16	11.50	16	3.09	16
anthanthrene	<0.1	201	1.29	22	0.33	63
dibenzo[a,l]pyrene	0.27	76	2.32	18	0.82	29
dibenzo[a,e]pyrene	1.38	21	0.63	35	<0.31	201
dibenzo[a,i]pyrene	0.38	55	0.55	40	0.18	112
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201
coronene	3.48	17	2.21	18	0.61	36
PAH 4 Sum Lower µg/kg	53.77		47.14		13.74	
PAH 4 Sum Upper µg/kg	53.77	9	47.14	8	13.74	9
					50.34	9

FERA LIMS No.	S14-010801 Spirulina Powder	S14-010599 Spirulina Capsules	S14-010783 Chlorella & Spirulina Powder	S14-010643 Sea Kelp				
Description	μg/kg whole weight	U%	U%	U%	U%			
acenaphthylene	<0.74	201	<0.74	201	20.46i	22	<0.74	201
acenaphthene	<0.87	201	<0.86	201	10.04	28	<0.87	201
fluorene	<1.24	201	<1.23	201	42.33i	23	<1.24	201
phenanthrene	7.31	48	2.59	122	162.34	21	<1.57	201
anthracene	0.23	73	<0.08	201	28.20	21	0.09	179
fluoranthene	6.74	35	1.57	124	43.98i	22	<0.97	201
benzo[c]fluorene	0.14	25	<0.01	201	7.00	21	0.02	102
pyrene	5.26	43	<0.98	201	90.10i	21	<0.99	201
benzo[ghi]fluoranthene	1.35	20	0.10	161	12.47	16	<0.08	201
benz (a) anthracene	0.77	16	0.09	27	37.68	16	0.09	27
benzo[b]naphtho[2,1-d]thiophene	0.29	17	0.19	19	20.34	201	<0.09	201
cyclopenta[c,d]pyrene	0.10	25	<0.01	201	3.02	16	<0.01	201
chrysene	1.27	19	0.25	58	62.19	16	0.19	75
5-methylchrysene	<0.01	201	<0.01	201	<0.82	201	<0.01	201
benzo[b]fluoranthene	1.01	23	0.13	124	13.70	17	0.12	134
benzo[j]fluoranthene	0.56	17	<0.03	201	6.40	17	<0.03	201
benzo[k]fluoranthene	0.41	18	<0.05	201	4.65	17	<0.04	201
benzo[e]pyrene	0.73	39	<0.13	201	21.98	17	0.17	154
benzo[a]pyrene	0.36	85	<0.15	201	11.05	17	<0.15	201
indeno[1,2,3-cd]pyrene	0.45	35	<0.07	201	5.38	16	<0.11	201
dibenz[ah]anthracene	<0.16	201	<0.16	201	1.48	201	<0.17	201
benzo-[g,h,i]perylene	0.46	18	0.08	52	9.78	16	0.12	37
anthanthrene	<0.1	201	<0.1	201	0.55	33	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.1	201	<0.1	201	<1.45	39	<0.1	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	71	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	<0.1	201	<0.1	201	2.54	25	<0.1	201
PAH 4 Sum Lower μg/kg	3.41		0.47		124.62		0.40	
PAH 4 Sum Upper μg/kg	3.41	14	0.62	60	124.62	10	0.55	67

FERA LIMS No.	S14-010798
Description	Natural Chinese Chlorella
µg/kg whole weight	U%
acenaphthylene	3.04
acenaphthene	2.53
fluorene	18.08i
phenanthrene	2.87
anthracene	5.11
fluoranthene	26.14i
benzo[c]fluorene	1.75
pyrene	59.88i
benzo[ghi]fluoranthene	5.53
benz (a) anthracene	19.80
benzo[b]naphtho[2,1-d]thiophene	11.46
cyclopenta[c,d]pyrene	0.27
chrysene	41.54
5-methylchrysene	1.52i
benzo[b]fluoranthene	7.44
benzo[jj]fluoranthene	1.80
benzo[k]fluoranthene	1.65i
benzo[e]pyrene	8.76
benzo[a]pyrene	3.38
indeno[1,2,3-cd]pyrene	1.96
dibenz[ah]anthracene	0.36
benzo-[g,h,i]perylene	3.14
anthanthrene	0.22
dibenzo[a,l]pyrene	<0.1
dibenzo[a,e]pyrene	<0.27
dibenzo[a,i]pyrene	<0.11
dibenzo[a,h]pyrene	<0.1
coronene	0.39
PAH 4 Sum Lower µg/kg	72.16
PAH 4 Sum Upper µg/kg	72.16
	10

Table 2.3: Propolis and bee products PAH concentrations µg/kg whole weight

FERA LIMS No.	S14-010702	S14-010708	S14-010586	S14-010682 Organic Vita Complex honey with pollen, royal jelly and propolis
Description	Propoli EVSP Balsamic Syrup	Propolis Herbal Elixir	Pollen de Fleurs	
µg/kg whole weight		U%	U%	U%
acenaphthylene	<0.09	201	0.26	72
acenaphthene	<0.62	201	<0.61	201
fluorene	<0.73	201	<0.72	201
phenanthrene	<1.06	201	1.56	136
anthracene	<0.06	201	0.12	102
fluoranthene	<0.59	201	0.70	167
benzo[c]fluorene	<0.02	201	<0.03	201
pyrene	<0.69	201	2.12	68
benzo[ghi]fluoranthene	<0.07	201	0.09	156
benz (a) anthracene	0.06	37	0.08	30
benzo[b]naphtho[2,1-d]thiophene	<0.05	201	<0.06	201
cyclopenta[c,d]pyrene	<0.01	201	<0.01	201
chrysene	<0.09	201	<0.09	201
5-methylchrysene	<0.01	201	<0.01	201
benzo[b]fluoranthene	0.06	168	0.06	168
benzo[j]fluoranthene	<0.01	201	0.03	69
benzo[k]fluoranthene	<0.01	201	<0.03	201
benzo[e]pyrene	0.11	110	<0.06	201
benzo[a]pyrene	<0.08	201	<0.08	201
indeno[1,2,3-cd]pyrene	<0.06	201	<0.06	201
dibenz[ah]anthracene	<0.09	201	<0.06	201
benzo-[g,h,i]perylene	0.05	43	0.10	25
anthanthrene	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.1	201	<0.1	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	<0.1	201	<0.1	201
PAH 4 Sum Lower µg/kg	0.12		0.14	
PAH 4 Sum Upper µg/kg	0.29	91	0.31	85
			0.61	69
			0.61	67

FERA LIMS No.	S14-010573	S14-010574	S14-010636	S14-010770				
Description	Propolis Herbal Elixir	Childrens Propolis herbal Elixir	Propolis Capsules	Propolis Throat Mix				
µg/kg whole weight		U%	U%	U%				
acenaphthylene	<0.31	201	<0.44	201	3.22	23	0.59	37
acenaphthene	<0.61	201	<0.62	201	2.22	94	<0.62	201
fluorene	<0.72	201	<0.72	201	15.97	26	0.82	177
phenanthrene	<1.05	201	<1.05	201	66.15	22	3.20	69
anthracene	<0.06	201	<0.06	201	5.27i	21	0.43i	35
fluoranthene	<0.58	201	<0.58	201	29.30	22	3.62	38
benzo[c]fluorene	<0.01	201	<0.01	201	0.93	21	0.19	24
pyrene	<0.69	201	<0.69	201	24.68i	23	3.41i	46
benzo[ghi]fluoranthene	<0.07	201	<0.07	201	3.70	17	1.00	21
benz (a) anthracene	0.02	101	<0.03	201	5.19	16	1.71	16
benzo[b]naphtho[2,1-d]thiophene	<0.05	201	<0.05	201	3.02	17	0.39	30
cyclopenta[c,d]pyrene	<0.01	201	<0.01	201	0.48	16	0.21	18
chrysene	<0.09	201	<0.09	201	9.68	16	1.92	18
5-methylchrysene	<0.01	201	<0.01	201	0.03	69	<0.03	201
benzo[b]fluoranthene	<0.05	201	<0.05	201	2.95	18	2.00	18
benzo[j]fluoranthene	<0.01	201	<0.01	201	1.67	17	1.39	17
benzo[k]fluoranthene	<0.01	201	<0.01	201	1.07	17	1.04	17
benzo[e]pyrene	<0.06	201	0.08	151	4.22	17	2.00	18
benzo[a]pyrene	<0.08	201	<0.08	201	2.97	19	2.50	18
indeno[1,2,3-cd]pyrene	<0.04	201	<0.04	201	1.71	18	2.26	16
dibenz[ah]anthracene	<0.06	201	0.24	52	0.53	41	0.33	40
benzo-[g,h,i]perylene	0.02	101	<0.03	201	2.62	16	2.68	16
anthanthrene	<0.1	201	<0.1	201	0.28	73	0.19	106
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	0.60	37	<0.1	201
dibenzo[a,e]pyrene	<0.1	201	<0.1	201	<0.28	201	<0.14	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	0.14	144	0.21	97
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	<0.1	201	<0.1	201	0.37	56	0.55	40
PAH 4 Sum Lower µg/kg	0.02		<0.03		20.79		8.13	
PAH 4 Sum Upper µg/kg	0.24	109	0.25	107	20.79	9	8.13	9

FERA LIMS No.	S14-010788	S14-010769	Pure Bee Pollen	
Description	Bee Propolis		Pure Bee Pollen	
µg/kg whole weight		U%	U%	
acenaphthylene	19.20i	21	3.53	23
acenaphthene	28.19i	22	7.87	33
fluorene	7.48i	38	24.93	23
phenanthrene	197.05	21	134.74	21
anthracene	25.61i	21	9.61i	21
fluoranthene	98.51i	21	49.77	21
benzo[c]fluorene	3.38	21	1.95	21
pyrene	68.71i	21	30.60i	22
benzo[ghi]fluoranthene	12.91	16	3.13	18
benz (a) anthracene	19.19	16	4.87	16
benzo[b]naphtho[2,1-d]thiophene	9.00	16	1.57	19
cyclopenta[c,d]pyrene	0.16	20	0.37	17
chrysene	34.88	16	7.41	16
5-methylchrysene	<0.11	201	<0.03	201
benzo[b]fluoranthene	17.64	17	5.43	17
benzo[j]fluoranthene	7.73	17	2.76	17
benzo[k]fluoranthene	6.73	17	2.30	17
benzo[e]pyrene	15.67	17	4.89	17
benzo[a]pyrene	12.12i	17	3.54	18
indeno[1,2,3-cd]pyrene	8.96	16	3.49	16
dibenz[ah]anthracene	1.88	19	0.80	30
benzo-[g,h,i]perylene	8.94	16	3.87	16
anthanthrene	1.51	21	<0.1	201
dibenzo[a,l]pyrene	0.69	33	1.63	20
dibenzo[a,e]pyrene	1.13	24	0.47	45
dibenzo[a,i]pyrene	1.17	23	0.46	46
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	1.14	24	0.56	39
PAH 4 Sum Lower µg/kg	83.83		21.25	
PAH 4 Sum Upper µg/kg	83.83	9	21.25	9

Table 2.4: Dried spices and herbs PAH concentrations µg/kg whole weight

FERA LIMS No.	S14-010608	S14-010610	S14-010612	S14-010613				
Description	Value Ground Cumin	Rosemary	Mixed Spice	Ground white pepper				
µg/kg whole weight								
acenaphthylene	<1.14	201	<1.14	201	4.27	57	6.15	43
acenaphthene	<1.24	201	<1.24	201	<1.24	201	<1.26	201
fluorene	2.68	103	<1.34	201	11.89	31	7.26	43
phenanthrene	12.59	36	2.33	159	65.60	22	35.15	24
anthracene	0.76	45	0.16	189	3.67	23	4.68	22
fluoranthene	4.32	51	1.40	144	22.27	23	18.16	24
benzo[c]fluorene	0.11	28	0.01	201	0.67	21	0.36	22
pyrene	3.63	56	1.34i	142	21.10i	23	12.17i	26
benzo[ghi]fluoranthene	0.79	24	0.18	79	4.06	16	2.04	18
benz (a) anthracene	0.34	20	0.58	17	3.13	16	1.61	16
benzo[b]naphtho[2,1-d]thiophene	0.82	17	0.23	24	0.52	18	0.31	20
cyclopenta[c,d]pyrene	<0.03	201	0.01	201	0.87	16	0.20	19
chrysene	1.03	24	0.77	28	6.46	16	2.68	17
5-methylchrysene	<0.02	201	<0.01	201	0.08	30	0.05	43
benzo[b]fluoranthene	0.56	40	0.57	39	2.21	19	1.46	22
benzo[j]fluoranthene	0.36	18	0.22	19	2.13	17	1.06	17
benzo[k]fluoranthene	0.18	20	0.24	19	1.00	17	0.70	17
benzo[e]pyrene	0.77	35	0.33	75	1.23	26	0.84	35
benzo[a]pyrene	0.48	61	0.24	118	1.11	30	0.95	34
indeno[1,2,3-cd]pyrene	0.33	45	<0.18	201	0.83	23	0.57	32
dibenz[ah]anthracene	1.21	35	<0.19	201	<0.19	201	<0.2	201
benzo-[g,h,i]perylene	0.27	22	0.15	31	0.55	17	0.45	18
anthanthrene	<0.1	201	<0.1	201	0.10	201	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.11	201	<0.1	201	<0.12	201	<0.13	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
PAH 4 Sum Lower µg/kg	2.41		2.16		12.91		6.70	
PAH 4 Sum Upper µg/kg	2.41	18	2.16	20	12.91	10	6.70	10

FERA LIMS No.	S14-010616	S14-010617	S14-010624	S14-010625			
Description	Ground Ginger	Paprika Powder	Cracked black pepper	Chilli Powder			
µg/kg whole weight		U%	U%	U%	U%	U%	U%
acenaphthylene	7.03	39	6.22	43	7.68i	37	24.14
acenaphthene	<1.24	201	5.51	50	<1.25	201	7.18
fluorene	3.02	92	18.87	26	10.97	33	37.14
phenanthrene	20.36	28	75.86	22	58.71	22	139.23
anthracene	1.61	28	36.98	21	5.78	22	12.64
fluoranthene	8.13	32	22.59	23	19.94	23	51.07
benzo[c]fluorene	0.41	22	0.65	21	0.62	21	1.57
pyrene	7.40i	33	13.81i	25	14.48i	25	32.77i
benzo[ghi]fluoranthene	1.54	18	0.97	23	4.07	16	4.16
benz (a) anthracene	2.47	16	1.77	16	3.38	16	6.78
benzo[b]naphtho[2,1-d]thiophene	1.96	16	0.60	17	0.96	16	2.50
cyclopenta[c,d]pyrene	0.49	16	0.29	17	0.09	27	1.68
chrysene	3.11	17	2.52	17	3.16	17	10.51
5-methylchrysene	0.15	21	0.02	101	0.08	30	0.19
benzo[b]fluoranthene	2.34	19	1.08	25	2.09	19	6.50
benzo[j]fluoranthene	0.82	17	0.57	17	1.74	17	3.33
benzo[k]fluoranthene	0.81	17	0.43	18	0.99	17	2.77
benzo[e]pyrene	2.16	20	0.76	38	1.36	26	4.93
benzo[a]pyrene	1.61	24	0.68	45	1.00	33	4.49
indeno[1,2,3-cd]pyrene	0.95	22	0.56	33	0.53	34	3.62
dibenz[ah]anthracene	0.91	45	<0.2	201	<0.2	201	0.66
benzo-[g,h,i]perylene	0.98	16	0.64	17	0.31	20	3.65
anthanthrene	0.10	201	<0.1	201	<0.1	201	0.50
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	<0.1	201	0.20
dibenzo[a,e]pyrene	<0.15	201	<0.14	201	<0.1	201	0.43
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	0.46
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
coronene	0.11	183	0.10	201	<0.1	201	0.48
PAH 4 Sum Lower µg/kg	9.53		6.05		9.63		28.28
PAH 4 Sum Upper µg/kg	9.53	9	6.05	11	9.63	10	28.28
							9

FERA LIMS No.	S14-010651	S14-010654	S14-010658	S14-010719
Description	Ground Coriander	Cardamom pods	Whole black peprcorns	Ground Cayenne Pepper
µg/kg whole weight		U%	U%	U%
acenaphthylene	<2.41	201	5.90	44
acenaphthene	<1.25	201	<1.25	201
fluorene	1.43	191	5.09	57
phenanthrene	4.58	84	88.15	21
anthracene	0.23	132	8.29	21
fluoranthene	<1.01	201	78.64	21
benzo[c]fluorene	0.03	70	1.45	21
pyrene	<0.95	201	89.20i	21
benzo[ghi]fluoranthene	<0.08	201	23.79	16
benz (a) anthracene	0.06	69	18.24	16
benzo[b]naphtho[2,1-d]thiophene	<0.09	201	1.05	16
cyclopenta[c,d]pyrene	0.02	101	10.24	16
chrysene	0.14	130	24.43	16
5-methylchrysene	<0.01	201	0.17i	20
benzo[b]fluoranthene	<0.1	201	9.62	17
benzo[j]fluoranthene	0.03	69	6.39	17
benzo[k]fluoranthene	<0.04	201	4.48	17
benzo[e]pyrene	<0.13	201	7.57	17
benzo[a]pyrene	<0.14	201	5.53	18
indeno[1,2,3-cd]pyrene	<0.08	201	3.71	16
dibenz[ah]anthracene	<0.2	201	<0.2	201
benzo-[g,h,i]perylene	0.05	82	4.26	16
anthanthrene	<0.1	201	0.31	66
dibenzo[a,l]pyrene	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.1	201	<0.2	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	<0.1	201	0.54	40
PAH 4 Sum Lower µg/kg	0.20		57.82	
PAH 4 Sum Upper µg/kg	0.44	89	57.82	9
			23.48	9
			21.45	9

FERA LIMS No.	S14-010720	S14-010721	Value Dried Basil	S14-010746	S14-010747	
Description	Mustard Seeds		Nigella seeds		Ground Allspice	
µg/kg whole weight		U%	U%	U%	U%	U%
acenaphthylene	<0.69	201	3.46	100	3.93	89
acenaphthene	<1.02	201	<1.25	201	2.15	117
fluorene	<1.12	201	11.80	33	4.95	63
phenanthrene	<1.55	201	65.40	23	20.77	33
anthracene	<0.11	201	2.62	70	2.41	75
fluoranthene	1.89	101	24.86	23	8.04	38
benzo[c]fluorene	<0.02	201	0.77	21	0.08	33
pyrene	3.57	55	33.61i	22	6.52	45
benzo[ghi]fluoranthene	0.42	41	4.86	16	0.80	32
benz (a) anthracene	0.02	201	2.95	16	0.81	17
benzo[b]naphtho[2,1-d]thiophene	<0.02	201	2.69	16	0.57	19
cyclopenta[c,d]pyrene	0.14	21	0.39	19	0.05	82
chrysene	<0.34	201	8.41	16	1.45	21
5-methylchrysene	<0.01	201	0.03	69	<0.02	201
benzo[b]fluoranthene	<0.12	201	3.09	19	0.61	43
benzo[j]fluoranthene	0.02	101	1.85	17	0.33	25
benzo[k]fluoranthene	<0.03	201	1.35	17	0.28	27
benzo[e]pyrene	<0.16	201	3.09	18	0.46	43
benzo[a]pyrene	<0.18	201	1.35	42	0.36	140
indeno[1,2,3-cd]pyrene	<0.14	201	1.75	19	0.32	52
dibenz[ah]anthracene	<0.72	201	<0.18	201	<0.18	201
benzo-[g,h,i]perylene	0.15	31	2.10	16	0.30	21
anthanthrene	<0.1	201	0.14	144	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.14	201	<0.22	201	<0.15	201
dibenzo[a,i]pyrene	<0.1	201	0.12	167	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201
coronene	<0.1	201	2.25	18	0.22	92
PAH 4 Sum Lower µg/kg	0.02		15.80		3.23	54.86
PAH 4 Sum Upper µg/kg	0.66	123	15.80	10	3.23	20
						9

FERA LIMS No.	S14-010748	S14-010749	S14-010750	S14-010751			
Description	Turmeric, Fairtrade	Ground Mace	Garlic Granules	Ground nutmeg			
µg/kg whole weight		U%	U%	U%	U%	U%	U%
acenaphthylene	<1.72	201	5.32i	201	2.01	172	8.86i
acenaphthene	1.72i	148	23.60i	201	2.10	122	3.23i
fluorene	3.63	85	4.88i	201	4.36	72	<1.47
phenanthrene	24.48	31	318.91i	201	20.08	34	21.04
anthracene	3.87	51	53.11	201	2.61	71	3.00
fluoranthene	13.05	29	96.96i	21	23.35	24	8.89
benzo[c]fluorene	0.51	21	4.27	21	0.48	21	0.65
pyrene	12.67i	30	90.46i	21	22.55i	24	8.09i
benzo[ghi]fluoranthene	2.93	18	11.67	16	7.56	16	1.08
benz (a) anthracene	2.45	16	11.12	16	7.69	16	1.45
benzo[b]naphtho[2,1-d]thiophene	0.30	25	2.29	201	0.65	18	0.51
cyclopenta[c,d]pyrene	1.26	16	6.30	16	3.95	16	0.32
chrysene	2.87	18	12.30	16	7.57	16	1.58
5-methylchrysene	<0.01	201	<0.06	201	<0.04	201	<0.01
benzo[b]fluoranthene	1.45	24	3.32	18	8.29	17	0.65
benzo[j]fluoranthene	1.16	18	3.00	17	4.08	17	0.38
benzo[k]fluoranthene	0.79	19	1.91	17	4.03	17	0.36
benzo[e]pyrene	1.26	22	2.59	18	5.97	17	0.54
benzo[a]pyrene	1.55	38	3.79	21	6.96	18	0.63
indeno[1,2,3-cd]pyrene	1.24	21	2.19	17	4.40	16	0.38
dibenz[ah]anthracene	<0.18	201	<0.34	66	0.36	101	<0.18
benzo-[g,h,i]perylene	1.12	16	1.91	16	4.95	16	0.34
anthanthrene	0.16	126	0.29	46	0.67	34	<0.1
dibenzo[a,l]pyrene	0.43	49	0.28	35	0.32	64	0.12
dibenzo[a,e]pyrene	<0.16	201	<0.69	201	<0.16	201	<0.15
dibenzo[a,i]pyrene	<0.1	201	<0.1	88	<0.1	201	<0.1
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
coronene	0.97	26	0.70	21	2.09	18	0.19
PAH 4 Sum Lower µg/kg	8.32		30.53		30.51		4.31
PAH 4 Sum Upper µg/kg	8.32	11	30.53	9	30.51	8	4.31
							16

FERA LIMS No.	S14-010752	S14-010753	S14-010754	S14-010805				
Description	Hot curry powder	Ground Cinnamon	Whole Cloves	Marjoram				
µg/kg whole weight		U%	U%	U%				
acenaphthylene	<1.72	201	3.66	95	60.84i	21	2.56	58
acenaphthene	<1.26	201	2.68	96	10.52i	54	2.56	82
fluorene	8.38	42	7.81	44	54.49	24	12.99	27
phenanthrene	34.08	26	50.61	24	427.69	21	58.79	22
anthracene	4.51	45	3.57	54	57.59	21	2.12	23
fluoranthene	10.91	32	21.17	24	204.81	21	24.65	22
benzo[c]fluorene	0.42	22	0.31	22	8.79	22	0.69	22
pyrene	9.04i	36	20.77i	25	171.22i	21	16.34i	24
benzo[ghi]fluoranthene	1.84	20	5.42	16	24.87	16	3.63	16
benz (a) anthracene	1.92	16	3.64	16	20.81	16	2.07	16
benzo[b]naphtho[2,1-d]thiophene	0.89	17	0.65	18	0.58	77	4.26	16
cyclopenta[c,d]pyrene	0.86	16	0.36	19	21.66	16	0.24	18
chrysene	2.73	17	5.92	16	37.62	16	7.47	16
5-methylchrysene	<0.04	201	<0.03	201	<0.1	201	0.08	30
benzo[b]fluoranthene	1.41	24	2.85	19	8.43	19	3.22	18
benzo[j]fluoranthene	0.98	18	2.16	17	8.71	17	1.81	17
benzo[k]fluoranthene	0.71	19	1.35	17	3.93	17	1.33	17
benzo[e]pyrene	1.01	25	2.04	19	5.16	24	2.37	22
benzo[a]pyrene	1.18	47	1.45	40	7.35	20	1.29	33
indeno[1,2,3-cd]pyrene	0.89	26	1.27	21	3.91	21	1.83	16
dibenz[ah]anthracene	0.19	190	<0.18	201	<0.34	201	<0.72	201
benzo-[g,h,i]perylene	0.82	17	0.88	16	2.96	23	1.64	16
anthanthrene	0.15	134	0.12	167	0.68	33	0.14	144
dibenzo[a,l]pyrene	0.25	82	0.28	73	0.27	76	0.72	32
dibenzo[a,e]pyrene	<0.15	201	<0.15	201	<0.65	201	<0.14	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	0.11	183
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.47	45	0.53	41	0.83	29	1.50	21
PAH 4 Sum Lower µg/kg	7.24		13.86		74.21		14.05	
PAH 4 Sum Upper µg/kg	7.24	12	13.86	10	74.21	10	14.05	10

FERA LIMS No. S14-
010814

Description	Star anise	
µg/kg whole weight		U%
acenaphthylene	21.91	23
acenaphthene	9.94	107
fluorene	<6.46	201
phenanthrene	48.93	40
anthracene	55.01	21
fluoranthene	19.30	64
benzo[c]fluorene	0.46	52
pyrene	21.01i	59
benzo[ghi]fluoranthene	2.76	40
benz (a) anthracene	1.01	91
benzo[b]naphtho[2,1-d]thiophene	0.20	131
cyclopenta[c,d]pyrene	0.54	16
chrysene	1.87	68
5-methylchrysene	<0.02	201
benzo[b]fluoranthene	1.13	90
benzo[j]fluoranthene	0.56	151
benzo[k]fluoranthene	0.54	44
benzo[e]pyrene	0.85	124
benzo[a]pyrene	1.59	121
indeno[1,2,3-cd]pyrene	1.25	85
dibenz[ah]anthracene	<0.53	201
benzo-[g,h,i]perylene	1.41	64
anthanthrene	<0.16	201
dibenzo[a,l]pyrene	<0.1	201
dibenzo[a,e]pyrene	<0.98	201
dibenzo[a,i]pyrene	<0.1	201
dibenzo[a,h]pyrene	<0.1	201
coronene	<0.42	201
PAH 4 Sum Lower µg/kg	5.60	
PAH 4 Sum Upper µg/kg	5.60	48

Table 2.5: Tea and herbal tea PAH concentrations µg/kg whole weight

FERA LIMS No.	S14-010622 Organic herbal blend for nursing moms (with borage)	S14-010649 Aromatic Green tea	S14-010655 Calming Camomile	S14-010704 Children restful sleep Herbal Tea
µg/kg whole weight	U%	U%	U%	U%
acenaphthylene	3.57	24	10.03	21
acenaphthene	1.59	119	2.25	86
fluorene	6.99	36	17.42	24
phenanthrene	34.91	23	148.99	21
anthracene	1.31	25	14.69	21
fluoranthene	8.73	28	103.69	21
benzo[c]fluorene	0.21	23	2.71	21
pyrene	9.17i	26	62.24i	21
benzo[ghi]fluoranthene	1.31	16	14.17	16
benz (a) anthracene	0.48	16	14.87	16
benzo[b]naphtho[2,1-d]thiophene	0.43	16	12.88	16
cyclopenta[c,d]pyrene	0.24	18	3.27	16
chrysene	1.31	16	25.27	16
5-methylchrysene	<0.01	201	<0.10	201
benzo[b]fluoranthene	0.49	33	17.53	17
benzo[j]fluoranthene	0.31	18	9.10	17
benzo[k]fluoranthene	0.20	20	7.43i	17
benzo[e]pyrene	0.50	19	13.74	17
benzo[a]pyrene	0.33	75	10.72	17
indeno[1,2,3-cd]pyrene	0.33	45	11.09	16
dibenz[ah]anthracene	<0.07	201	1.58	18
benzo-[g,h,i]perylene	0.48	16	10.98	16
anthanthrene	<0.1	201	1.25	22
dibenzo[a,l]pyrene	<0.1	201	0.31	66
dibenzo[a,e]pyrene	<0.1	201	0.98	26
dibenzo[a,i]pyrene	<0.1	201	0.77	30
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	0.11	183	1.69	20
PAH 4 Sum Lower µg/kg	2.61		68.39	
PAH 4 Sum Upper µg/kg	2.61	14	68.39	8
			11.42	
				20.89
			11	20.89
				8

FERA LIMS No.	S14-010738	S14-010762	S14-010763	S14-010774	Tension Tamer Herbal tea			
Description	Camomile	Organic Sleep Infusion	Aromatic Spices & Mint					
µg/kg whole weight		U%	U%	U%	U%			
acenaphthylene	4.49	23	8.08	22	0.44	93	3.67	24
acenaphthene	<0.94	201	2.00	97	<0.95	201	2.38	81
fluorene	11.99	27	12.04	27	2.61	82	11.26	28
phenanthrene	88.66	21	68.20	22	14.13	30	56.00	22
anthracene	3.61	22	7.78	21	1.29	25	3.60	22
fluoranthene	33.41	22	33.18	22	6.58	33	19.89	23
benzo[c]fluorene	0.81	21	0.81	21	0.18	24	0.40	22
pyrene	21.48i	22	28.75i	22	5.56	34	18.19i	22
benzo[ghi]fluoranthene	3.48	16	6.76	16	1.16	16	2.54	16
benz (a) anthracene	2.39	16	5.52	16	1.07	16	1.88	16
benzo[b]naphtho[2,1-d]thiophene	1.47	16	0.55	16	0.22	18	0.56	16
cyclopenta[c,d]pyrene	1.03	16	1.52	16	0.13	22	0.29	17
chrysene	5.23	16	7.91	16	1.42	17	4.09	16
5-methylchrysene	0.03	69	<0.04	201	<0.01	201	0.31	17
benzo[b]fluoranthene	1.94	18	3.35	17	0.81	24	1.89	18
benzo[j]fluoranthene	1.45	17	2.53	17	0.48	17	0.93	17
benzo[k]fluoranthene	0.84	17	1.54	17	0.36	18	1.23	17
benzo[e]pyrene	1.93	17	2.37	17	0.57	18	2.42	17
benzo[a]pyrene	1.41	24	2.23	20	0.39	64	0.86	33
indeno[1,2,3-cd]pyrene	1.31	19	1.69	18	0.34	44	0.96	22
dibenz[ah]anthracene	0.20	72	0.33	51	<0.14	201	1.34	19
benzo-[g,h,i]perylene	1.76	16	1.61	16	0.32	17	0.97	16
anthanthrene	0.17	119	0.31	66	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.18	201	<0.19	201	<0.1	201	<0.14	201
dibenzo[a,i]pyrene	<0.11	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.32	64	0.24	85	<0.1	201	0.22	92
PAH 4 Sum Lower µg/kg	10.97		19.01		3.69		8.72	
PAH 4 Sum Upper µg/kg	10.97	9	19.01	9	3.69	12	8.72	10

FERA LIMS No.	S14-010775	Baby stomach tea	S14-010816	Calming Tea For Children Organic	S14-010561	Zesty Lemon flavour Green Tea	S14-010584	The Strong One
µg/kg whole weight		U%		U%		U%		U%
acenaphthylene	1.40	161	11.76	21	109.34i	21	1.62	32
acenaphthene	6.48	49	1.96	99	5.22	83	4.44	49
fluorene	11.47	40	19.99	24	22.81	33	6.68	40
phenanthrene	43.50	25	100.90	21	478.79	21	31.41	24
anthracene	1.43	27	19.28	21	68.10	21	1.98	23
fluoranthene	8.71	44	68.94	21	352.74	21	15.39	24
benzo[c]fluorene	0.24	27	6.11	21	6.66	21	0.54	21
pyrene	6.96	47	62.34i	21	381.15i	21	12.90i	25
benzo[ghi]fluoranthene	0.83	31	12.59	16	78.89	16	3.29	16
benz (a) anthracene	0.64	17	20.37	16	71.25	16	2.26	16
benzo[b]naphtho[2,1-d]thiophene	0.60	17	1.14	16	1.91	29	0.12	23
cyclopenta[c,d]pyrene	0.05	43	10.70	16	43.75	16	1.02	16
chrysene	1.68	20	17.64	16	92.71	16	5.32	16
5-methylchrysene	0.02	101	0.22	18	0.20	19	<0.02	201
benzo[b]fluoranthene	0.58	45	9.78	17	47.05	17	2.10	18
benzo[j]fluoranthene	0.42	51	6.54	17	31.02	17	1.21	17
benzo[k]fluoranthene	0.26	23	5.41	17	22.73	17	1.48	17
benzo[e]pyrene	0.50	51	5.92	17	46.40	17	1.11	17
benzo[a]pyrene	0.32	114	9.22	17	57.93	17	1.14	26
indeno[1,2,3-cd]pyrene	0.33	74	5.64	16	32.43	16	1.55	16
dibenz[ah]anthracene	<0.14	201	1.14	21	3.54	26	<0.14	201
benzo-[g,h,i]perylene	0.33	20	4.82	16	38.51	16	1.49	16
anthanthrene	<0.1	201	1.06	25	4.77	16	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	0.22	92	0.94	27	<0.1	201
dibenzo[a,e]pyrene	<0.21	201	0.43	54	3.51	29	<0.14	201
dibenzo[a,i]pyrene	<0.1	201	0.53	41	0.74	31	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	0.11	183	<0.1	201
coronene	0.16	126	0.56	39	14.68	16	0.78	30
PAH 4 Sum Lower µg/kg	3.22		57.01		268.94		10.82	
PAH 4 Sum Upper µg/kg	3.22	18	57.01	8	268.94	8	10.82	10

FERA LIMS No.	S14-010600 Dandelion & Burdock Tea, Organic	S14-010607 Cleanse organic nettle fennel & peppermint	S14-010653 Citrus Ginseng Sling	S14-010761 Comfrey Leaves (Loose Tea)				
μg/kg whole weight	U%	U%	U%	U%	U%			
acenaphthylene	<0.81	201	1.29i	129	<0.81	201	1.06i	154
acenaphthene	<1.04	201	3.58	62	1.74	121	3.77	59
fluorene	<1.11	201	8.36	34	<1.11	201	3.04i	77
phenanthrene	22.14	26	36.95	23	16.86	30	21.53	27
anthracene	1.44	24	1.66	24	0.88	29	0.73	32
fluoranthene	8.87i	32	11.11i	29	8.73i	32	7.50	35
benzo[c]fluorene	0.26	26	0.29	25	0.29	25	0.18	31
pyrene	7.33i	34	12.09i	27	7.30i	34	4.77i	47
benzo[ghi]fluoranthene	1.11	20	2.08	17	0.95	22	0.89	22
benz (a) anthracene	1.18	16	1.31	16	0.93	16	0.62	17
benzo[b]naphtho[2,1-d]thiophene	0.57	17	0.61	17	0.29	21	0.23	24
cyclopenta[c,d]pyrene	0.06	37	0.55	16	<0.01	201	0.05	43
chrysene	1.93	18	3.16	17	2.18	18	1.71	19
5-methylchrysene	<0.01	201	<0.05	201	<0.12	201	<0.01	201
benzo[b]fluoranthene	0.89	30	1.83	21	0.73	35	1.02	27
benzo[j]fluoranthene	0.57	17	1.00	17	0.35	18	0.63	17
benzo[k]fluoranthene	0.41	18	0.71	17	0.45	17	0.43	18
benzo[e]pyrene	0.74	25	1.68	19	0.90	23	0.83	24
benzo[a]pyrene	0.52	46	0.93	31	0.55	43	0.50	47
indeno[1,2,3-cd]pyrene	0.56	30	1.19	20	0.46	34	0.72	25
dibenz[ah]anthracene	<0.11	201	<0.18	201	<0.15	201	<0.12	201
benzo-[g,h,i]perylene	0.55	17	1.35	16	0.60	17	0.71	17
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	<0.15	201	<0.1	201	0.19	106	0.23	88
dibenzo[a,e]pyrene	<0.12	201	<0.22	201	<0.15	201	<0.14	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	<0.1	201	0.28	73	0.18	112	0.14	144
PAH 4 Sum Lower μg/kg	4.52		7.23		4.39		3.85	
PAH 4 Sum Upper μg/kg	4.52	12	7.23	10	4.39	12	3.85	13

FERA LIMS No.	S14-010764	S14-010807	S14-010811 Ceylon tea	S14-010812 Organic Nettle Tea
Description	Comforting Liquorice Tea bags	Organic Genmaicha Tea	Pure loose tea	
µg/kg whole weight		U%	U%	U%
acenaphthylene	2.15i	78	2.26	<0.8
acenaphthene	4.72	49	<1.04	201
fluorene	3.72	63	<1.11	201
phenanthrene	25.20	25	20.21	27
anthracene	1.61	24	1.57	24
fluoranthene	6.14i	40	15.03i	25
benzo[c]fluorene	0.13	37	0.45	23
pyrene	5.00i	45	11.40i	27
benzo[ghi]fluoranthene	0.83	23	2.36	17
benz (a) anthracene	0.50	18	1.28	16
benzo[b]naphtho[2,1-d]thiophene	0.30	21	0.52	18
cyclopenta[c,d]pyrene	0.08	30	<0.07	201
chrysene	1.14	22	3.55	17
5-methylchrysene	<0.01	201	<0.07	201
benzo[b]fluoranthene	0.35	65	1.72	21
benzo[j]fluoranthene	0.20	20	0.98	17
benzo[k]fluoranthene	0.15	22	0.74	17
benzo[e]pyrene	0.37	41	1.59	19
benzo[a]pyrene	0.24	93	0.90	30
indeno[1,2,3-cd]pyrene	0.22	66	1.25	19
dibenz[ah]anthracene	<0.08	201	<0.14	201
benzo-[g,h,i]perylene	0.33	20	1.27	16
anthanthrene	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.11	201	<0.17	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	<0.1	201	0.30	69
PAH 4 Sum Lower µg/kg	2.23		7.45	13.11
PAH 4 Sum Upper µg/kg	2.23	19	7.45	10
				5.52
				10
				5.52
				11

FERA LIMS No.	S14-010813	S14-010817	S14-010618 Large Refill Bag Organic Lactation Blend for Nursing Mommy Loose Leaf Tea	S14-010645
Description	Green Tea with Ginseng	Detox organic aniseed fennel & cardamom		Invigorating Peppermint
µg/kg whole weight				
acenaphthylene	6.88	32	1.36i	U%
acenaphthene	5.53	43	2.44	U%
fluorene	6.46i	41	9.27	U%
phenanthrene	78.01	22	46.40	U%
anthracene	9.18	21	2.34	U%
fluoranthene	45.61i	22	10.22i	U%
benzo[c]fluorene	1.03	21	0.41	U%
pyrene	42.08i	22	10.08i	U%
benzo[ghi]fluoranthene	8.63	16	2.01	U%
benz (a) anthracene	7.79	16	1.51	U%
benzo[b]naphtho[2,1-d]thiophene	1.95	16	0.57	U%
cyclopenta[c,d]pyrene	1.94	16	0.83	U%
chrysene	11.91	16	2.87	U%
5-methylchrysene	0.04	52	0.01	U%
benzo[b]fluoranthene	7.16	17	1.05	U%
benzo[j]fluoranthene	4.51	17	0.81	U%
benzo[k]fluoranthene	3.44	17	0.44	U%
benzo[e]pyrene	6.10	17	0.90	U%
benzo[a]pyrene	5.52	17	0.67	U%
indeno[1,2,3-cd]pyrene	4.70	16	0.51	U%
dibenz[ah]anthracene	0.50	36	<0.1	U%
benzo-[g,h,i]perylene	5.37	16	0.56	U%
anthanthrene	<0.1	201	<0.1	U%
dibenzo[a,l]pyrene	0.25	82	<0.1	U%
dibenzo[a,e]pyrene	0.29	71	<0.1	U%
dibenzo[a,i]pyrene	0.20	101	<0.1	U%
dibenzo[a,h]pyrene	<0.1	201	<0.1	U%
coronene	0.79	30	<0.1	U%
PAH 4 Sum Lower µg/kg	32.38		6.10	1.67
PAH 4 Sum Upper µg/kg	32.38	8	6.10	1.83
				26
				12.68
				9

FERA LIMS No.	S14-010652	S14-010656	S14-010687	S14-010707 Hipp Instant Digestion Facilitating Tea for Babies
Description	Hint of Mint Green tea	Green Tea Decaf	Instant Fennel tea for babies	
µg/kg whole weight		U%	U%	U%
acenaphthylene	4.63i	38	1.98	<0.73
acenaphthene	2.45	72	1.89	<0.84
fluorene	17.99	23	6.19	<0.93
phenanthrene	156.79	21	43.27	<1.38
anthracene	22.81	21	3.96	<0.02
fluoranthene	144.63	21	25.72	<0.87
benzo[c]fluorene	4.21	21	0.42	<0.02
pyrene	86.83i	21	25.18i	<0.85
benzo[ghi]fluoranthene	21.36	16	6.90	<0.07
benz (a) anthracene	19.49	16	6.27	16
benzo[b]naphtho[2,1-d]thiophene	1.82	16	0.31	<0.03
cyclopenta[c,d]pyrene	7.21	16	1.60	<0.01
chrysene	25.00	16	7.55	16
5-methylchrysene	<0.05	201	0.09	<0.01
benzo[b]fluoranthene	15.04	17	5.16	17
benzo[j]fluoranthene	10.20	17	2.69	<0.01
benzo[k]fluoranthene	10.37	17	2.48	<0.01
benzo[e]pyrene	12.49	17	5.11	<0.19
benzo[a]pyrene	13.15	17	5.12	18
indeno[1,2,3-cd]pyrene	10.23	16	4.31	<0.08
dibenz[ah]anthracene	1.14	28	1.16	<0.13
benzo-[g,h,i]perylene	9.70	16	5.18	<0.08
anthanthrene	1.31	22	0.15	134
dibenzo[a,l]pyrene	0.47	45	0.25	82
dibenzo[a,e]pyrene	0.74	31	0.29	71
dibenzo[a,i]pyrene	0.78	30	0.31	66
dibenzo[a,h]pyrene	0.20	101	<0.1	201
coronene	8.87	16	6.11	16
PAH 4 Sum Lower µg/kg	72.68		24.10	
PAH 4 Sum Upper µg/kg	72.68	8	24.10	8
			0.40	112
			0.40	112

FERA LIMS No.	S14-010711	S14-010722	S14-010778 Lemon Balm (Melissa Officinalis)	S14-010809 Naturally Caffeine Free Rooibos Earl Grey Tea
Description	Instant Calming Tea for Babies	Rooibos Vanilla Tea	Loose Herbal Tea	
µg/kg whole weight		U%	U%	U%
acenaphthylene	<0.72	201	<0.72	201
acenaphthene	<0.84	201	1.24	137
fluorene	<0.92	201	2.69	72
phenanthrene	<1.38	201	10.53	34
anthracene	0.04	102	0.57	22
fluoranthene	<0.87	201	3.19	58
benzo[c]fluorene	<0.02	201	<0.1	201
pyrene	<0.85	201	3.13	58
benzo[ghi]fluoranthene	<0.07	201	0.25	58
benz (a) anthracene	<0.02	201	0.34	20
benzo[b]naphtho[2,1-d]thiophene	<0.03	201	0.24	23
cyclopenta[c,d]pyrene	<0.01	201	<0.02	201
chrysene	<0.11	201	0.62	39
5-methylchrysene	<0.01	201	<0.01	201
benzo[b]fluoranthene	<0.11	201	0.44	53
benzo[j]fluoranthene	<0.01	201	<0.13	201
benzo[k]fluoranthene	<0.01	201	<0.1	201
benzo[e]pyrene	<0.19	201	1.52	30
benzo[a]pyrene	<0.16	201	0.58	58
indeno[1,2,3-cd]pyrene	<0.08	201	0.18	90
dibenz[ah]anthracene	<0.13	201	1.76	22
benzo-[g,h,i]perylene	<0.08	201	0.32	52
anthanthrene	<0.1	201	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	<0.1	201
dibenzo[a,e]pyrene	<0.1	201	<0.1	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	<0.1	201	0.38	55
PAH 4 Sum Lower µg/kg	<0.02		1.98	8.52
PAH 4 Sum Upper µg/kg	0.40	112	1.98	24
			8.52	11
				1.37
				34

FERA LIMS No.	S14-010559	S14-010614	S14-010632	S14-010712				
Description	Refreshing Peppermint (Fresh Peppermint)	Organic Rosehip Hibiscus	Milk Green Tea	Organic Baby Teas - Herbal Baby Tea				
µg/kg whole weight	U%	U%	U%	U%				
acenaphthylene	<0.89	201	<0.89	37.45	22	<0.89	201	
acenaphthene	3.24	58	1.07	168	2.60	69	<0.88	201
fluorene	8.49	35	2.37	102	24.51	23	<1.17	201
phenanthrene	59.89	22	19.86	27	213.25	21	25.65	24
anthracene	3.46	22	1.99	23	36.59	21	1.63	24
fluoranthene	20.05	23	11.95	25	126.95i	21	4.71	41
benzo[c]fluorene	0.26	22	0.38	22	4.78	21	0.11	28
pyrene	14.15i	24	11.36i	25	123.09i	21	4.20	42
benzo[ghi]fluoranthene	1.72	16	2.51	16	31.69	16	0.31	20
benz (a) anthracene	1.74	16	2.45	16	29.00	16	0.39	17
benzo[b]naphtho[2,1-d]thiophene	<0.1	201	0.24	18	2.52	16	0.15	21
cyclopenta[c,d]pyrene	0.20	19	0.03	69	20.88	16	0.04	52
chrysene	3.19	16	3.30	16	35.10	16	0.59	17
5-methylchrysene	0.02	101	0.03	69	0.13	22	<0.01	201
benzo[b]fluoranthene	2.42	18	1.34	21	22.25	17	0.31	54
benzo[j]fluoranthene	1.31	17	0.85	17	13.05	17	0.17	21
benzo[k]fluoranthene	1.18	17	0.62	17	10.87	17	0.19	20
benzo[e]pyrene	1.88	17	1.94	17	18.86	17	0.25	23
benzo[a]pyrene	1.48	23	1.46	24	21.50	17	0.26	86
indeno[1,2,3-cd]pyrene	1.61	18	0.64	27	14.18	16	<0.23	201
dibenz[ah]anthracene	<0.27	201	0.76i	26	1.66	19	<0.08	201
benzo-[g,h,i]perylene	1.76	16	0.59	16	16.14	16	0.22	18
anthanthrene	<0.1	201	<0.1	201	2.32	18	<0.1	201
dibenzo[a,l]pyrene	0.84	29	<0.1	201	0.42	50	<0.1	201
dibenzo[a,e]pyrene	<0.25	201	<0.12	201	0.89	27	<0.11	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	0.88	28	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.25	82	<0.1	201	2.13	18	<0.1	201
PAH 4 Sum Lower µg/kg	8.83		8.55		107.85		1.55	
PAH 4 Sum Upper µg/kg	8.83	9	8.55	9	107.85	8	1.55	20

FERA LIMS No.	S14-010737	S14-010755	S14-010794 Natural Cherry Tea herbal tea for babies and children from 9 months+	S14-010808 Organic Fairtrade Green Tea With Ginkgo
Description	Settling Ginger Tea bags	Nettle, Fennel & Peppermint Tag & Envelope Teabags		
µg/kg whole weight		U%	U%	U%
acenaphthylene	<0.87	201	2.08	88
acenaphthene	<0.86	201	3.15	60
fluorene	11.67	29	6.81	40
phenanthrene	104.95	21	43.94	22
anthracene	7.34	21	2.88	22
fluoranthene	42.80	21	23.14	22
benzo[c]fluorene	0.49	21	0.54	21
pyrene	22.49i	22	17.85i	23
benzo[ghi]fluoranthene	2.35	16	3.89	16
benz (a) anthracene	1.74	16	3.18	16
benzo[b]naphtho[2,1-d]thiophene	0.57	16	1.28	16
cyclopenta[c,d]pyrene	0.90	16	0.73	16
chrysene	3.20	16	5.22	16
5-methylchrysene	<0.01	201	<0.07	201
benzo[b]fluoranthene	1.32	20	2.86	18
benzo[j]fluoranthene	0.94	17	1.66	17
benzo[k]fluoranthene	0.58	17	1.25	17
benzo[e]pyrene	0.92	17	2.70	17
benzo[a]pyrene	0.99	28	1.81	21
indeno[1,2,3-cd]pyrene	0.90	22	2.21	17
dibenz[ah]anthracene	<0.11	201	0.32	52
benzo-[g,h,i]perylene	1.10	16	2.49	16
anthanthrene	0.18	112	<0.1	201
dibenzo[a,l]pyrene	0.16	126	<0.1	201
dibenzo[a,e]pyrene	<0.14	201	0.28	80
dibenzo[a,i]pyrene	<0.1	201	0.13	155
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	0.21	97	0.45	47
PAH 4 Sum Lower µg/kg	7.25		13.07	
PAH 4 Sum Upper µg/kg	7.25	10	13.07	9
			21.04	9
			84.55	9

FERA LIMS No.	S14-010822	S14-010823	S14-010545	S14-010589				
Description	Peppermint Infusion	Liquorice infusion	Assam Loose Tea	Blend of Both Tea Bags				
µg/kg whole weight		U%	U%	U%	U%	U%		
acenaphthylene	1.52	116	2.14	85	0.95	38	5.34i	22
acenaphthene	1.10	158	1.90	94	1.13	119	1.67	83
fluorene	6.35	42	5.81	45	3.02	62	7.94	31
phenanthrene	38.39	23	33.61	23	26.12	24	68.89	21
anthracene	3.11	22	1.74	23	2.27	23	6.71	21
fluoranthene	13.88	24	9.18	27	18.16	24	54.32	21
benzo[c]fluorene	0.30	22	0.23	23	0.34	22	0.87	21
pyrene	10.68i	25	8.58i	27	13.76i	26	43.24	22
benzo[ghi]fluoranthene	1.54	16	1.24	16	3.79	16	10.18	16
benz (a) anthracene	1.63	16	1.26	16	2.59	17	11.19	16
benzo[b]naphtho[2,1-d]thiophene	0.46	16	0.60	16	0.23	71	1.99	18
cyclopenta[c,d]pyrene	0.27	17	0.12	23	0.60	16	2.10	16
chrysene	2.73	16	2.76	16	5.82	16	16.98	16
5-methylchrysene	0.02	101	0.07	33	<0.02	201	<0.13	201
benzo[b]fluoranthene	1.99	18	1.35	20	3.73	18	9.05	17
benzo[j]fluoranthene	1.05	17	0.37	18	2.34	17	5.03	17
benzo[k]fluoranthene	0.92	17	0.43i	18	2.15	17	4.25	17
benzo[e]pyrene	1.42	17	2.74	17	1.80	25	7.36	18
benzo[a]pyrene	1.17	25	0.83	31	1.99	21	5.88	17
indeno[1,2,3-cd]pyrene	1.30	19	0.79	24	2.34	17	5.88	16
dibenz[ah]anthracene	<0.24	201	<0.19	201	<0.22	201	0.67	31
benzo-[g,h,i]perylene	1.37	16	2.01	16	1.53	21	6.39	16
anthanthrene	0.10	201	<0.1	201	<0.1	201	0.65	35
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	0.60	37	0.27	76
dibenzo[a,e]pyrene	<0.22	201	<0.21	201	<0.19	201	0.35	65
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201	0.35	59
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.20	101	0.67	34	0.32	64	1.46	21
PAH 4 Sum Lower µg/kg	7.52		6.20		14.13		43.10	
PAH 4 Sum Upper µg/kg	7.52	9	6.20	10	14.13	9	43.10	9

FERA LIMS No.	S14-010596	S14-010630	S14-010705	S14-010710				
Description	Snore & Peace	Hibiscus-herbal tea Loose	White hibiscus herbal loose leaf	Avena Dream herbal Loose leaf				
µg/kg whole weight		U%	U%	U%				
acenaphthylene	1.38	30	0.36	86	5.12	22	4.49	22
acenaphthene	1.98	70	<0.67	201	1.39	99	1.24i	110
fluorene	5.88	37	1.41	128	7.04	33	13.46	25
phenanthrene	34.47	23	8.88	41	49.21	22	77.10	21
anthracene	1.68	24	0.45	49	5.29	21	2.23	23
fluoranthene	11.90	27	4.52	50	30.57	22	21.92	23
benzo[c]fluorene	0.25	22	0.13	26	0.71	21	0.48	21
pyrene	8.96	31	3.14	68	22.15i	23	16.47i	24
benzo[ghi]fluoranthene	1.55	19	0.88	24	4.10	16	2.41	17
benz (a) anthracene	1.55	18	0.64	27	3.47	16	1.45	19
benzo[b]naphtho[2,1-d]thiophene	0.68	28	<0.08	201	0.43	40	1.33	20
cyclopenta[c,d]pyrene	0.27	17	0.14	21	0.57	16	0.26	18
chrysene	3.09	17	0.96	28	5.61	16	4.03	17
5-methylchrysene	0.05	43	0.01	201	<0.05	201	<0.02	201
benzo[b]fluoranthene	1.72	22	0.52	49	4.74	18	1.34	25
benzo[j]fluoranthene	1.15	17	0.46	19	2.27	17	0.88	18
benzo[k]fluoranthene	0.80	17	0.29	18	1.91	17	0.52	17
benzo[e]pyrene	1.23	32	0.26	132	3.21	20	1.15	34
benzo[a]pyrene	1.15	28	0.45	60	2.49	20	0.61	46
indeno[1,2,3-cd]pyrene	1.25	20	0.55	33	2.97	17	0.80	25
dibenz[ah]anthracene	<0.21	201	<0.11	201	0.33	57	0.24	77
benzo-[g,h,i]perylene	1.16	23	0.43	49	2.98	17	0.83	29
anthanthrene	0.14	144	<0.1	201	0.12	167	<0.1	201
dibenzo[a,l]pyrene	0.46	46	<0.1	201	0.12	167	<0.1	201
dibenzo[a,e]pyrene	<0.18	201	<0.11	201	0.16	126	<0.14	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	0.16	126	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.19	106	<0.1	201	0.45	47	0.17	119
PAH 4 Sum Lower µg/kg	7.51		2.57		16.31		7.43	
PAH 4 Sum Upper µg/kg	7.51	10	2.57	19	16.31	9	7.43	11

FERA LIMS No.	S14-010723	S14-010758	S14-010773	S14-010815				
Description	Rooibos Tea	Breakfast Earl Grey Loose Tea	Three Fennel	Tea for kids Easy digestion				
µg/kg whole weight		U%	U%	U%				
acenaphthylene	0.35	88	84.92	21	1.42	30	2.64	24
acenaphthene	1.80	76	6.66	53	3.41	44	3.57	43
fluorene	4.61	44	39.00	22	7.23	32	11.55	26
phenanthrene	20.99	26	671.62	21	27.14	24	78.85	21
anthracene	0.93	30	125.51	21	1.50	25	3.65	22
fluoranthene	3.94	56	551.97	201	4.45	50	30.11	22
benzo[c]fluorene	0.04	54	14.47	21	0.17	24	0.51	21
pyrene	2.99	71	588.30i	201	3.74	57	19.19i	24
benzo[ghi]fluoranthene	0.22	74	139.12	16	0.73	27	3.03	17
benz (a) anthracene	0.17	84	96.37	16	0.44	36	3.50	16
benzo[b]naphtho[2,1-d]thiophene	0.19	86	1.93	18	0.25	66	1.03	22
cyclopenta[c,d]pyrene	<0.03	201	56.13	16	0.07	33	0.27	17
chrysene	0.39	59	104.92	16	1.11	25	6.54	16
5-methylchrysene	0.01	201	<0.25	201	<0.04	201	0.04	52
benzo[b]fluoranthene	0.15	161	65.08	17	0.39	64	4.52	18
benzo[j]fluoranthene	0.09	48	47.48	17	0.10	43	2.55	17
benzo[k]fluoranthene	0.08	30	37.34	17	0.19	20	2.17	17
benzo[e]pyrene	<0.17	201	60.25	17	0.83	44	3.16	20
benzo[a]pyrene	<0.13	201	78.65	17	0.23	114	2.57	20
indeno[1,2,3-cd]pyrene	<0.17	201	56.54	16	0.16	101	2.87	17
dibenz[ah]anthracene	<0.09	201	3.98	16	1.46	20	0.43	45
benzo-[g,h,i]perylene	0.21	97	61.31	16	0.21	97	2.47	18
anthanthrene	<0.1	201	2.15	16	<0.1	201	0.18	112
dibenzo[a,l]pyrene	<0.1	201	3.54	16	<0.1	201	0.17	119
dibenzo[a,e]pyrene	<0.1	201	3.30	19	<0.1	201	<0.11	201
dibenzo[a,i]pyrene	<0.1	201	0.94	18	<0.1	201	0.26	79
dibenzo[a,h]pyrene	<0.1	201	<0.1	155	<0.1	201	<0.1	201
coronene	<0.1	201	18.05	16	<0.1	201	0.33	63
PAH 4 Sum Lower µg/kg	0.71		345.02		2.17		17.13	
PAH 4 Sum Upper µg/kg	0.84	53	345.02	8	2.17	22	17.13	9

FERA LIMS No.	S14-010547	S14-010548	S14-010552		S14-010557			
Description	Green Tea Decaf	Estate Selection	EverydayTea	Earl Grey Tea				
µg/kg whole weight		U%	U%	U%	U%			
acenaphthylene	2.88	23	1.43	30	0.95	38	2.00	26
acenaphthene	2.59	63	1.31	119	1.86	84	1.87	84
fluorene	5.69	41	2.94	72	3.92	55	5.24	43
phenanthrene	41.74	22	23.80	24	22.62	25	46.20	22
anthracene	4.11	21	1.72	23	1.25	25	3.68	21
fluoranthene	27.11	22	19.65	23	13.12	25	19.79	23
benzo[c]fluorene	0.43	23	0.79	22	0.56	22	0.38	24
pyrene	23.77i	22	17.06i	24	9.41i	29	16.55i	24
benzo[ghi]fluoranthene	7.07	16	4.17	16	2.73	17	3.96	16
benz (a) anthracene	5.87	16	2.98	16	2.07	16	3.27	16
benzo[b]naphtho[2,1-d]thiophene	<0.08	201	0.11	146	0.11	146	0.11	146
cyclopenta[c,d]pyrene	2.01	16	1.27	16	0.55	16	0.63	16
chrysene	7.27	16	6.49	16	4.92	16	6.09	16
5-methylchrysene	<0.06	201	<0.02	201	<0.02	201	<0.03	201
benzo[b]fluoranthene	5.26	18	2.25	20	1.73	22	2.93	19
benzo[j]fluoranthene	3.40	18	1.51	20	1.16	21	2.00	18
benzo[k]fluoranthene	2.37	17	1.47	17	1.17	17	1.78	17
benzo[e]pyrene	5.26	18	1.04	37	0.72	50	1.55	28
benzo[a]pyrene	4.39	18	1.32	27	0.93	35	1.87	23
indeno[1,2,3-cd]pyrene	3.96	16	1.60	19	0.96	25	1.96	18
dibenz[ah]anthracene	0.23	149	<0.18	201	<0.17	201	<0.17	201
benzo-[g,h,i]perylene	4.80	16	1.36	21	0.66	32	1.62	19
anthanthrene	<0.1	201	<0.1	201	<0.1	201	0.16	126
dibenzo[a,l]pyrene	<0.1	201	<0.1	201	0.24	85	<0.1	201
dibenzo[a,e]pyrene	0.20	111	<0.15	201	<0.12	201	<0.15	201
dibenzo[a,i]pyrene	0.14	186	<0.13	201	<0.12	201	<0.12	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.80	30	0.25	82	0.12	167	0.26	79
PAH 4 Sum Lower µg/kg	22.79		13.04		9.65		14.16	
PAH 4 Sum Upper µg/kg	22.79	8	13.04	10	9.65	10	14.16	9

FERA LIMS No.	S14-010588	S14-010647	S14-010724	S14-010729			
Description	Gold Loose Tea	Extra Strong tea bags	Decaf Pyramid tea bags	Fair Trade Black Leaf Tea			
µg/kg whole weight		U%	U%	U%	U%	U%	U%
acenaphthylene	2.30	25	9.35	21	0.25	122	2.41
acenaphthene	<0.77	201	2.53	64	<0.76	201	<0.77
fluorene	2.52	82	8.21	32	1.43	141	1.93
phenanthrene	46.51	22	81.19	21	3.81	79	30.72
anthracene	5.60	21	8.57	21	0.30	57	3.24
fluoranthene	41.30	22	64.75	21	1.16	163	25.90
benzo[c]fluorene	1.18	21	1.04	21	0.06	70	0.75
pyrene	31.69i	22	86.15i	21	1.38i	134	23.13i
benzo[ghi]fluoranthene	7.27	16	14.67	16	0.30	56	4.70
benz (a) anthracene	6.27	16	8.18	16	0.23	24	3.36
benzo[b]naphtho[2,1-d]thiophene	0.27	61	2.10	18	<0.08	201	0.30
cyclopenta[c,d]pyrene	1.04	16	5.00	16	0.05	43	1.29
chrysene	11.39	16	12.98	16	0.39	59	6.56
5-methylchrysene	<0.08	201	<0.03	201	<0.02	201	<0.02
benzo[b]fluoranthene	4.50	18	9.45	17	0.18	134	2.54
benzo[j]fluoranthene	3.08	18	5.53	17	0.10	141	1.80
benzo[k]fluoranthene	2.77	17	5.08	17	0.10	43	1.57
benzo[e]pyrene	2.29	23	8.10	17	<0.17	201	1.31
benzo[a]pyrene	2.83	20	10.12	17	<0.14	201	1.63
indeno[1,2,3-cd]pyrene	2.99	17	9.22	16	<0.2	201	1.69
dibenz[ah]anthracene	<0.17	201	0.40	86	<0.17	201	<0.18
benzo-[g,h,i]perylene	2.18	18	12.34	16	0.15	121	1.42
anthanthrene	<0.1	201	<0.1	201	<0.1	201	<0.1
dibenzo[a,l]pyrene	0.61	36	<0.13	201	<0.1	201	<0.1
dibenzo[a,e]pyrene	<0.21	201	0.28	80	<0.11	201	<0.16
dibenzo[a,i]pyrene	<0.13	201	0.49	51	<0.12	201	<0.13
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
coronene	0.32	64	2.14	18	<0.1	201	0.24
PAH 4 Sum Lower µg/kg	24.99		40.73		0.80		14.09
PAH 4 Sum Upper µg/kg	24.99	9	40.73	8	0.94	47	14.09
							10

FERA LIMS No.	S14-010731	S14-010760	S14-010551	S14-010555			
Description	Easy Squeeze	English Breakfast Loose Tea	Leaf Tea	Lift Instant Peach Tea			
µg/kg whole weight		U%	U%	U%			U%
acenaphthylene	1.69	28	53.23	27	2.31	25	0.34
acenaphthene	1.79	87	7.15	162	2.00	80	<0.77
fluorene	3.67	58	44.99	41	4.84	47	<1.01
phenanthrene	23.53	24	884.95	21	42.67	22	2.54
anthracene	1.94	23	165.75	21	2.97	22	0.23
fluoranthene	20.54	23	694.27	21	23.83	22	3.18
benzo[c]fluorene	0.43	23	16.87	21	0.72	22	0.03
pyrene	18.79i	23	751.10i	21	21.17i	23	3.65
benzo[ghi]fluoranthene	4.51	16	173.09	16	4.90	16	0.70
benz (a) anthracene	3.14	16	114.69	16	3.57	16	0.44
benzo[b]naphtho[2,1-d]thiophene	0.49	36	1.34	22	0.38	45	0.12
cyclopenta[c,d]pyrene	1.56	16	32.06	16	0.90	16	0.10
chrysene	6.52	16	123.27	16	7.95	16	0.54
5-methylchrysene	<0.04	201	0.30	17	<0.04	201	<0.02
benzo[b]fluoranthene	3.16	19	67.43	17	3.18	19	0.48
benzo[j]fluoranthene	2.19	18	49.70	17	2.07	19	0.30
benzo[k]fluoranthene	1.96	17	37.19	17	2.08	17	0.29
benzo[e]pyrene	1.48	29	75.89	17	1.72	26	0.23
benzo[a]pyrene	1.88	23	80.54	17	1.88	23	0.45
indeno[1,2,3-cd]pyrene	2.40	18	52.06	16	2.69	17	0.62
dibenz[ah]anthracene	<0.17	201	4.15	31	<0.22	201	<0.18
benzo-[g,h,i]perylene	2.13	18	53.93	16	2.48	17	0.58
anthanthrene	0.26	79	5.27	16	<0.1	201	<0.1
dibenzo[a,l]pyrene	<0.1	201	0.98	26	<0.1	201	<0.1
dibenzo[a,e]pyrene	<0.17	201	3.47	52	<0.19	201	<0.11
dibenzo[a,i]pyrene	<0.12	201	0.98	87	<0.14	201	<0.13
dibenzo[a,h]pyrene	<0.1	201	0.40	52	<0.1	201	<0.1
coronene	0.44	48	19.00	16	0.57	38	<0.1
PAH 4 Sum Lower µg/kg	14.70		385.93		16.58		1.91
PAH 4 Sum Upper µg/kg	14.70	9	385.93	8	16.58	9	1.91
							24

FERA LIMS No.	S14-010583	S14-010683	S14-010725	S14-010726			
Description	English Breakfast tea	Tea Bags	Regular Pyramid	Loose Tea			
µg/kg whole weight		U%	U%	U%	U%	U%	U%
acenaphthylene	8.83	23	3.24	24	4.39	22	2.65
acenaphthene	<2.11	201	1.99	108	1.27	122	1.98
fluorene	2.98	193	5.28	58	3.15	66	4.91
phenanthrene	57.18	26	51.55	23	34.92	23	39.65
anthracene	6.80	22	3.84	22	3.57	21	3.03
fluoranthene	74.69	22	28.55	23	24.71	22	23.52
benzo[c]fluorene	1.12	23	0.43	23	0.49	23	0.55
pyrene	84.79i	22	14.19i	28	23.49i	22	20.94i
benzo[ghi]fluoranthene	16.70	16	5.18	16	4.93	16	4.63
benz (a) anthracene	11.99	16	4.02	17	3.97	16	3.29
benzo[b]naphtho[2,1-d]thiophene	4.00	20	0.36	63	0.11	146	<0.09
cyclopenta[c,d]pyrene	2.22	16	0.52	16	1.34	16	1.13
chrysene	16.06	16	7.86	16	6.99	16	6.72
5-methylchrysene	0.14	21	<0.05	201	<0.02	201	<0.08
benzo[b]fluoranthene	15.87	17	3.52	19	3.14	19	2.69
benzo[j]fluoranthene	9.09	17	2.32	17	2.01	18	1.87
benzo[k]fluoranthene	8.85	17	2.05	17	1.76	17	1.66
benzo[e]pyrene	14.09	18	2.28	27	1.92	24	1.49
benzo[a]pyrene	17.87	18	2.50	26	2.31	21	1.65
indeno[1,2,3-cd]pyrene	18.36	16	2.64	19	2.50	17	2.11
dibenz[ah]anthracene	1.10	69	0.18	201	<0.17	201	<0.18
benzo-[g,h,i]perylene	19.01	16	2.54	18	2.55	17	1.98
anthanthrene	0.34	61	<0.1	201	0.35	59	0.11
dibenzo[a,l]pyrene	0.11	183	<0.1	201	0.42	50	0.42
dibenzo[a,e]pyrene	0.80	109	<0.21	201	<0.18	201	<0.17
dibenzo[a,i]pyrene	0.17	119	<0.1	201	<0.12	201	<0.13
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1
coronene	7.00	16	1.32	22	0.51	42	0.45
PAH 4 Sum Lower µg/kg	61.79		17.90		16.41		14.35
PAH 4 Sum Upper µg/kg	61.79	9	17.90	10	16.41	9	14.35
							10

FERA LIMS No.	S14-010730	S14-010734	S14-010740	S14-010779
Description	Original Loose Tea	Green Tea Lemon	Strong Cuppa	Earl Grey black loose tea
µg/kg whole weight		U%	U%	U%
acenaphthylene	1.67	28	6.11	22
acenaphthene	2.80	59	2.78	59
fluorene	6.32	38	9.43	30
phenanthrene	64.37	22	83.72	21
anthracene	5.37	21	7.04	21
fluoranthene	20.77	23	66.66	21
benzo[c]fluorene	0.37	24	1.57	21
pyrene	15.06i	24	48.07i	21
benzo[ghi]fluoranthene	2.59	17	10.81	16
benz (a) anthracene	1.91	16	10.86	16
benzo[b]naphtho[2,1-d]thiophene	0.21	78	2.16	17
cyclopenta[c,d]pyrene	0.58	16	2.74	16
chrysene	4.30	17	16.03	16
5-methylchrysene	<0.02	201	0.14	33
benzo[b]fluoranthene	2.03	21	10.84	17
benzo[j]fluoranthene	1.27	21	5.31	17
benzo[k]fluoranthene	1.35	17	4.88i	17
benzo[e]pyrene	0.84	44	9.53	17
benzo[a]pyrene	0.94	34	7.26	17
indeno[1,2,3-cd]pyrene	1.57	20	7.70	16
dibenz[ah]anthracene	<0.18	201	0.73	52
benzo-[g,h,i]perylene	1.17	22	8.12	16
anthanthrene	<0.1	201	0.61	36
dibenzo[a,l]pyrene	<0.1	201	0.39	54
dibenzo[a,e]pyrene	<0.13	201	0.50	47
dibenzo[a,i]pyrene	<0.13	201	0.38	70
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	0.27	76	1.39	21
PAH 4 Sum Lower µg/kg	9.18		44.99	
PAH 4 Sum Upper µg/kg	9.18	10	44.99	8
			54.28	9
			48.08	8

FERA LIMS No.	S14-010560	S14-010611	S14-010623	S14-010628 Sencha Kyoto				
Description	Pure Green Tea	WildPower Tea	Ginseng herbal tea	Cherry Rose Luxury loose tea Leaf				
µg/kg whole weight								
acenaphthylene	39.88	21	0.70	48	22.46	21	9.11	21
acenaphthene	3.29	54	3.44	52	5.53	37	2.15	78
fluorene	11.99	26	7.29	34	53.66	21	10.53	28
phenanthrene	217.71	21	58.05	22	409.48	21	100.61	21
anthracene	30.63	21	3.04	22	103.94	21	8.38	21
fluoranthene	160.86	21	19.76	23	369.50i	21	94.87	21
benzo[c]fluorene	3.00	21	0.45	23	15.29	21	2.85	21
pyrene	138.56	21	13.70i	25	184.08	21	55.63i	21
benzo[ghi]fluoranthene	29.82	16	1.73	18	46.36	16	12.67	16
benz (a) anthracene	27.48	16	1.64	19	83.98	16	10.34	16
benzo[b]naphtho[2,1-d]thiophene	0.70	33	0.37	56	12.59	16	2.71	17
cyclopenta[c,d]pyrene	20.52	16	0.15	21	3.59	16	2.03	16
chrysene	38.05	16	2.11	21	71.53	16	23.59	16
5-methylchrysene	<0.55	201	0.04	52	0.68	16	0.76	16
benzo[b]fluoranthene	18.78	17	1.27	27	63.02	17	12.78	17
benzo[j]fluoranthene	11.94	17	1.01	17	22.51	17	7.54	17
benzo[k]fluoranthene	9.15	17	0.65	17	18.95	17	5.65	17
benzo[e]pyrene	16.66	17	1.02	34	36.45	17	9.30	17
benzo[a]pyrene	21.17	17	1.28	26	32.54	17	6.63	17
indeno[1,2,3-cd]pyrene	13.74	16	1.16	23	24.86	16	8.59	16
dibenz[ah]anthracene	1.46	21	0.18	112	5.88	16	0.85	28
benzo-[g,h,i]perylene	15.63	16	1.03	28	22.16	16	7.64	16
anthanthrene	3.12	17	0.10	201	2.89	17	0.43	49
dibenzo[a,l]pyrene	1.01	25	0.15	134	0.27	76	0.17	119
dibenzo[a,e]pyrene	1.35	22	<0.1	201	4.55	16	1.30	22
dibenzo[a,i]pyrene	0.35	59	<0.1	201	1.30	22	0.18	112
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	0.48	45	<0.1	201
coronene	6.02	16	0.47	45	5.27	16	4.05	17
PAH 4 Sum Lower µg/kg	105.48		6.30		251.07		53.34	
PAH 4 Sum Upper µg/kg	105.48	8	6.30	11	251.07	8	53.34	9

FERA LIMS No.	S14-010629 Red Ginseng Green Sencha Loose Leaf Wellness	S14-010638 Organic Nettle Tea	S14-010646 Rooibos tea bags caffeine free	S14-010648 Redbush & Vanilla (rooibos)
µg/kg whole weight	U%	U%	U%	U%
acenaphthylene	33.23	25	1.08	36
acenaphthene	5.09	112	1.03	163
fluorene	14.33	58	4.98	44
phenanthrene	189.38	22	34.65	23
anthracene	30.43	21	1.66	25
fluoranthene	157.16	21	12.81	26
benzo[c]fluorene	6.48	21	0.20	29
pyrene	132.64i	21	12.38i	26
benzo[ghi]fluoranthene	27.22	16	1.61	19
benz (a) anthracene	23.78	16	1.29	21
benzo[b]naphtho[2,1-d]thiophene	2.48	16	0.70	33
cyclopenta[c,d]pyrene	10.56	16	0.18	19
chrysene	34.06	16	2.53	20
5-methylchrysene	<0.22	201	0.03	69
benzo[b]fluoranthene	20.39	17	1.51	24
benzo[j]fluoranthene	12.78	17	0.90	17
benzo[k]fluoranthene	9.96	17	0.60	17
benzo[e]pyrene	14.36	17	1.57	26
benzo[a]pyrene	13.30	18	0.82	36
indeno[1,2,3-cd]pyrene	13.14	16	0.97	26
dibenz[ah]anthracene	1.41	43	0.16	126
benzo-[g,h,i]perylene	12.50	16	1.21	25
anthanthrene	1.47	21	<0.1	201
dibenzo[a,l]pyrene	1.22	23	<0.1	201
dibenzo[a,e]pyrene	1.24	70	<0.1	201
dibenzo[a,i]pyrene	0.22	183	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	6.33	16	0.57	38
PAH 4 Sum Lower µg/kg	91.53		6.15	1.32
PAH 4 Sum Upper µg/kg	91.53	9	6.15	12
			1.32	39
			1.33	39

FERA LIMS No.	S14-010650	S14-010657	S14-010659	S14-010701	Loose green tea Sencha (organic)			
Description	Pure Peppermint	Camomile	Peppermint					
µg/kg whole weight		U%	U%	U%	U%			
acenaphthylene	2.80	24	2.38	24	2.12	26	6.66	22
acenaphthene	1.90	88	3.22	48	10.53	30	1.74	133
fluorene	7.48	33	8.61	30	19.20	24	8.51	33
phenanthrene	41.19	22	56.94i	22	163.93	21	104.82	21
anthracene	2.54	23	1.27	24	24.37	21	5.30	21
fluoranthene	18.86	23	19.96	23	77.98	21	74.61	21
benzo[c]fluorene	0.41	23	0.39	23	1.46	21	1.48	21
pyrene	13.39i	25	14.14i	24	58.97	21	49.60i	21
benzo[ghi]fluoranthene	1.95	18	2.15	17	4.32	16	10.88	16
benz (a) anthracene	2.44	17	1.79	18	10.23	16	6.81	16
benzo[b]naphtho[2,1-d]thiophene	0.45	47	0.79	26	1.88	16	2.42	16
cyclopenta[c,d]pyrene	0.34	17	0.28	17	0.27	17	0.85	16
chrysene	3.90	17	4.50	17	9.84	16	18.00	16
5-methylchrysene	<0.01	201	<0.02	201	<0.25	201	<0.07	201
benzo[b]fluoranthene	2.96	19	2.13	19	6.45	17	11.56	17
benzo[j]fluoranthene	1.64	17	1.35	17	3.52	17	6.33	17
benzo[k]fluoranthene	1.45	17	0.96	17	3.47	18	5.04	17
benzo[e]pyrene	2.01	23	1.65	26	5.05	17	8.52	17
benzo[a]pyrene	2.00	21	1.04	35	5.26	18	4.92	18
indeno[1,2,3-cd]pyrene	1.91	19	1.51	20	4.29	16	7.51	16
dibenz[ah]anthracene	0.33	63	0.17	142	0.73	32	0.66	34
benzo-[g,h,i]perylene	1.70	21	1.55	18	4.04	16	6.45	16
anthanthrene	0.20	101	<0.1	201	0.59	37	0.53	41
dibenzo[a,l]pyrene	0.31	66	<0.1	201	0.65	37	<0.11	201
dibenzo[a,e]pyrene	<0.12	201	0.28	101	1.07	24	1.21	23
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.2	201	<0.2	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201	<0.1	201
coronene	0.63	35	0.70	33	1.28	22	3.73	17
PAH 4 Sum Lower µg/kg	11.30		9.46		31.78		41.29	
PAH 4 Sum Upper µg/kg	11.30	9	9.46	10	31.78	8	41.29	9

FERA LIMS No.	S14-010733	S14-010756	S14-010759	S14-010765
Description	Green Tea Pure	Cinnamon Chai Caffeine Free Herbal Infusion	Crème Caramel Flavour Rooibos Loose Tea	Delicate Camomile
µg/kg whole weight	U%	U%	U%	U%
acenaphthylene	4.92	22	0.40i	88
acenaphthene	2.92	80	<1.13	201
fluorene	8.94	32	9.49i	31
phenanthrene	75.85	21	36.64	23
anthracene	6.79	21	2.73	22
fluoranthene	57.15	21	28.06	22
benzo[c]fluorene	1.60	21	0.12	27
pyrene	41.70i	22	28.15i	22
benzo[ghi]fluoranthene	9.21	16	5.04	16
benz (a) anthracene	9.57	16	3.09	16
benzo[b]naphtho[2,1-d]thiophene	1.80	16	0.39	17
cyclopenta[c,d]pyrene	2.41	16	1.18	16
chrysene	14.79	16	6.29	16
5-methylchrysene	<0.12	201	0.09	27
benzo[b]fluoranthene	9.44	17	2.36	19
benzo[j]fluoranthene	5.11	17	1.59	17
benzo[k]fluoranthene	4.53i	17	1.00	23
benzo[e]pyrene	8.17	17	1.44	22
benzo[a]pyrene	6.51	17	1.00	31
indeno[1,2,3-cd]pyrene	6.42	16	0.92	27
dibenz[ah]anthracene	0.75	31	<0.15	201
benzo-[g,h,i]perylene	6.88	16	0.85	25
anthanthrene	0.88	28	0.11	183
dibenzo[a,l]pyrene	<0.11	201	<0.11	201
dibenzo[a,e]pyrene	0.95	26	<0.25	201
dibenzo[a,i]pyrene	<0.19	201	<0.2	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	3.03	17	0.32	64
PAH 4 Sum Lower µg/kg	40.31		12.74	
PAH 4 Sum Upper µg/kg	40.31	8	12.74	10
			4.65	
			4.65	12
			8.52	10

FERA LIMS No.	S14-010767	S14-010768	S14-010777	S14-010793
Description	Lemon Balm Tea	Camomile	Ginseng Vitality Tea	Fennel Herbal Infusions
µg/kg whole weight		U%	U%	U%
acenaphthylene	2.14	26	4.79i	22
acenaphthene	3.34	71	4.61i	53
fluorene	5.32	46	8.49	33
phenanthrene	29.81	24	62.02i	22
anthracene	1.06	27	2.00	23
fluoranthene	12.93	26	21.66	23
benzo[c]fluorene	0.17	24	0.43	22
pyrene	7.89i	34	17.46i	24
benzo[ghi]fluoranthene	1.12	24	2.44	18
benz (a) anthracene	1.21	16	2.13	16
benzo[b]naphtho[2,1-d]thiophene	0.43	16	0.57	16
cyclopenta[c,d]pyrene	0.07	33	1.21	16
chrysene	2.66	17	4.05	16
5-methylchrysene	<0.05	201	<0.02	201
benzo[b]fluoranthene	2.27	19	2.67	18
benzo[j]fluoranthene	1.16	17	1.64	17
benzo[k]fluoranthene	1.07	23	1.27	21
benzo[e]pyrene	1.62	21	2.06	20
benzo[a]pyrene	1.40	25	1.73	23
indeno[1,2,3-cd]pyrene	1.54	20	2.06	19
dibenz[ah]anthracene	0.26	79	0.29	71
benzo-[g,h,i]perylene	1.37	20	2.63	17
anthanthrene	0.15	134	0.29	71
dibenzo[a,l]pyrene	<0.11	201	<0.11	201
dibenzo[a,e]pyrene	0.46	46	0.52i	42
dibenzo[a,i]pyrene	<0.2	201	<0.2	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201
coronene	0.44	48	1.28	22
PAH 4 Sum Lower µg/kg	7.54		10.58	
PAH 4 Sum Upper µg/kg	7.54	10	10.58	9
			119.07	9
			11.84	11

FERA LIMS No.	S14-010804	S14-010806	S14-010821			
Description	Rosehip & Hibiscus Herbal Infusions	Organic Loose Sencha Tea	Yummy Berry Fruit tea for all the family			
µg/kg whole weight		U%	U%	U%	U%	
acenaphthylene	3.15	23	11.58	21	0.36	81
acenaphthene	1.67	86	1.09	130	<0.7	201
fluorene	4.20	50	5.98	38	1.41	138
phenanthrene	33.35	23	66.13	21	12.03	31
anthracene	3.33	21	6.48	21	0.69	29
fluoranthene	17.64	24	46.87	21	8.10	32
benzo[c]fluorene	0.54	22	1.06	21	0.22	28
pyrene	15.20i	24	39.35i	21	9.04i	29
benzo[ghi]fluoranthene	2.79	17	8.25	16	1.42	19
benz (a) anthracene	2.85	17	4.46	16	0.94	22
benzo[b]naphtho[2,1-d]thiophene	0.53	34	1.14	21	0.17	95
cyclopenta[c,d]pyrene	0.09	27	0.63	16	0.13	22
chrysene	3.62	17	9.57	16	1.54	22
5-methylchrysene	<0.06	201	<0.1	201	<0.01	201
benzo[b]fluoranthene	1.90	20	6.24	17	0.69	34
benzo[j]fluoranthene	1.20	17	3.42	17	0.55	17
benzo[k]fluoranthene	0.86	17	2.69	17	0.33	18
benzo[e]pyrene	1.64	26	4.88	18	0.50	66
benzo[a]pyrene	1.48	27	3.81	19	0.54	62
indeno[1,2,3-cd]pyrene	1.10	23	4.04	16	0.59	34
dibenz[ah]anthracene	0.14	172	0.45	56	<0.14	201
benzo-[g,h,i]perylene	1.20	20	4.05	16	0.63	27
anthanthrene	<0.1	201	0.11	183	<0.1	201
dibenzo[a,l]pyrene	<0.1	201	0.10	201	<0.1	201
dibenzo[a,e]pyrene	0.19	148	0.50	58	<0.14	201
dibenzo[a,i]pyrene	<0.1	201	<0.1	201	<0.1	201
dibenzo[a,h]pyrene	<0.1	201	<0.1	201	<0.1	201
coronene	0.45	47	2.25	18	0.25	82
PAH 4 Sum Lower µg/kg	9.85		24.08		3.71	
PAH 4 Sum Upper µg/kg	9.85	10	24.08	9	3.71	15

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