

**ADVISORY COMMITTEE ON NOVEL FOODS AND PROCESSES****CHIA SEED****ISSUE**

Members are invited to consider a recent unfavourable opinion from the European Food Safety Authority (EFSA) concerning the safety of whole chia seed and ground whole chia as novel food ingredients that obtained a positive initial opinion from the UK.

**Background**

1. Chia (*Salvia hispanica* L) is a summer annual herbaceous plant belonging to the mint family (Labiatae). The seed of the Chia plant has a long history of consumption in South America and was a major part of the diet in pre-Columbian civilisations, mainly in the Aztec population. Chia seeds would provide consumers with an alternative source of the n-3 polyunsaturated fatty acid, alpha-linolenic acid.
2. An application for the use of whole chia seed and ground whole chia as a novel ingredient (NI) in multi-grain-style breads was considered by the ACNFP in 2003-4<sup>1</sup> and the Committee issued a favourable opinion in April 2004 (**Annex A**). The basis for the Committee's positive opinion was as follows:
  - (i) Sufficient analytical information was provided for the proposed NI specification.
  - (ii) The applicant's HACCP procedure to prevent any undesirable substances contaminating the NI during transportation was satisfactory.
  - (iii) Sufficient safety studies were provided for the NI, given the limited uses specified by the applicant. Whilst there were concerns regarding the allergenicity of chia seeds, Members noted that the proposed range of foods was small and consisted of products that would be avoided by individuals who were allergic to other seed types. In view of this Members were content that the intended use of the product did not give any concern.
  - (iv) Members were reassured that the applicant proposed to include a precautionary statement on the label of chia containing foods, informing consumers that the product was not suitable for people suffering from sesame and mustard seed allergies. Whilst the Committee accepted that this approach would control the risk associated with cross-reactivity,

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<sup>1</sup> Papers ACNFP/61/2, 64/13 and 65/5, Minutes ACNFP/61/MIN, 64/MIN and 65/MIN

Members were concerned that the use of precautionary labelling might unnecessarily restrict the range of products available to allergenic consumers. However Members acknowledged that this point was an issue of risk management, and as such fell outside the remit of the Committee.

3. The UK initial opinion for chia seed was forwarded to the European Commission for consideration by other Member States in May 2004. Although several Member States supported the conclusions in the initial opinion, others made reasoned objections primarily related to:
  - (i) insufficient toxicological information
  - (ii) allergenicity
  - (iii) analytical methodology.
4. In line with Article 11 of Regulation (EC) 258/97 the application was referred to EFSA in April 2005. EFSA's NDA Panel<sup>2</sup> reviewed the data seen by the ACNFP, along with additional information on analytical methods and a report on the potential presence of toxins in chia, and published its opinion in November 2005 (**Annex B**).
5. The NDA Panel's overall conclusion is that "the safety of chia cannot be established from the available information and additional studies are required". The arguments leading to this conclusion are summarised below with short commentaries:

(i) The compositional data on chia seeds provided by the applicant are not sufficient to perform a full nutritional assessment.

The applicant had provided results from analysis of four batches of seed showing the proximate composition and the fatty acid profile and provided additional data on minerals, vitamins and amino acids. Separate data were not provided on the ground seed and the bioavailability of nutrients was not investigated. The effects of storage and processing were also not tested. The application proposes only one specific use of the whole and ground seed, as a component of multigrain bread. The estimated average intake – based on UK survey data – is 2.1 grams per day and the estimated high level intake is 11.6 g/day (97.5th centile). Equivalent estimates were not provided for other EU countries.

The NDA Panel noted that the nutritional information does not in itself cause a concern and accepted that chia seed has the potential to contribute to an improved daily intake of n-3 fatty acids through a staple food. However, the Panel was concerned about the absence of bioavailability studies and the limited nature of the available compositional data.

(ii) From the data provided by the applicant there is no evidence of adverse effects of whole chia seed and whole ground chia seeds.

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<sup>2</sup> Panel on dietetic products, nutrition and allergies

(iii) There are uncertainties with regard to the potential allergenicity of chia.

The ACNFP discussed this at length, and asked for additional data to determine the extent of cross-reactivity between chia seed and other seeds known to cause allergy. The applicant pointed to practical difficulties with the conduct of such studies and argued that the multi-grain breads that would contain chia seed would in any case be unsuitable for people with existing seed allergies. The Committee accepted this argument, and noted that this, combined with appropriate labelling, would control the risk associated with cross-reactivity.

(iv) The presence in the intended NF ingredient of constituents which might exert anti-nutritional or toxic effects cannot be excluded.

This point was not addressed in the ACNFP's evaluation. It would be reasonable to expect the seeds to be screened for the presence of undesirable secondary metabolites which typically occur in related species, such as thujone, which is found in the leaves of sage and other Salvia species. Uncertainty over the possible presence of unknown toxins could only be addressed through formal toxicological studies.

(v) Adequate toxicological information on chia seed is not available and the human data provided to the Panel are limited.

The EFSA Panel notes that reductions in body weight and egg production have been reported in some hens fed with high proportions of chia seed (up to 30%). The Panel's conclusion that further data are required is also related to point (iv) above and a report that chia may have been used in traditional medicine (the part of the plant is not specified).

### **Committee Action required**

6. This is the first opinion issued by EFSA that disagrees with a positive UK view on the acceptability of a novel food. Members may therefore wish to consider the EFSA document and comment whether:
  - They agree that there is a need for additional toxicity information even though there is a history of consumption in South America and the intake of the NI results from its use in only one type of bread product,
  - Additional studies are required to investigate the potential presence of toxins and anti-nutrients.

**Secretariat  
January 2006**

### **Annexes attached:**

**Annex A:** UK initial opinion on chia seed.

**Annex B:** EFSA opinion on chia seed.

**ADVISORY COMMITTEE ON NOVEL FOODS AND PROCESSES**

UK initial opinion on chia seed.

This document has been published on the ACNFP website at:

<http://www.acnfp.gov.uk/assess/fullapplicants/chia>

**Secretariat  
January 2006**

**ADVISORY COMMITTEE ON NOVEL FOODS AND PROCESSES**

EFSA opinion.

Opinion of the NDA Panel related to the safety of chia (*Salvia hispanica* L.) seed and ground whole chia seed as a novel food ingredient intended for use in bread. Adopted on 5 October 2005. (Request N° EFSA-Q-2005-059).

This document has been published on the EFSA website at:

[http://www.efsa.eu.int/science/nda/nda\\_opinions/1205\\_en.html](http://www.efsa.eu.int/science/nda/nda_opinions/1205_en.html)

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