European Food Safety Authority

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SCIENTIFIC OPINION

Algatrium® and antioxidant response

Scientific substantiation of a health claim related to Algatrium® and antioxidant response Article 13(5) of Regulation (EC) No 1924/2006[1]

Scientific Opinion of the Panel on Dietetic Products, Nutrition and Allergies

(Question No EFSA-Q-2008-705)

Adopted on 22 January 2009

PANEL MEMBERS

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SUMMARY

Following an application from Brudy Technology S.L. submitted pursuant to Article 13(5) of Regulation (EC) No 1924/2006 via the Competent Authority of Spain, the Panel on Dietetic Products, Nutrition and Allergies was asked to deliver an opinion on the scientific substantiation of a health claim related to Algatrium® and antioxidant response.

The scope of the application was proposed to fall under a health claim based on newly developed scientific evidence and includes a request for the protection of proprietary data.

The food constituent that is the subject of the health claim is Algatrium®, which is derived from fish oil and contains docosahexaenoic acid (DHA) as active ingredient (67%). Other long chain polyunsaturated fatty acids (LC-PUFA), such as eicosapentaenoic acid (EPA, about 10%) are also present. Manufacturing process, specifications and stability information of the DHA-rich fish oil were provided by the applicant. The Panel considers that Algatrium® is sufficiently characterised.

The claimed effect is "promotes your antioxidant response" by "stimulation of the own cells' antioxidant defences". The target population is the general population. The Panel considers that the claimed effect "promotes your antioxidant response" by "stimulation of the own cells' antioxidant defences" might be beneficial to human health.

The applicant has identified a total of 18 studies considered pertinent to the claim. These studies include five human studies and 13 *in vitro* cell studies. Three of the human intervention studies are not performed with Algatrium®. The Panel considers these studies not pertinent to the claim. Two unpublished studies investigated effects on oxidative damage in male cyclists

[1] For citation purposes: Scientific Opinion of the Panel on Dietetic Products, Nutrition and Allergies on a request from Brudy Technology S.L. on Algatrium® and antioxidant response. *The EFSA Journal* (2009) 942, 1-9

receiving 500 mg to 3500 mg of Algatrium® daily during one to three months. The primary outcome was the change in 8-hydroxy-2'-deoxyguanosine (8-OHdG) excretion in 24 h urine. The Panel does not consider measurement of 8-OHdG excretion in urine a reliable biomarker of DNA damage. Therefore, these studies are not useful as a source of evidence to support the claimed effect. The Panel also considers that the evidence provided does not establish that a reduction of 8-OHdG excretion indicates a beneficial change in function.

Of the thirteen *in vitro* studies identified by the applicant, only one was carried out using Algatrium® to investigate its effect on the cellular redox status *in vitro*. The data provided does not establish the validity of this *in vitro* study to support the claimed effect *in vivo.*

The Panel concludes that a cause and effect relationship between the consumption of Algatrium® and the claimed effect has not been established.

Key words: DHA, docosahexaenoic acid, omega-3 polyunsaturated fatty acids, antioxidant, oxidative stress.

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BACKGROUND

Regulation (EC) No 1924/2006[2] harmonises the provisions that relate to nutrition and health claims and establishes rules governing the Community authorisation of health claims made on foods. As a rule, health claims are prohibited unless they comply with the general and specific requirements of that Regulation and are authorised in accordance with this Regulation and included in the lists of authorised claims provided for in Articles 13 and 14 thereof. In particular, Article 13(5) of that Regulation lays down provisions for addition of claims (other than those referring to the reduction of disease risk and to children's development and health), which are based on newly developed scientific evidence or include a request for the protection of proprietary data, to the Community list of permitted claims referred to in Art 13(3).

According to Article 18 of that Regulation, an application for inclusion in the Community list of permitted claims referred to in Art 13(3) shall be submitted by the applicant to the national competent authority of a Member State, who will make the application and any supplementary information supplied by the applicant available to European Food Safety Authority (EFSA).

Steps taken by EFSA:

- The application was received on 09/10/2008.
- The scope of the application was proposed to fall under a health claim based on newly developed scientific evidence.
- The scientific evaluation procedure started on 09/10/2008.
- During the meeting on 22/01/2009, the NDA Panel, after having evaluated the overall data submitted, adopted an opinion on the scientific substantiation of a health claim related to Algatrium® and antioxidant response.

TERMS OF REFERENCE

EFSA is requested to evaluate the scientific data submitted by the applicant in accordance with Article 16(3) of Regulation (EC) No 1924/2006. On the basis of that evaluation, EFSA will issue an opinion on the scientific substantiation of a health claim related to: Algatrium® and antioxidative response.

EFSA DISCLAIMER

The present opinion does not constitute, and cannot be construed as, an authorisation to the marketing of Algatrium®, a positive assessment of its safety, nor a decision on whether Algatrium® is, or is not, classified as a foodstuff. It should be noted that such an assessment is not foreseen in the framework of Regulation (EC) No 1924/2006.

It should also be highlighted that the scope, the proposed wording of the claim and the conditions of use as proposed by the applicant may be subject to changes, pending the outcome of the authorisation procedure foreseen in Article 18(4) of Regulation (EC) No 1924/2006.

ACKNOWLEDGEMENTS

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[2] European Parliament and Council (2006). Regulation (EC) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods. Official Journal of the European Union OJ L 404, 30.12.2006. Corrigendum OJ L 12, 18.1.2007, p. 3–18.

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1. Information provided by the applicant

Applicant's name and address: Brudy Technology S.L., C/Riera Sant Miquel 3,20,4a. 08006 – Barcelona (Spain)

The application includes a request for the protection of proprietary data in accordance with Article 21 of Regulation (EC) No 1924/2006.

1.1. Food/constituent as stated by the applicant

Algatrium®, a unique and patented antioxidant DHA source obtained from fish oil as raw material for foods/food supplements without other LC-PUFAs in significant amounts. 500 mg Algatrium® has 333 mg DHA.

1.2. Health relationship as claimed by the applicant

According to the applicant, "Algatrium® is a unique DHA concentrated oil source that has been clinically demonstrated in humans as an activator of the body defences against cellular oxidation. Algatrium® enhances the natural mechanism of cell protection against free radicals by increasing the own body defences. Furthermore, it acts as an essential cellular antioxidant that provides a direct protection of the cell membranes oxidation and DNA damage. Consequently, the daily administration of Algatrium® provides a unique and complete protection to maintain the body antioxidant system in optimal conditions against oxidative stress. High doses (3500 mg of Algatrium® daily) taken during 1 month, have completely annulled the oxidative damage to DNA caused by an intense oxidative stress".

1.3. Wording of the health claim as proposed by the applicant

"Algatrium® promotes your antioxidant response: a singular nutritional substance that has scientifically demonstrated in humans a stimulation of the own cells antioxidant defences".

1.4. Specific conditions for use as proposed by the applicant

The intended target of the solicited health claim is the general population in good health condition, independently of the sex, age and degree of physical activity. Consumption's time period of 3 months or longer, a quantity of Algatrium® from 500 to 1500 mg a day is recommended in healthy persons. Consumption's periods of time less than 3 months, higher quantities can be taken in relation with the period of time (till a maximum of 3500 mg of Algatrium® a day).

2. Assessment

2.1. Characterisation of food/constituent

The food constituent that is the subject of the health claim is Algatrium®, which is derived from fish oil and contains docosahexaenoic acid (DHA) as active ingredient (67%). Other long chain polyunsaturated fatty acids (LC-PUFA), such as eicosapentaenoic acid (EPA, about 10%) are also present. The LC-PUFA are present as triacylglycerides. A natural extract rich in tocopherols is used as antioxidant.

DHA and other n-3 LC-PUFA occur naturally in fish oil. DHA is measurable in foods by established methods and is well absorbed when consumed in the form of triacylglycerides.

Manufacturing process, specifications and stability information of the DHA-rich fish oil were provided by the applicant. The stability studies have been performed with Algatrium® (liquid), Algatrium® capsules and milk manufactured with Algatrium®. The food constituent is intended to be used as raw material for foods/food supplements. Food supplements are

available as capsules of gelatine (500 mg Algatrium®/capsule) with a range of daily consumption of one to seven capsules (containing 333-2,331 mg DHA) and in liquid form (1 g Algatrium®/mL) with a range of daily consumption between 0.5 mL and 3.5 mL (containing 333-2,333 mg DHA). The Panel considers that the food constituent Algatrium® is sufficiently characterised.

2.2. Relevance of the claimed effect to human health

The claimed effect is "promotes your antioxidant response" by "stimulation of the own cells' antioxidant defences". The target population is the general population.

The Panel considers that the claimed effect "promotes your antioxidant response" by "stimulation of the own cells' antioxidant defences" might be beneficial to human health.

2.3. Scientific substantiation of the claimed effect

The applicant did not include his literature search strategy and therefore it is unclear how the applicant identified the publications considered pertinent to the claim. The applicant has identified a total of 18 studies as being pertinent to the claim. These include five human and 13 *in vitro* studies. Three of the five human intervention studies are published and two are unpublished studies.

Two of the human intervention studies (Kim *et al.*, 2006; Rhodes *et al.*, 2003) refer to interventions with EPA only, but not DHA. An intervention study by Wu *et al.* (2006) was carried out using algae oil containing DHA. The Panel considers that these studies are not pertinent to the claim because they where not carried out with the product for which the claim is made.

Two unpublished studies provided by the applicant were performed on 14 male cyclists using 3500 mg of Algatrium® daily (containing 2.1 g DHA) during three months (Villegas, 2007) and on 59 male cyclists using different daily doses (500, 1500, 2500 and 3500 mg containing 333 mg to 2333 mg DHA) of Algatrium® for four weeks (Villegas, 2008). Each cyclist performed ergometric endurance tests during the study. The primary outcome in both studies was the change in 8-hydroxy-2'-deoxyguanosine (8-OHdG) excretion in 24 h urine.

The Panel notes that 8-OHdG is the product of the dominant oxidative modification of DNA (the 8-hydroxylation of guanine) and that 8-OHdG has been used as a marker of whole-body oxidative DNA damage. However, guanine is easily prone to oxidation and some of the methods used to measure urinary 8-OHdG may only measure an oxidation artefact, including the enzyme immunoanalysis (ELISA) method used in the studies presented by the applicant. Thus, measurement of 8-OHdG excretion in urine is not considered as a reliable biomarker of DNA damage (Collins 2005, Halliwell 2000, Halliwell *et al.*, 2004, 2005). Therefore, these studies are not useful as a source of evidence to support the claimed effect. The Panel also considers that the evidence provided does not establish that a reduction of 8-OHdG excretion indicates a beneficial change in function.

Among the thirteen *in vitro* studies identified by the applicant, only one was carried out using Algatrium® to investigate its effect on the cellular redox status *in vitro* (unpublished study, only included in the application). The evidence provided does not establish the validity of this *in vitro* study to support the claimed effect *in vivo*.

The Panel concludes that a cause and effect relationship has not been established between the consumption of Algatrium® and "promotes your antioxidant response" by "stimulation of the own cells antioxidant defences".

CONCLUSIONS

On the basis of the data presented, the Panel concludes that:

- Algatrium® is sufficiently characterised.
- The claimed effect is "promotes your antioxidant response" by "stimulation of the own cells antioxidant defences". The target population is the general population.
- The claimed effect "promotes your antioxidant response" by "stimulation of the own cells antioxidant defences" might be beneficial to human health.
- A cause and effect relationship has not been established between the consumption of Algatrium® and the claimed effect.

DOCUMENTATION PROVIDED TO EFSA

Health claim application on "Algatrium® and antioxidant response" pursuant to Article 13(5) of Regulation (EC) No 1924/2006 (Claim serial No: 0223-ES). October 2008. Submitted by Brudy Technology S.L.

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GLOSSARY / ABBREVIATIONS

8-OHdG	8-hydroxy-2-deoxyguanosine
DHA	Docosahexaenoic Acid
ELISA	Enzyme-Linked Immuno Sorbent Assay
EPA	Eicosapentoenoic Acid
LC-PUFA	Long Chain Polyunsaturated Fatty Acids
PUFA	Polyunsaturated Fatty Acids