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SCIENTIFIC OPINION

Scientific Opinion on the substantiation of a health claim related to vitamin C and increasing non-haem iron absorption pursuant to Article 14 of Regulation (EC) No 1924/2006[1]

EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA)[2, 3]

European Food Safety Authority (EFSA), Parma, Italy

ABSTRACT

Following an application from Specialised Nutrition Europe (formerly IDACE), submitted for authorisation of a health claim pursuant to Article 14 of Regulation (EC) No 1924/2006 via the Competent Authority of France, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver an opinion on the scientific substantiation of a health claim related to vitamin C and increasing non-haem iron absorption. The food constituent, vitamin C, which is the subject of the health claim, is sufficiently characterised. Increasing non-haem iron absorption is a beneficial physiological effect for infants and young children. A claim on vitamin C and increasing non-haem iron absorption in the general population has already been assessed by the Panel with a favourable outcome. The Panel considers that the role of vitamin C in increasing non-haem iron absorption applies to all ages, including infants and young children (from birth to three years). The Panel concludes that a cause and effect relationship has been established between the dietary intake of vitamin C and increasing non-haem iron absorption.

KEY WORDS

vitamin C, infants, children, iron absorption, health claims

[1] On request from the Competent Authority of France following an application by Specialised Nutrition Europe (formerly IDACE), Question No EFSA-Q-2008-176, adopted on 11 December 2013.

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[3] Acknowledgement: The Panel wishes to thank the members of the Working Group on Claims: Carlo Agostoni, Jean-Louis Bresson, Susan Fairweather-Tait, Marina Heinonen, Ambroise Martin, Hildegard Przyrembel, Yolanda Sanz, Alfonso Siani, Anders Sjödin, Sean (J.J.) Strain, Inge Tetens, Hendrik Van Loveren, Hans Verhagen and Peter Willatts for the preparatory work on this scientific opinion.

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SUMMARY

Following an application from Specialised Nutrition Europe (formerly IDACE), submitted for authorisation of a health claim pursuant to Article 14 of Regulation (EC) No 1924/2006 via the Competent Authority of France, the EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA) was asked to deliver an opinion on the scientific substantiation of a health claim related to vitamin C and increasing non-haem iron absorption.

The scope of the application was proposed to fall under a health claim referring to children's development and health.

The food constituent that is the subject of the health claim is vitamin C, which is an essential nutrient and is measurable in foods by established methods. The Panel considers that vitamin C is sufficiently characterised.

The claimed effect proposed by the applicant is "enhancer of non-haem iron absorption". The target population proposed by the applicant is infants and young children from birth to three years of age. The Panel considers that increasing non-haem iron absorption is a beneficial physiological effect for infants and young children.

A claim on vitamin C and increasing non-haem iron absorption in the general population has already been assessed by the Panel with a favourable outcome. The conclusion of the Panel was based on the well-established role of vitamin C in promoting non-haem iron absorption.

The Panel considers that the role of vitamin C in increasing non-haem iron absorption applies to all ages, including infants and young children (from birth to three years).

The Panel concludes that a cause and effect relationship has been established between the dietary intake of vitamin C and increasing non-haem iron absorption.

The following wording reflects the scientific evidence: "Vitamin C contributes to increasing non-haem iron absorption".

The Panel considers that in order to bear the claim, follow-on formulae should comply with the criteria of composition of follow-on formulae as laid down in Directive 2006/141/EC; nutritionally complete foods for special medical purposes intended for use by infants and nutritionally complete foods for special medical purposes other than those intended for use by infants should comply with the criteria of composition of these foods as laid down in Directive 1999/21/EC; processed cereal-based foods for infants and young children should comply with the criteria of composition of these foods as laid down in Directive 2006/125/EC; other foodstuffs intended for infants and young children should provide at least 15 % of the reference values for nutrition labelling for foods intended for infants and young children as laid down in Directive 2006/141/EC. Such amounts can be easily consumed as part of a balanced diet. The target population is infants and children up to three years. No Tolerable Upper Intake Level has been set for vitamin C in this age group.

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BACKGROUND

Regulation (EC) No 1924/2006[4] 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 this Regulation, are authorised in accordance with this Regulation, and are included in the lists of authorised claims provided for in Articles 13 and 14 thereof. In particular, Articles 14 to 17 of this Regulation lay down provisions for the authorisation and subsequent inclusion of reduction of disease risk claims and claims referring to children's development and health in a Community list of permitted claims.

According to Article 15 of this Regulation, an application for authorisation shall be submitted by the applicant to the national competent authority of a Member State, which will make the application and any supplementary information supplied by the applicant available to the European Food Safety Authority (EFSA).

STEPS TAKEN BY EFSA

- The application was received on 14/02/2008.
- The scope of the application was proposed to fall under a health claim referring to children's development and health.
- On 26/03/2008, during the validation process of the application, EFSA sent a request to the applicant to provide missing information.
- On 22/07/2013, EFSA received the missing information as submitted by the applicant.
- The scientific evaluation procedure started on 04/10/2013.
- During its meeting on 11/12/2014, the NDA Panel, having evaluated the data submitted, adopted an opinion on the scientific substantiation of a health claim related to vitamin C and increasing non-haem iron absorption.

TERMS OF REFERENCE

EFSA is requested to evaluate the scientific data submitted by the applicant in accordance with Article 16 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: vitamin C and increasing non-haem iron absorption.

EFSA DISCLAIMER

The present opinion does not constitute, and cannot be construed as, an authorisation for the marketing of vitamin C, a positive assessment of its safety, nor a decision on whether vitamin C 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 17 of Regulation (EC) No 1924/2006.

[4] 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. OJ L 404, 30.12.2006, p. 9–25.

INFORMATION PROVIDED BY THE APPLICANT

Applicant's name and address: Specialised Nutrition Europe (formerly IDACE), 9-31 Avenue des Nerviens, 1040 Brussels, Belgium.

Food/constituent as stated by the applicant

According to the applicant, the food constituent for which the claim is made is vitamin C (ascorbic acid).

Health relationship as claimed by the applicant

According to the applicant, vitamin C is an enhancer of non-haem iron absorption. Vitamin C enhances the absorption of iron from food by reduction of ferric iron into ferrous iron, and by the formation of low-molecular weight iron chelates: ferrous iron more easily crosses the mucous layer to reach the brush border of the epithelial cells of the intestine.

Wording of the health claim as proposed by the applicant

The applicant has proposed the following wording for the health claim: "Vitamin C enhances iron absorption".

As equivalent alternative wordings, the applicant has also proposed: "Vitamin C/Ascorbic Acid/Ascorbate contributes to/participate in/plays an important role in/is important for/is involved in/ supports/optimises iron absorption".

Specific conditions of use as proposed by the applicant

According to the applicant, the target population is infants and young children from birth to three years of age.

According to the applicant, the quantity needed to achieve the claimed effect is:

- For follow-on formulae, the content in vitamin C should be within the range set in Directive 2006/141/EC.
- For dietary foods for special medical purposes, the content in vitamin C should be within the range set in Directive 1999/21/EC.
- For processed cereal-based foods and baby foods, the content in vitamin C should be within the range set in Directive 2006/125/EC.
- For processed cereal-based foods and baby foods, the content in vitamin C should reach at least 15 % of the Nutrient Reference Values set in Directive 2006/125/EC, i.e. 15 % of 25 mg (3.75 mg) per 100 g or 100 ml or per serving, as reconstituted.
- For foods intended for infants and young children other than follow-on formulae, processed cereal-based foods and baby foods, the content in vitamin C should reach at least 15 % of the Nutrient Reference Values set in Directive 2006/141/EC, i.e. 15 % of 45 mg (6.75 mg) per 100 ml product ready for use.

ASSESSMENT

1. Characterisation of the food/constituent

The food constituent that is the subject of the health claim is vitamin C (ascorbic acid), which is an essential nutrient and is measurable in foods by established methods.

Vitamin C occurs naturally in foods and is authorised for addition to foods (Annex I of Regulation (EC) No 1925/2006[5], Annex I of Directive 2002/46/EC[6], Annex III of Directive 2006/141/EC[7], Annex IV of Directive 2006/125/EC[8], Directive 2001/15/EC[9]). This evaluation applies to vitamin C (ascorbic acid) naturally present in foods and those forms authorised for addition to foods (i.e. ascorbate salts) (Annex II of Regulation (EC) No 1925/2006, Annex II of Directive 2002/46/EC, Annex III of Directive 2006/141/EC, Annex IV of Directive 2006/125/EC, Directive 2001/15/EC).

The Panel considers that the food constituent, vitamin C, which is the subject of the health claim, is sufficiently characterised.

2. Relevance of the claimed effect to human health

The claimed effect proposed by the applicant is "enhancer of non-haem iron absorption". The target population proposed by the applicant is infants and young children from birth to three years of age.

The Panel considers that increasing non-haem iron absorption is a beneficial physiological effect for infants and young children.

3. Scientific substantiation of the claimed effect

The applicant performed a literature search in PubMed, with no time limitations, using the search terms "vitamin C AND iron", "ascorbic acid AND iron", "human", "infants", and "children". Articles published in English, German or French were considered. Studies carried out in adults were also included.

The applicant identified 14 human intervention studies as being pertinent to the health claim. These studies investigated the effect of vitamin C on iron absorption from different formula or foods in infants and children below three years of age (Stekel et al., 1986; Davidsson et al., 1994, 2000; Fairweather-Tait et al., 1995; Zlotkin et al., 2006), in older children (Davidsson et al., 1998, 2001b) and in adults (Cook and Monsen, 1977; Hallberg et al., 1989; Hurrell et al., 1998; Davidsson et al., 2001a; Diaz et al., 2003; Olivares et al., 2007; Thankachan et al., 2008).

The Panel has already assessed a claim on vitamin C and increasing non-haem iron absorption with a favourable outcome (EFSA NDA Panel, 2009). The target population was the general population.

[5] Regulation (EC) No 1925/2006 of the European Parliament and of the Council of 20 December 2006 on the addition of vitamins and minerals and of certain other substances to foods. OJ L 404, 30.12.2006, p. 26–38.
[6] Directive 2002/46/EC of the European Parliament and of the Council of 10 June 2002 on the approximation of the laws of the Member States relating to food supplements. OJ L 183, 12.7.2002, p. 51–57.
[7] Commission Directive 2006/141/EC of 22 December 2006 on infant formulae and follow-on formulae and amending Directive 1999/21/EC Text with EEA relevance. OJ L 401, 30.12.2006, p. 1–33.
[8] Commission Directive 2006/125/EC of 5 December 2006 on processed cereal-based foods and baby foods for infants and young children. OJ L 339, 6.12.2006, p. 16–35.
[9] Commission Directive 2001/15/EC of 15 February 2001 on substances that may be added for specific nutritional purposes in foods for particular nutritional uses. OJ L 52, 22.2.2001, p. 19–25.

The conclusion of the Panel was based on the well-established role of vitamin C in promoting non-haem iron absorption by keeping iron in its reduced form. Vitamin C is administered with iron in clinical practice to increase iron absorption (IoM, 2000; EVM, 2002; Levin et al., 2006).

The Panel considers that the role of vitamin C in increasing non-haem iron absorption applies to all ages, including infants and young children (from birth to three years).

The Panel concludes that a cause and effect relationship has been established between the dietary intake of vitamin C and increasing non-haem iron absorption.

4. Panel's comments on the proposed wording

The Panel considers that the following wording reflects the scientific evidence: "Vitamin C contributes to increasing non-haem iron absorption".

5. Conditions and restrictions of use

The Panel considers that in order to bear the claim:

- follow-on formulae should comply with the criteria of composition of follow-on formulae as laid down in Directive 2006/141/EC;
- nutritionally complete foods for special medical purposes intended for use by infants and nutritionally complete foods for special medical purposes other than those intended for use by infants should comply with the criteria of composition of these foods as laid down in Directive 1999/21/EC[10];
- processed cereal-based foods for infants and young children should comply with the criteria of composition of these foods as laid down in Directive 2006/125/EC;
- other foodstuffs intended for infants and young children should provide at least 15 % of the reference values for nutrition labelling for foods intended for infants and young children as laid down in Directive 2006/141/EC.

Such amounts can be easily consumed as part of a balanced diet. The target population is infants and children up to three years. No Tolerable Upper Intake Level has been set for vitamin C in this age group (EFSA, 2004).

CONCLUSIONS

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

- The food constituent, vitamin C, which is the subject of the health claim, is sufficiently characterised.
- The claimed effect proposed by the applicant is "enhancer of non-haem iron absorption". The target population proposed by the applicant is infants and young children from birth to three years of age. Increasing non-haem iron absorption is a beneficial physiological effect for infants and young children.

[10] Commission Directive 1999/21/EC of 25 March 1999 on dietary foods for special medical purposes. OJ L 91, 7.4.1999, p. 29–36.

- A cause and effect relationship has been established between the dietary intake of vitamin C and increasing non-haem iron absorption.

- The following wording reflects the scientific evidence: "Vitamin C contributes to increasing non-haem iron absorption".

- In order to bear the claim, follow-on formulae should comply with the criteria of composition of follow-on formulae as laid down in Directive 2006/141/EC; nutritionally complete foods for special medical purposes intended for use by infants and nutritionally complete foods for special medical purposes other than those intended for use by infants should comply with the criteria of composition of these foods as laid down in Directive 1999/21/EC; processed cereal-based foods for infants and young children should comply with the criteria of composition of these foods as laid down in Directive 2006/125/EC; other foodstuffs intended for infants and young children should provide at least 15 % of the reference values for nutrition labelling for foods intended for infants and young children as laid down in Directive 2006/141/EC. Such amounts can be easily consumed as part of a balanced diet. The target population is infants and children up to three years. No Tolerable Upper Intake Level has been set for vitamin C in this age group.

DOCUMENTATION PROVIDED TO EFSA

Health claim application on vitamin C and increasing non-haem iron absorption pursuant to Article 14 of Regulation (EC) No 1924/2006 (Claim serial No: 0096_FR). February 2008. Submitted by Specialised Nutrition Europe (formerly IDACE).

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