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Safety of the proposed extension of use of sucralose (E 955) in foods for special medical purposes in young children

EFSA Panel on Food Additives and Nutrient Sources added to Food (ANS)

Abstract

Following a request from the European Commission, the EFSA Panel on Food Additives and Nutrient Sources added to Food (ANS) provides a scientific opinion regarding the safety of the extension of use of the food additive sucralose (E 955) when added to dietary food for special medical purpose (FSMP) intended for young children aged from 1 to 3 years. Sucralose was evaluated by the EU Scientific Committee on Food (SCF) who established an acceptable daily intake (ADI) of 15 mg/kg body weight (bw). Sucralose is authorised in the EU for food use with exception for foods for young children. According to the applicant, the use of sweeteners is required to ensure palatable foods for the dietary management of patients whose compliance with the dietary regime (prescribed by healthcare professionals) is a key factor to their health. The exposure scenarios based on the proposed use by the applicant on the FSMP indicated that the total daily protein requirement (3 g protein/kg bw) could be covered by the product containing 400 mg sucralose/kg without exceeding the ADI. Also, exposure in other scenarios based on different assumptions was always below the ADI. Therefore, the ANS Panel concluded that the proposed extension of use of sucralose (E 955) in FSMP in young children aged from 1 to 3 years would not be of safety concern.

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Keywords: food additive, sweetener, sucralose, E 955, extension of use, FSMP, children

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Summary

Following a request from the European Commission, the European Food Safety Authority (EFSA) Panel on Food Additives and Nutrient Sources added to Food (ANS) provides a scientific opinion regarding the safety of the extension of use of the food additive sucralose (E 955) when added to dietary food for special medical purposes (FSMP) intended for young children aged from 1 to 3 years.

According to the applicant, the use of sweeteners is required to ensure palatable foods for the dietary management of patients whose compliance with the dietary regimen (prescribed by health care professionals) is a key factor to their health. Their diet is based on FSMPs, which either fulfil their daily nutrient requirements or supplement an inadequate dietary intake. The applicant stated that the FSMPs-added sucralose (E 955) were designed to cover or supplement dietary protein requirement in order to maintain physiological growth and development of the target population.

Although sucralose was previously evaluated by the European Union (EU) Scientific Committee on Food (SCF) and an acceptable daily intake (ADI) of 15 mg/kg body weight (bw) established in 1991 and 2000 by the joint FAO/WHO Expert Committee on Food Additives (JECFA) and by the SCF, respectively, the acceptability of the use of sucralose and any sweetener in dietary foods for young children for special medical purposes was not assessed.

The Panel considered that the available toxicological assessments of sucralose by SCF establishing an ADI would remain valid and in principle there would be no need to reconsider this to address the Terms of Reference.

In consideration of the medical condition of the recipient of the FSMPs, a different dietary pattern compared to their counterparts from the general population should be considered. These specific aspects were taken into account by the Panel when estimating exposure to sucralose (E 955) by different scenarios. With this aim, the applicant has proposed to assess two exposure scenarios with a specific product example: a liquid product containing 10 g protein per 100 mL and sweetened with 40 mg of sucralose, corresponding to 4 mg sucralose/g of protein. A first scenario would be closed to the original standard recommendations of 14.5 g/day for protein in children across the range of 1–3 years, whereas the second scenario would require the patients to meet their daily protein need set up by the applicant to 3 g/kg bw/day solely from the sweetened products.

According to this last maximum scenario, the protein intake can be fully ensured (3 g protein/kg body weight) by the sweetened product resulting in an approximate intake of sucralose of 12 mg/kg without exceeding the ADI of 15 mg/kg bw. Also, other exposure scenarios based on different assumptions were below the ADI.

The ANS Panel concluded that the proposed extension of use of sucralose (E 955) in FSMP in young children aged from 1 to 3 years would not be of safety concern.

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1. Introduction

1.1. Background and Terms of Reference as provided by the requestor

1.1.1. Background

The use of food additives is regulated under the European Parliament and Council Regulation (EC) No 1333/2008[1] on food additives. Only food additives that are included in the Union list, in particular in Annex II to that Regulation, may be placed on the market and used in foods under the conditions of use specified therein.

According to Article 16 of Regulation (EC) No 1333/2008, food additives shall not be used in foods for infants and young children as referred to in Directive 2009/39/EC,[2] including dietary foods for infants and young children for special medical purposes, except where specifically provided for in Annex II to that Regulation.

Directive 2009/39/EC will be repealed from 20 July 2016 by Regulation (EU) No 609/2013[3] of the European Parliament and of the Council on food intended for infants and young children, food for special medical purposes and total diet replacement for weight control. This Regulation lays down a new framework for a number of food categories, including food for special medical purposes.

Article 2(2)(b) of Regulation (EU) No 609/2013 defines 'young child' as 'a child aged between one and three years'. Article 2(2)(g) of Regulation (EU) No 609/2013 defines 'food for special medical purposes' as 'food specially processed or formulated and intended for the dietary management of patients, including infants, to be used under medical supervision; it is intended for the exclusive or partial feeding of patients with a limited, impaired or disturbed capacity to take, digest, absorb, metabolise or excrete ordinary food or certain nutrients contained therein, or metabolites, or with other medically-determined nutrient requirements, whose dietary management cannot be achieved by modification of the normal diet alone'.[4]

The Scientific Committee for Food (SCF) evaluated the use of certain colours in foods for special medical purposes for young children in 1997 (SCF, 1997). The Committee concluded that mixed carotenes, beetroot red, chlorophylls and anthocyanins are acceptable from the safety point of view for use in food for special medical purposes (FSMP) for young children from 12 months of age upwards, up to the maximum levels requested in the diluted product as consumed (mixed carotenes, 30 mg/L; chlorophyll, 20 mg/L; beetroot red, 20 mg/L; and anthocyanins, 20 mg/L). However, the Committee considered that use of colours may be inadvisable in products for children with cow's milk or other protein allergies. As regards carotenes, it was concluded that mixed carotenes derived from natural foods normally consumed are acceptable for use in FSMP, but that until the separate review of β-carotene is completed, the Committee was unable to give a view on the use of synthetic β-carotene in FSMP.

The safety of mixed carotenes and β-carotene was re-evaluated by European Food Safety Authority (EFSA) in 2012 (EFSA ANS Panel, 2012a). EFSA concluded that the use of (synthetic) β-carotene and mixed β-carotenes obtained from palm fruit oil, carrots and algae as food colour is not of safety concern, provided the intake from this use as a food additive and as food supplement, is not more than the amount likely to be ingested from the regular consumption of the foods in which they occur naturally (5–10 mg/day).

The acceptability of the use of sweeteners in dietary foods for young children for special medical purposes has not been assessed.

The Health and Food Safety Directorate-General has received a request from Specialised Nutrition Europe (formerly 'IDACE') for the extension of use of certain sweeteners and colours in dietary foods

[1] Regulation (EC) No 1333/2008 of the European Parliament and of the Council of 16 December 2008 on food additives. OJ L 354, 31.12.2008, p. 16–33.

[2] Directive 2009/39/EC of the European Parliament and of the Council of 6 May 2009 on foodstuffs intended for particular nutritional uses. OJ L 124, 20.5.2009, p. 21.

[3] Regulation (EU) No 609/2013 of the European Parliament and of the Council of 12 June 2013 on food intended for infants and young children, food for special medical purposes and total diet replacement for weight control. OJ L 181, 29.6.2013, p.35

[4] The relevant definitions of Regulation (EU) No 609/2013 are, in substance, no different to those given in the framework of Directive 2009/39/EC (currently applicable).

for young children for special medical purposes (Food Category 13.1.5.2 of part E of Annex II to Regulation (EC) No 1333/2008).

The application consists of the request to authorise the use of:

- E 950, acesulfame K at 450 mg/kg;
- E 955, sucralose at 400 mg/kg;
- E 160a, carotenes at 5 mg/kg[5];
- E 162 beetroot red, betanin at 20 mg/kg

According to the applicant, the use of the above mentioned additives is required to ensure appealing and palatable foods for the dietary management of patients whose compliance with the dietary regime (prescribed by health care professionals) is a key factor to their health.

The use is requested in *dietary foods for special medical purposes intended for young children from 12 months onwards who have cow's milk allergy, inborn errors of metabolism or other conditions which require special diets modified to be low in protein, or based on amino acids or protein hydrolysates*. Further details as regards the medical conditions are provided in the enclosure VIII Medical conditions.

The proposed uses concern special vulnerable groups of consumers. The acceptability of the use of sweeteners in dietary foods for young children for special medical purposes has not been assessed. Therefore, it is appropriate to consult EFSA as regards general considerations for the acceptability of the use of the two mentioned sweeteners at the proposed use levels in foods for special medical purposes for young children aged 1–3 years.

The use of colours requested was assessed as acceptable by the SCF. However, the Committee considered that use of colours may be inadvisable in products for children with cow's milk allergy or other protein allergies. Taking into account the intended use proposed by the applicant, it is appropriate to consult EFSA whether the conclusions drawn by the SCF remain valid for the requested use of E 160a carotenes and E 162 beetroot red, betanin.

1.1.2. Terms of Reference

The European Commission (EC) requests the European Food Safety Authority to provide a scientific opinion on the safety of the proposed extension of use for E 950, acesulfame K; E 955, sucralose; E 160a, carotenes; and E 162 beetroot red, betanin in dietary foods for young children for special medical purposes in accordance with Regulation (EC) No 1331/2008 establishing a common authorisation procedure for food additives, food enzymes and food flavourings[6].

1.2. Interpretation of the Terms of Reference

The Panel noted that the current Term of Reference of the mandate covers four different food additives, however, the Panel decided that each needed to be assessed independently and overall terms of reference will be met by four independent opinions.

The safety of sucralose (E 955) as a food additive will be considered under the re-evaluation programme for food additives already permitted in the EU before 20 January 2009, as foreseen by the Commission Regulation (EU) No 257/2010[7]. Meanwhile, the Panel considered that the available toxicological assessments of sucralose establishing an acceptable daily intake (ADI) of 15 mg/kg body weight (bw) (SCF, 2000) would remain valid and in principle there would be no need to reconsider this to address the Terms of Reference.

[5] In the original application 30 mg/kg was requested. The applicant reconsidered the request taking into account the EFSA's opinion on carotenes

[6] Regulation (EC) No 1331/2008 of the European Parliament and of the Council of 16 December 2008 establishing a common authorisation procedure for food additives, food enzymes and flavourings. OJ L 354, 31.12.2008, p. 1–6

[7] Regulation (EU) No 257/2010 of 25 March 2010 setting up a programme for the re-evaluation of approved food additives in accordance with Regulation (EC) No 1333/2008 of the European Parliament and of the Council on food additives. OJ L 80, 26.3.2010, p. 19–27

1.3. Additional information

For the purpose of this opinion, the definition of FSMP given in Commission Directive 1999/21/EC of 25 March 1999[8] on dietary food for special medical purposes applies:

> 'dietary foods for special medical purposes' means a category of foods for particular nutritional uses specially processed or formulated and intended for the dietary management of patients and to be used under medical supervision. They are intended for the exclusive or partial feeding of patients with a limited, impaired or disturbed capacity to take, digest, absorb, metabolise or excrete ordinary foodstuffs or certain nutrients contained therein or metabolites, or with other medically determined nutrient requirements, whose dietary management cannot be achieved only by modification of the normal diet, by other foods for particular nutritional uses or by a combination of the two.

The Panel also noted that a new Regulation referring to FSMP and food for infants and young children including children of less than 12 months is available (Regulation (EU) No 609/2013), and that it will be valid from 20 July 2016.

Definition reported in the new regulation:

> 'food for special medical purposes' means food specially processed or formulated and intended for the dietary management of patients, including infants, to be used under medical supervision; it is intended for the exclusive or partial feeding of patients with a limited, impaired or disturbed capacity to take, digest, absorb, metabolise or excrete ordinary food or certain nutrients contained therein, or metabolites, or with other medically determined nutrient requirements, whose dietary management cannot be achieved by modification of the normal diet alone.

The applicant has provided information for sucralose (E 955) on existing uses, authorisations and evaluations in the European Union (EU) and other international organisations.

1.3.1. Evaluation in the European Union

Evaluation by the European Scientific Committee on Food (SCF)

In 2000, the SCF established an ADI of 0–15 mg sucralose/kg bw/day following the review of studies submitted between 1994 and 2000 (SCF, 2000).

Sucralose (E 955) is authorised for use as a sweetener in several food categories with maximum permitted levels (MPLs) in accordance with Annex II to Regulation (EC) No 1333/2008. When used as a table-top sweetener (in liquid, powder or tablet format), it is authorised at *quantum satis* (QS).

In addition, its use in food category 13.2 (Dietary foods for special medical purposes defined in Directive 1999/21/EC) is authorised with the exception of products falling into category 13.1.5, i.e. dietary foods for infants and young children for special medical purposes as defined by Directive 1999/21/EC and special formulae for infants.

1.3.2. Authorisations and evaluations by international organisations

Evaluation by the Joint FAO/WHO Expert Committee of Food Additives (JECFA)

The joint FAO/WHO Expert Committee on Food Additives (JECFA) allocated a temporary ADI of 0–3.5 mg/kg bw/day as reported in (JECFA, 1989). An ADI of 0–15 mg/kg bw was then established in 1991 further to submission of new toxicological studies (JECFA, 1991) based on a chronic study in the rat.

Evaluation by other international organisations

The applicant reported that sucralose is included in the part 21 of the Code of Federal Regulations (CFR) in the United States as a sweetener, authorised in Canada in 1991 and approved in Australia in

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

1993 by the Australia New Zealand Food Standards Council (ANZFSC). Sucralose was also approved by the Japan's Ministry of Health and Welfare in 1999 (JMHW, 1999).

2. Data and Methodologies

2.1. Data

The applicant has submitted a dossier in support of its application for the extension of the approved uses of sucralose (E 955) in FSMP.

2.2. Methodologies

The current 'Guidance for submission for food additive evaluations' (EFSA ANS Panel, 2012b) has been followed by the Scientific Panel on Food Additives and Nutrient Sources added to Food (ANS Panel) for this evaluation of the proposed extension of use of the already authorised food additive sucralose (E 955).

The approach for the exposure assessment described in the guidance using the FAIM ('Food additives intake model') tool (EFSA ANS Panel, 2012b) could not be applied by the Panel in the evaluation for use of sucralose (E 955) in FSMP for 1 to 3 years old children. This is because due to their medical condition the recipients of the FSMPs have different dietary consumption patterns compared to their counterparts from the general population. Their diet is based on FSMPs, which either fulfil their daily nutrient requirements or supplement an inadequate dietary intake. According to the applicant, the sucralose (E 955) is intended to be added to increase the palatability of FSMPs. Different daily protein intake scenarios proposed by the applicant for FSMP usage were used to estimate the exposure to sucralose (E 955) in this population (see Section 3.2).

3. Assessment

3.1. Technical data

3.1.1. Identity of the substance

The applicant claimed that the food additive sucralose (E 955) to be used for the proposed extension of use complies with the current specifications laid down in Commission Regulation (EU) No 231/2012.[9]

3.1.2. Technological function

Case of need and proposed uses

According to the applicant, sucralose is to be used in FSMP for children (1–3 years of age) to improve palatability of the products and aid compliance.

3.2. Exposure assessment

3.2.1. Reported data on the extension of use of sucralose (E 955) in foods for special medical purposes in young children provided by the applicant

According to the applicant in patients with food allergy and inborn errors of metabolism, the primary medical consideration in terms of dietary management is the modification of the diet to reduce or eliminate certain macronutrients, e.g. protein.

The applicant presented two scenarios for the use of sucralose in FSMP for children: a first scenario would be close to the original standard recommendations of 14.5 g/day for protein in children across the range of 1–3 years (UK DRV, 2014), whereas the second scenario would require the patients to meet their daily protein need set up by the applicant to 3 g/kg bw/day solely from the sweetened

[9] Regulation (EU) No 231/2012 of 9 March 2012 laying down specifications for food additives listed in Annexes II and III to Regulation (EC) No 1333/2008 of the European Parliament and of the Council. OJ L 83, 22.3.2012, p. 1–295.

products. For these two scenarios, the applicant has proposed a specific product example: a liquid product containing 10 g protein per 100 mL and sweetened with 40 mg of sucralose, corresponding to 4 mg sucralose/g of protein.

Exposures to sucralose according to the two scenarios proposed by the applicant with the specific product example are reported in Table 1.

Table 1: Sucralose intake according to different proteins intake from FSMP for children of different age

Age of child	Daily intake [(a)]			Daily intake [(b)]		
(bw)	Protein (g)	Sucralose (mg)	Sucralose (mg/kg bw)	Protein (g)	Sucralose (mg)	Sucralose (mg/kg bw)
1 year (9.8 kg)	14.5	58	5.9	29	116	11.8
2 years (12.2 kg)	14.5	58	4.8	37	148	12.1
3 years (14.3 kg)	14.5	58	4.1	43	172	12.0

(a): Scenario with standard fixed amount of 14.5 g proteins /day, corresponding from 1 to 1.5 g protein/kg bw/day
(b): Scenario with maximum 3 g proteins/kg bw/day

The daily intake of sucralose expressed in mg/kg bw is therefore ranging from 4.1 to 5.9 for the fixed standard amount of 14.5 g proteins/day and from 11.8 to 12.1 for the maximum proposed protein intake of 3 g/kg bw.

In addition, the Panel performed a calculation of exposure assessment to sucralose based on scenario in which FSMPs added sucralose were to cover daily protein intake at the level of protein dietary reference value set by EFSA (EFSA NDA Panel, 2012).

Accordingly the Panel applied values for the protein intake ranging from 0.95 to 0.73 g protein/kg bw/day for children aged between 1 and 3 years and weighing from 10.2 to 14.7 kg, respectively.

This scenario is reported in Table 2.

Table 2: Sucralose intake according to protein intake for children of different age (EFSA standard values)

Age of child	EFSA standard values		Daily intake		
	bw (kg)	Protein (g/kg bw)	Protein (g)	Sucralose (mg)	Sucralose (mg/kg bw)
1 year	10.2	0.95	9.69	38.76	3.8
2 years	12.7	0.79	10.03	40.12	3.2
3 years	14.7	0.73	10.73	42.92	2.9

For this last scenario, the daily intake of sucralose expressed in mg/kg bw is ranging from 2.9 to 3.8.

The Panel noted that the exposure estimates did not exceed the ADI of 15 mg sucralose/kg bw/day in the proposed scenarios when FSMPs containing 100 g protein and 400 mg sucralose/kg product as consumed were used to either cover or supplement total daily requirement for protein of children of 1–3 years of age.

3.3. Discussion

As stated in the interpretation of Terms of Reference, in order to address the safety of the proposed extension of use of sucralose in FSMP for children aged 1–3 years, the Panel evaluated the exposure estimated from the proposed use in FSMP with the current ADI for sucralose.

The estimated exposures from the use of sucralose (E 955) in FSMPs at the level amounting to 400 mg per kilo product as consumed would not lead to an intake above the ADI either in the scenarios provided by the applicant or the one estimated by the Panel.

The Panel noted that although currently sucralose is not permitted in products intended solely for this age group, the consumption of products intended for older consumers may occur but exposures to sucralose from these sources cannot be assessed for this age group (1–3 years).

4. Conclusion

The ANS Panel concluded that the proposed extension of use of sucralose (E 955) at the requested level of 400 mg/kg product in FSMP for young children aged from 1 to 3 years would not be of safety concern.

Documentation provided to EFSA

1. Application for new use of a permitted additive: sucralose. March 2010. Submitted by IDACE (Association of the Food Industries for Particular Nutritional Uses of the European Union) *currently SNE (Specialised Nutrition Europe)* and its update of 29 August 2012.

References

EFSA ANS Panel (EFSA Panel on Food Additives and Nutrient Sources added to Food), 2012a. Scientific Opinion on the re-evaluation of mixed carotenes (E 160a (i)) and beta-carotene (E 160a (ii)) as a food additive. EFSA Journal 2012;10(3):2593. 67 pp. doi:10.2903/j.efsa.2012.2593

EFSA ANS Panel (EFSA Panel on Food Additives and Nutrient Sources added to Food), 2012b. Guidance for submission for food additive evaluations. EFSA Journal 2012;10(7):2760. 60 pp. doi:10.2903/j.efsa.2012.2760

EFSA NDA Panel (EFSA Panel on Dietetic Products, Nutrition and Allergies), 2012. Scientific Opinion on Dietary Reference Values for protein. EFSA Journal 2012;10(2):2557, 66 pp. doi:10.2903/j.efsa.2012.2557

JECFA (Joint FAO/WHO Expert Committee on Food Additives), 1989. Evaluation of certain food additives and contaminants; Thirty-third report of the joint FAO/WHO Expert Committee on Food Additives, World Health Organization, Technical Report Series 776, WHO, Geneva, 1989; p. 20–22.

JECFA (Joint FAO/WHO Expert Committee on Food Additives), 1991. Evaluation of certain food additives and contaminants; Thirty-seventh report of the joint FAO/WHO Expert Committee on Food Additives, World Health Organization, Technical Report Series 806, WHO, Geneva, 1991; p. 21–23.

JMHW (Japan Ministry of Health and Welfare), 1999. Approval of New High Intensity Sweetener: Sucralose: Revision of the Enforcement Regulations under the Food Sanitation Law and of the Standards and Specifications for Food and Food Additives, etc. (published in Official Gazette, No. 2678, July 30, 1999). Japanese Ministry of Health and Welfare Ordinance No.75 (Ministerial Ordinance to Revise Part of the Enforcement Regulations Under the Food Sanitation Law) and Ministry of Health and Welfare Announcement No. 167

SCF (Scientific Committee on Food), 1997. Opinion on Colours in Foods for Special Medical Purposes for Young Children (expressed on 13 December 1996). Available online: http://ec.europa.eu/food/fs/sc/scf/reports/scf_reports_41.pdf

SCF (Scientific Committee on Food) 2000. Opinion of the Scientific Committee on Food on sucralose. Opinion adopted 7 September 2000. Available online: http://ec.europa.eu/food/fs/sc/scf/out68_en.pdf

UK Nutrient Intakes; DRV (Dietary Reference Values) for proteins, update of December 2014 . Available online: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/384775/familyfood-method-rni-11dec14.pdf

Abbreviations

ADI	acceptable daily intake
ANS Panel	EFSA Panel on Food Additives and Nutrient Sources added to Food
bw	body weight
EC	European Commission
FAIM	Food additives intake model
FAO	Food and Agriculture Organization of the United Nations
FSMP	food for special medical purposes
JECFA	Joint FAO/WHO Expert Committee on Food Additives
NDA Panel	EFSA Panel on Dietetic Products, Nutrition and Allergies
SCF	European Commission's Scientific Committee on Food
WHO	World Health Organization