



(51) International Patent Classification:

A23L 1/19 (2006.01) A23L 1/236 (2006.01)
A23L 1/307 (2006.01) A23C 9/154 (2006.01)
A23L 1/035 (2006.01) A21D 13/00 (2006.01)

(21) International Application Number:

PCT/EP2012/000175

(22) International Filing Date:

17 January 2012 (17.01.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant (for all designated States except US): **YIOTIS S.A.** [GR/GR]; 128-130 Kifissou Ave, GR-121 31 Athens (GR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **LADIKOS, Dimitris** [GR/GR]; 128-130 Kifissou Ave., GR-121 31 Athens (GR).

(74) Common Representative: **LADIKOS, Dimitris**; 128-130 Kifissou Ave., GR-121 31 Athens (GR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- of inventorship (Rule 4.17(iv))

Published:

- with international search report (Art. 21(3))



WO 2013/107465 A1

(54) Title: SOLID OR SEMI-SOLID CREAM, DESSERT KIT AND METHOD FOR THE PREPARATION THEREOF

(57) Abstract: The present invention relates to a series of products namely cream patisseries and dessert kits, which are made with a no added sugars mix composition. The final products are characterised by a low content of sugars, low glycemic index and low fat content and are prepared by addition of cold and / or hot water and / or skimmed milk and they may be sold as separate units or preferably as part of a dessert kit in combination with other sugar-free confectioneries. The mix composition includes sweeteners such as polyols and intensive sweeteners instead of sucrose, milk proteins, bulking agents such as wheat dextrins and emulsifiers.

SOLID OR SEMI-SOLID CREAM, DESSERT KIT AND METHOD FOR THE PREPARATION THEREOF

5

TECHNICAL FIELD OF THE INVENTION

10 The present invention relates to a solid or semi-solid cream and more particular to a no added sugar solid or semi-solid cream, such as cream patisserie with vanilla, caramel, cheese or cocoa flavour, and other solid or semi-solid comestible product for diabetics and people on low carbohydrate diets or weight management diets, wherein said product has low sugar content, low glycemic index, low fat content and increased amount of dietary fibres, and a method for the preparation thereof.

15 Further, the present invention relates to dessert kit for the preparation of desserts such as mousse, cream caramel, ice cream, millefeuille, cheesecake or cream and cookies dessert, comprising said solid or semi-solid cream for the preparation of dessert having no added sugar, low glycemic index, low fat content and increased amount of dietary fibres.

20 BACKGROUND OF THE INVENTION

Consumption of foods with high content of sugars has as a result the increase of blood glucose. A high level of blood glucose can lead to unwanted physiological situations for the human body and furthermore, it may provoke a disease. The natural body response towards blood glucose increase is insulin secretion from the pancreas. Insulin restores the normal level of glucose in the blood.

However, the human body, due to metabolic disorders, is not always able to restore glucose levels to normal levels and this is known as metabolic syndrome. This is due to the following reasons:

- 30 a) lack of insulin secretion caused by the destruction of beta cells in the pancreas. This phenomenon is known as diabetes mellitus type I.
b) inadequate secretion of insulin from the pancreas and/or reduced sensitivity of cells to insulin (insulin resistance). In this case, the cells of the human body cannot bind glucose, which continues to circulate in the blood. This phenomenon is known as diabetes mellitus type II.

35

The Glycemic Index (GI) is a grading system of carbohydrate-containing foods, according to their effect to the postprandial blood sugar levels. It is defined as the ratio of the area under the blood sugar response curve over 2 hours after ingestion of a constant amount of food (usually a 50g carbohydrate portion) divided by the area under the response curve of a reference food (usually glucose or white bread).

40

According to American Diabetes Association, the foods based on GI are classified as having low GI when GI is less than 55, as medium GI when GI is between 56 -69 and as high GI when GI is more than 70.

45 Nutrition based on a low GI has been increasingly recommended in recent years, with a view to its adoption in diets contributing to health and in particular to the glycemic control of people with diabetes (postprandial hyperglycemia reduction, thus lower average blood sugar levels). According to American Diabetics Association (ADA) in combination with carbohydrate counting, the GI may provide an additional benefit for achieving blood glucose goals.

50

5 The most commonly used sweeteners in order to partially or fully replace sucrose in a no added – sugar solid or semi-solid cream are liquid corn syrup, high fructose corn syrup, dextrose syrup, milk proteins in combination with small amounts of carbohydrate-type sweeteners.

10 Various methods are already known for the industrial or homemade preparation of solid or semi-solid cream and dessert kit wherein sugar is replaced by other sweeteners. However, the prior art has encountered substantial difficulties in the production of no added sugar solid or semi-solid cream and dessert kit without any change of their organoleptic characteristics.

US 4 510 166 discloses the use of converted starches such as dextrans, acid-converted starches, enzyme-converted starches and oxidized starches, to replace fat in food products such as mayonnaise and ice cream.

15 US 4 663 177 discloses sugar-free, instant pudding mixes and recites the difficulties in eliminating sugar from the traditional instant puddings mixes.

20 US 5 597 603 discloses an instant sugar-free, fat-free instant pudding mix, which, upon hydration with skim milk, produces puddings which exhibits setting and textural parameters comparable to those exhibited by instant pudding made with whole (3.5% fat) or reduced fat (1 or 2% fat) milk and the dry mix comprises agglomerated, pregelatinized starch, maltodextrin, non-sugar sweetener, phosphate gelling agents, xanthan gum and slow-reacting calcium salt. However, the produced puddings do not have good texture, flavour and mouth feel.

25 Hence, there is still exists a need for a solid or semi-solid cream and dessert kit with no added sugar, low glycemic index, low fat content and without change in the taste, sweetness, texture and mouth feel of the final product.

SUMMARY OF THE INVENTION

30 It is, therefore, an object of the present invention to provide a solid or semi-solid cream and dessert kit with low glycemic index, low fat content and no added sugar, which overcomes the deficiencies of the prior art and avoids the organoleptic degradation due to the elimination of sugars.

35 It is another object of the present invention to provide a solid or semi-solid cream, such as cream patisserie, with no added sugar, a low glycemic index, and low fat content wherein said prepared cream product is ready to be consumed, or it can be used in a dessert kit with other no added sugar and low glycemic index confectioneries such as syrup, fruit topping, puff pastry, and biscuit, in order to prepare a complete dessert such as mousse, cheesecake, millefeuille, cream
40 caramel, cream and cookies and ice cream.

45 A further aspect of the present invention is to provide a method for the preparation of a solid or semi-solid cream and dessert kit, wherein said product has no sugar added, low glycemic index, low fat content and increased amount of fibers and with improved organoleptic characteristics of the product.

In accordance with the above objects of the present invention, a solid or semi-solid cream is provided comprising a dry mix of sweeteners, milk proteins, vegetable fat, emulsifier, stabiliser
50 has no added sugar, low glycemic index, low fat content and increased amount of fibers.

5 According to another embodiment of the present invention, a process for the preparation of a solid or semi-solid cream comprising a dry mix of sweeteners, milk proteins, vegetable fat emulsifier, stabiliser and an effective quantity of fibers, such as wheat dextrins as bulking agent, wherein said product has no added sugar low glycemic index, low fat content and increased amount of fibers, is provided which comprises:

- 10 - hydration of the dry mix with water or skimmed milk
- the hydrated mix is either refrigerated or used for the preparation of a dessert, and
- subsequently, it is ready for consumption.

Further preferred embodiments of the present invention are defined in dependent claims 2 to 15.

15 Other objects and advantages of the present invention will become apparent to those skilled in the art in view of the following detailed description.

DETAILED DESCRIPTION OF THE INVENTION

20 According to the present invention, a no added sugar solid or semi-solid cream with low GI is provided without affecting the physical and chemical properties of the cream and having the texture, mouth feel, and appearance of conventional solid or semi-solid cream.

25 The core of the present invention is to provide products with no added sugar. We have surprisingly found that the use of wheat dextrin as bulking agent in combination with the substitution of sugar by using other types of sweeteners, such as polyols preferably xylitol, maltitol, sorbitol, lactitol and/or steviol glycosides and/or intensive sweeteners provided a cream with low glycemic index, increased amount of dietary fibre in the final product and low glycaemic response in the human body.

30 The solid and semi-solid product of the present invention comprises a dry mix of sweeteners, intensive sweeteners, milk proteins, vegetable fat and an effective quantity of wheat dextrins as bulking agent, emulsifiers and stabilisers.

35 Sucrose besides its sweet taste is also functioning as bulking agent in foodstuff. Thus, the replacement of sucrose with other sweeteners influences the texture of the final product. According to the present invention, we have found that the additional use of other bulking agents preferably wheat dextrins improves the texture and mouth feel of the final solid or semi-solid product.

40 Sucrose is replaced according to the present invention by sweeteners, such as polyols xylitol, maltitol, sorbitol, lactitol, or steviol glycosides and by intensive sweeteners, such as sucralose, aspartame, saccharine, acesulfame K.

Polyols, such as xylitol, maltitol, sorbitol, lactitol, are used in the present invention to substitute sucrose by giving a sweet taste similar to it with the benefit of being tooth friendly.

45 It is known that sucrose provides 4kcal /100g while polyols provide 2,4kcal / 100g due to their incomplete absorption and metabolism. Therefore, the replacement of sucrose by polyols according to the present invention leads to low calorie products. Moreover, any other type of polyol such as isomalt, lactitol, and erythritol may also be used. Further, polyols are metabolized independently of insulin and have a low glycemic index.

50 Intensive sweeteners are used due to their zero caloric value while being 300-600 times sweeter than other sugars. They are not metabolized by the human body for energy and do not affect blood glucose levels.

Furthermore, the addition of wheat dextrins increases the amount of dietary fibre in the final product that in combination with the sweetener mix contributes to a lower glycemic index.

5

Fibres have a high-standing position in the human nutrition. They are classified into soluble and insoluble fibres. Soluble fibres are metabolised by the human body while insoluble fibres are not metabolised. Furthermore, the consumption of fibres in a diet contributes to a quicker feeling of fullness and thus reduction in food intake, while at the same time aids the absorption of minerals and micronutrients for the maintenance of good health. In the present invention, wheat dextrins are preferably used as a source of fibres further to a bulking agent. Moreover, any other type of fibres may also be used such as inulin and / or oligosaccharides.

10

Another embodiment of the present invention is the use of milk proteins. The solid or semi-solid cream products can be prepared with water, since they comprise all the equivalent technological characteristics of milk in order for the final product to be equal, from an organoleptic point of view, to products prepared with milk.

15

The basic ingredients of milk are fat, sugars – mainly lactose and proteins. Milk proteins are divided into whey proteins and caseinate. Whey proteins may be concentrated or isolated whey proteins of low or zero lactose content.

20

It is already known that the secretion of insulin is more intense during the intake of proteins since proteins contribute to the function of pancreas. As a result, the levels of glucose in the blood are decreased. It is therefore obvious that proteins in contradiction with lactose are beneficial ingredients. Further to this functional use, proteins operate as bulking agents providing an improved mouth feel on the final product when produced with the addition of water.

25

In order to achieve the desired texture, stabilizers preferably xanthan gum and gelatin can be used. Besides xanthan gum and gelatin, other types of stabilizers such as guar gum, carrageenan, agar, can be used.

30

The solid or semi-solid dessert product of the present invention may comprise a stabilizer component, thickeners/gelling agents. Some gums are useful as thickeners/gelling agents. It is already known, that these thickeners/gelling agents impart viscosity to the emulsion and may also help to stabilise the liquid emulsion. These gums could be natural such as plant gums or animal gums. Useful thickeners/gelling agents for the present invention are gelatins, pectins, alginates, agars, carrageenans, locust beans, guar, xanthans, gellans and konjac gums, preferably alginate, pectins, xanthans and guar. The amount of these gums can be varied widely in accordance with the amounts known in prior art compositions, generally from 0 to 2%, preferably 0.02 to 2% or from 0.05-0.5%.

35

40

In addition, in the preferred embodiment, at least one edible acid may be added to the dessert product to adjust the pH of the product, depending on the nature of the final product. This pH control adds flavour and/or reduces the acid bite of the product. Preferred edible acids are selected from the group consisting of citric acid, fumaric acid, phosphoric acid, lactic acid, and combinations thereof.

45

In one embodiment, the dessert product can also include at least one additive. The additive may be selected from the group consisting of colorants, herbs, spices, proteins, vegetables, flavourings, preservatives, flavour enhancers, and combinations thereof. The additives can be included in an amount of up to about 2% by weight based on the weight of the product.

50

The dry mix of cream patisserie with vanilla flavor of the present invention has a weight ratio of sweeteners less than 35% by weight, weight ratio of wheat dextrins more than 10%, vegetable fat

from about 2% to 10% by weight, modified starch less than 30% by weight, and milk proteins from about 2% to 20% by weight.

5

The dry mix of cream patisserie with caramel and vanilla flavour of the present invention has a weight ratio of sweeteners less than 40% by weight, weight ratio of wheat dextrins more than 15%, vegetable fat from about 2% to 20% by weight, and milk proteins from about 2% to 20% by weight.

10

The dry mix of cream patisserie with cheese and vanilla flavor of the present invention has a weight ratio of sweeteners less than 35% by weight, weight ratio of wheat dextrins more than 13%, vegetable fat from about 2% to 10% by weight, modified starch from about 15% to 30% by weight, milk proteins from about 2% to 10% by weight and cheese powder from about 2% to 10% by weight.

15

The dry mix of cream patisserie with cocoa flavor of the present invention has a weight ratio of sweeteners less than 35% by weight, weight ratio of wheat dextrins more than 10%, vegetable fat from about 2% to 10% by weight, modified starch less than about 25% by weight, milk proteins from about 5% to 15% by weight and cocoa powder less than about 22% by weight.

20

The solid –or semi-solid dessert products of the present invention may also contain one or more additional ingredients selected from a wide variety of food-grade materials. According to the desired properties of the solid or semi-solid product, any number of ingredients may be selected, alone or in combination, based upon their known uses in preparation of solid or semi-solid foodstuff.

25

Such ingredients that are useful for the present invention include flavouring agents, colorants, vitamins, minerals, etc. Suitable flavouring agents can be employed to impart vanilla, cream, chocolate, coffee, maple, spice, mint, butter, cheese, caramel, fruit and other flavours. Various flavours can be added to the product with the range depending upon the required flavour profile.

30

Such ingredients include, but are not limited to, viscosity enhancing, or thickening agents improving the texture of the product, aroma components, flavour components, texture enhancers, colour substances, taste masking substances and antioxidants.

35

All percentages given in the present invention are by weight.

The following examples illustrate preferred embodiments in accordance with the present invention without limiting the scope or spirit of the invention:

40

EXAMPLES

Example 1: A low glycemic index, no added sugar cream patisserie with vanilla flavour

Ingredients	%
Sweeteners (e.g. maltitol, xylitol, sorbitol, isomalt, lactitol, erythritol, steviol glycosides and mixtures thereof etc.)	<35
Modified starch	<30
Wheat dextrins	>10
Milk proteins	2-20
Glucose syrup solids	2-11

Vegetable fat	2-10
Gelatine	<8
Emulsifiers	0.5-5
Stabilisers	0.5-5
Flavours	0.05-0.25
Colours	0.05-0.25
Lactose	0.05-0.20
Intensive sweeteners (e.g. Sucralose, aspartame, saccharine, acesulfame K etc)	0.01-0.05

5 The above ingredients are all dry mixed together in order to form the dry mix of the cream patisserie and the final dry mix is packed in bags, sachets, bags in a box, plastic tubs or any other known package type.

10 The cream patisserie comprising the above ingredients is prepared at home according to the following preparation process: 75 – 130g of the dry mix of the cream patisserie is added in a mixer with 280 – 400 ml of cold water or cold skimmed milk and stirred for approximately 2 to 5 minutes.

The cream thus prepared is ready to be consumed or to be used in the preparation of a dessert.

The cream patisserie of Example 1 has been tested and the GI is from 30 to 54.

15 Example 2: A low glycemic index, no sugar added cream patisserie with caramel and vanilla flavour

Ingredients	%
Sweeteners (e.g. maltitol, xylitol, sorbitol, isomalt, lactitol, erythritol, steviol glycosides and mixtures thereof etc.)	<40
Wheat dextrins	>15
Milk proteins	2-20
Vegetable fat	2-20
Glucose syrup solids	2-10
Emulsifiers	0.1-5
Stabilisers	0.1-5
Colours	0.01-3
Flavours	0.01-3
Intensive sweeteners (e.g. sucralose, aspartame, saccharine, acesulfame K etc.)	0.01-3

20 The above ingredients are all dry mixed together in order to form the dry mix of the cream patisserie with caramel and vanilla flavour and the final dry mix is packed in bags, sachets, bags in a box, plastic tubs or any other known package type.

25 The cream patisserie comprising the above ingredients is prepared according to the following preparation process: 55 – 70g of the dry mix of the cream patisserie is added in a saucepan with 250 – 750 ml of water or cold skimmed milk and brought to boil until the mix is completely dissolved. The cream patisserie is kept in the refrigerator until it sets. The cream thus prepared is ready to be consumed or to be used as filling in a dessert product.

The cream patisserie of Example 2 has been tested and the GI is from 5 to 25.

Example 3: A low glycemic index, no added sugar cream patisserie with cheese and vanilla flavour

Ingredients	%
Sweeteners (e.g. maltitol, xylitol, sorbitol, isomalt, lactitol, erythritol, steviol glycosides and mixtures thereof etc.)	<35
Modified starch	15-30<
Wheat dextrins	>13
Cheese powder	2-10
Vegetable fat	2-10
Milk proteins	2-10
Gelatine	2-8
Glucose syrup solids	2-8
Stabilisers	0.5-5
Emulsifiers	0.5-5
Flavours	0.01-3
Colours	0.01-3
Acidity regulator	0-3
Salt	0-2
Lactose	0.05-0.2
Intensive sweeteners (e.g. sucralose, aspartame, saccharine, acesulfame K etc.)	0.01-3

5

The above ingredients are all dry mixed together in order to form the dry mix of the cream patisserie with cheese and vanilla flavour and the final dry mix is packed in bags, sachets, bags in a box, plastic tubs or any other known package type.

10

The cream patisserie of Example 3 comprising the above ingredients is prepared according to the following preparation process: 100 – 180g of the dry mix of the cream patisserie is mixed with 350 – 650 ml of cold water or cold skimmed milk and stirred for about 2 to 5 minutes. The cream thus prepared is ready to be consumed or to be used as filling in a dessert product.

15

The cream patisserie of Example 3 has been tested and the GI is from 30 to 54.

Example 4: A low glycemic index, no added sugar cream patisserie with cocoa flavour prepared by the addition of cocoa on the cream patisserie of Example 1:

Ingredients	%
Sweeteners (maltitol, xylitol, sorbitol, isomalt, lactitol, erythritol, steviol glycosides and mixtures thereof etc)	<35
Modified starch	<25
Cocoa powder (20-22% fat content or 10-12% fat content)	<22
Milk proteins	5-15
Wheat dextrins	>10
Vegetable fat	2-10
Glucose syrup solids	2-10
Gelatine	2-8
Acidity regulator	0.1-1.5
Emulsifiers	0.5-5
Stabilisers	0.35-5

Flavours	0.05-0.25
Colours	0.0-0.25
Lactose	0.0-0.25
Intensive sweeteners (Sucralose, aspartame, saccharine, acesulfame K etc)	0.01-0.05

5 The cream patisserie with cocoa flavour of Example 4 is prepared by the addition of cocoa powder in the cream patisserie of Example 1:

The above ingredients are all dry mixed together in order to form the dry mix of the cream patisserie with cocoa flavour and the final dry mix is packed in bags, sachets, bags in a box, plastic tubs or any other known package type.

10 The cream patisserie of Example 4 comprising the above ingredients is prepared according to the following preparation process: 80 – 180g of the dry mix of the cream patisserie is mixed with 280 – 450 ml of cold water or cold skimmed milk and stirred for about 2 to 5 minutes. The cream thus prepared is ready to be consumed or to be used as filling in a dessert product.

15 The cream patisserie of Example 4 has been tested and the GI is from 30 to 54.

Example 5: A low glycemic index, no added sugar mousse with chocolate flavour, and a dessert kit for the preparation thereof.

20 A dessert kit comprising a bag with the dry mix of low glycemic index, no added sugar cream patisserie with cocoa flavour according to Example 4 of the present invention and a sachet of syrup with the following composition: water from about 5% to 25% by weight, sweeteners (such as maltitol, xylitol, sorbitol, isomalt, lactitol, erythritol, steviol glycosides and mixtures thereof) from about 50% to 60% by weight, wheat dextrins from 5 % to about 18% by weight, modified starch from about 0.5% to 7% by weight, cocoa powder (with 20-22% fat content or 10-12% fat content) from about 5% to 15% by weight, acidic regulators, flavours, preservative, xanthan gum as stabilizer, salt and intensive sweetener such as sucralose, aspartame, saccharine or acesulfame K.

30 The mousse with chocolate flavour is prepared according to the following preparation process: 80 – 180g of the dry mix of the cream patisserie is mixed with 280 – 450 ml of cold water or cold skimmed milk for about 2 to 5 minutes. Subsequently, the syrup (30 – 80g) is added to the mixture and stirring is continued for about 1 minute. The mousse is kept in the refrigerator for about one hour until it sets and the mousse thus prepared is ready to be consumed or to be used as filling in a dessert product.

35 The mousse with chocolate flavour of Example 5 has been tested and the GI is from 30 to 54.

Example 6: A low glycemic index, no added sugar millefeuille, and dessert kit for the preparation thereof

40 A dessert kit for the preparation of a low glycemic index, no added sugar millefeuille comprises a bag with a dry mix of the cream patisserie of Example 1 of the present invention, a bag with a low glycemic index and no added sugar puff pastry and a sachet of low glycemic index, sugar-free sweetener-mix.

45 The low glycemic index and no added sugar puff pastry used in the present invention comprises water from about 15 to 30%, cereals flour mix such as wheat, whole-wheat, oat, barley, etc less

than 65% by weight, vegetable fat from about 15% to 30% by weight, resistant starch less than 30% by weight, flavours and salt.

5 The sachet of the low glycemic index and sugar-free sweetener mix used in the present invention comprises wheat dextrins as bulking agent from about 95 – 100% and intensive sweetener such as sucralose, aspartame, saccharine, acesulfame K from 0.1 to 5.0 %.

10 The millefeuille of Example 6 is prepared according to the following preparation process: 75g – 130g of the dry mix of the cream patisserie is mixed with 280 – 400 ml of cold water or cold skimmed milk for about 2 to 5 minutes. The millefeuille is formed by the addition of separate layers of cream patisserie and puff pastry layers both with low glycemic index and with no added sugar. To decorate the millefeuille, sprinkle the surface of the dessert with the sweetener mix using a sieve. The millefeuille thus prepared is ready to be consumed.

15

The millefeuille of Example 6 has been tested and the GI is from 30 to 54.

Example 7: A low glycemic index, no added sugar ice cream with vanilla flavour and dessert kit for the preparation thereof.

20 A dessert kit for the preparation of a low glycemic index, no added sugar ice cream with vanilla flavour comprises a bag with a dry mix of the cream patisserie of Example 1 of the present invention, and a bag of syrup with the following composition: water from about 0% to 10% by weight, sweeteners (such as maltitol, xylitol, sorbitol, isomalt, lactitol, erythritol, steviol glycosides and mixtures thereof) from about less than 100% by weight, wheat dextrins from 25 0.015 % to about 0.01% by weight, colours and flavours.

The ice cream with vanilla flavour of Example 7 is prepared according to the following preparation process: 100 – 160g dry mix of the cream patisserie is mixed with 200 – 500 ml of cold water or skimmed milk for about 2 to 5 minutes. Subsequently, the syrup (30 – 50g) is added to the mixture and stirring is continued for about 1 minute. The ice cream is kept in the 30 freezer for at least 6 hours. The ice cream thus prepared is ready to be consumed or to be used as filling in a dessert product.

The ice cream with vanilla flavour of Example 7 has been tested and the GI is from 25 to 45.

35 Example 8: A low glycemic index, no added sugar ice cream with chocolate flavour and dessert kit for the preparation thereof.

A dessert kit for the preparation of a low glycemic index, no added sugar ice cream with chocolate flavour comprises a bag with a dry mix of the cream patisserie of Example 4 of the 40 present invention, and a bag of syrup with the following composition: water from about 0% to 10% by weight, sweeteners (such as maltitol, xylitol, sorbitol, isomalt, lactitol, erythritol, steviol glycosides and mixtures thereof) from about less than 100% by weight, wheat dextrins from 0.015% to about 0.01% by weight, colours and flavours.

The ice cream with chocolate flavour of Example 8 is prepared according to the following preparation process: 130 – 190g dry mix of the cream patisserie is mixed with 220 – 450 ml of cold water or skimmed milk for about 2 to 5 minutes. Subsequently, the syrup (30 – 50g) is added to the mixture and stirring is continued for about 1 minute. The ice cream is kept in the 45 freezer for at least 6 hour. The ice cream thus prepared is ready to be consumed or to be used as filling in a dessert product.

50

The ice cream with chocolate flavour of Example 8 has been tested and the GI is from 30 to 50.

Example 9: A low glycemic index, no added sugar cream caramel and dessert kit for the preparation thereof.

5

A dessert kit for the preparation of a low glycemic index, no added sugar cream caramel comprises a bag with a dry mix of the cream patisserie of Example 2 of the present invention, and a bag of syrup with the following composition: water from about 0% to 10% by weight, sweeteners (such as maltitol, xylitol, sorbitol, isomalt, lactitol, erythritol, steviol glycosides and mixtures thereof) from about less than 70% by weight, dietary fibres (such as FOS, GOS, wheat dextrins, etc) from about 20 % to about 40% by weight, colours, flavours and preservatives.

10

The cream caramel of Example 9 is prepared according to the following preparation process: 55 – 70g dry mix of the cream patisserie is added in a saucepan with 250 – 750 ml of water or skimmed milk and brought to boil until the mix is completely dissolved. The syrup (35g – 60g) is placed into small bowls and the boiled cream patisserie is poured slowly into the bowls and kept in the refrigerator until it sets. The cream caramel thus prepared is ready to be consumed.

15

The cream caramel of Example 9 has been tested and the GI is from 15 to 40.

Example 10: A low glycemic index, no added sugar cream & cookies dessert, and dessert kit for the preparation thereof.

20

A kit for the preparation of a low glycemic index, no added sugar cream & cookies dessert comprises a bag with a dry mix of the cream patisserie of Example 3 of the present invention, a bag with a low glycemic index and no added sugar base made of biscuit crumbs and biscuits for additional decoration.

25

The low glycemic index and no added biscuits used in the present invention comprises weight ratio of cereal flour mix from about 25% to 50% by weight, weight ratio of vegetable fat from about 10% to 25% by weight, weight ratio of sweeteners less than 30% by weight, weight ratio of resistant starch from about 10% to 15% by weight, wheat dextrins from about 5% to 15% by weight, water from 5% to about 15% by weight, cocoa powder (with 20-22% fat content or with 10 – 12% fat content) from about 2.0% to 5.0% by weight, malt, flavours, leavening agent and salt.

30

The cream & cookies dessert of Example 10 is prepared according to the following preparation process: 100 – 180g of the dry mix of the cream patisserie is mixed with 350 – 650 ml of cold water or skimmed milk for about 2 to 5 minutes. The base of the dessert is formed, in a plate, by spreading a mixture of biscuit crumbs (80-130g) and 35 to 55g of melted vegetable fat such as margarine. Subsequently, the cream patisserie is added and the top is decorated with 35-55g of cracked or whole biscuits. The cream and cookies dessert thus prepared are ready to be consumed.

35

40

The cream & cookies dessert of Example 10 has been tested and the GI is from 30 to 54.

Example 11: A low glycemic index, no added sugar cheesecake, and dessert kit for the preparation thereof

45

A dessert kit for the preparation of a low glycemic index, no added sugar cheesecake comprises a bag with a dry mix of the cream patisserie of Example 3 of the present invention, a bag with a low glycemic index and no added sugar biscuits crumbs and a sachet of low glycemic index, no added sugar fruit topping.

50

The low glycemic index and no added biscuit crumbs used in the present invention comprises cereal flour mix from about 25% to 50% by weight, vegetable fat from about 10% to 25% by weight, sweeteners less than 25% by weight, resistant starch from about 5% to 20% by weight,

water from about 5 to 15% by weight, wheat dextrins from about 5% to 10% by weight, malt, flavours, leavening agents, and salt.

5

The sachet of the low glyceemic index and no added sugar fruit topping mix used in the present invention comprises sweeteners mix from about 20% to 40% by weight, water from about 30% to 50% by weight, fruit or fruit pulp from about 10% to 30% by weight, modified starch from about 4% to 10% by weight, acidity regulators, flavours, colorings, preservative and intensive sweetener.

10

The cheesecake of Example 11 is prepared according to the following preparation process: 100–160g of the dry mix of the cream patisserie is mixed with 300 – 650 ml of cold water or cold skimmed milk for about 2 to 5 minutes. Subsequently, form a base in a plate by spreading 80 – 130g biscuit crumbs and melted vegetable fat such as margarine (35g to 55g). The cream patisserie is added above the base and 90g – 220g of fruit topping are added on the top as decoration. The cheesecake thus prepared is ready to be consumed.

15

The cheesecake of Example 11 has been tested and the GI is from 30 to 54.

20

The present invention as described provides the replacement of sugars with other types of sweeteners that cause a low glyceemic response in the human body. Therefore, the present invention provides new solid or semi-solid cream products, such as cream patisserie and dessert kits comprising other solid or semi-solid comestible product, based on a special mix of sweeteners, milk proteins, bulking agents such as fibers, vegetable fat and optionally modified starch for the preparation of solid or semi-solid cream products with respect to healthy nutritional habits. In addition, the bulking agents, such as wheat dextrins comprised in the solid or semi-solid cream products of the present invention increase the intake of dietary fibres and the human body takes advantage of all the benefits provided by fibres.

25

30

The final products of the present invention are characterised by a low content of sugars, a low glyceemic index, low fat content and by the presence of fibres.

All the products of the present invention have been used in clinical trials carried out in collaboration with Greek hospitals and universities. The subjects of the trials were overweight-obese children and adults. All the subjects followed for 3 months a low calorie value diet, which included the consumption of the above mentioned products 4 times/week. The results showed that dietary treatment including no added sugar products with a low GI according to the present invention helped overweight-obese children and adults to: a) adapt a balanced diet b) loss weight c) improve insulin resistance d) achieve a better glyceemic control.

35

40

Also, clinical trials for GI measuring of the final products of the present invention have been carried out and proved that the final products are low GI.

All the solid or semi-solid cream products and dessert kits of the present invention can be prepared industrially according to the method for the preparation described therein and said solid or semi-solid cream products can be prepared as ready to consume commercially products.

45

Furthermore, the cream products of the present invention can be commercially available as dessert kit for homemade preparation of solid or semi-solid cream dessert products, wherein said products can be prepared by following the same method used for the industrial preparation of said dessert products.

50

5 While the present invention has been described with respect to the particular embodiments, it will be apparent to those skilled in the art that various changes and modifications may be made in the invention without departing from the spirit and scope thereof, as defined in the appended claims.

CLAIMS

- 5 1. A solid or semi-solid cream product comprising a dry mix of sweeteners, milk proteins, vegetable fat, emulsifiers, stabilisers and an effective quantity of fibers, such as wheat dextrins as bulking agent, wherein said product has no added sugar, low glycemic index, low fat content and increased amount of fibers.
- 10 2. The solid or semi-solid cream product according to claim 1, wherein it further comprises modified starch, gelatine, and optionally acidity regulators, and/or different taste enhancers such as salt, flavours, cocoa powder, cheese powder.
- 15 3. The solid or semi-solid cream product according to claim 1 or 2, wherein said sweeteners are polyols such as maltitol, xylitol, sorbitol, isomalt, lactitol, erythritol, steviol glycosides or derivatives thereof and/or intensive sweeteners such as sucralose.
- 20 4. The solid or semi-solid cream product according to any preceding claim, wherein it further comprises at least one ingredient selected from a wide variety of food-grade materials such as leavening systems, viscosity enhancing, or thickening agents, agents improving the texture of the product, aroma components, flavour components, texture enhancers, colour substances, taste masking substances, antioxidants, and anti-caking agents
- 25 5. The solid or semi-solid cream product according to claim 3, wherein said solid or semi-solid cream product is cream patisserie with vanilla flavour, having glycemic index from about 30 to 54.
- 30 6. The solid or semi-solid cream product according to claim 3, wherein said solid or semi-solid cream product is cream patisserie with cheese and vanilla flavour having glycemic index from about 30 to 54.
- 35 7. The solid or semi-solid cream product according to claim 3, wherein said solid or semi-solid cream product is cream patisserie with cocoa flavour having glycemic index from about 30 to 54.
- 40 8. The solid or semi-solid cream product according to claim 3, wherein said solid or semi-solid cream product is cream patisserie with caramel and vanilla flavour having glycemic index from about 5 to 25.
- 45 9. The solid or semi-solid cream product according to claim 7, wherein said product is a dessert kit for the preparation of mousse with chocolate flavour comprising a dry mix of product according to claim 7 and a syrup with low glycemic index and no added sugar, said mousse with chocolate flavour having a glycemic index from about 30 to 54.
- 50 10. The solid or semi-solid cream product according to claim 5, wherein said product is a dessert kit for the preparation of millefeuille comprising a dry mix of product according to claim 5 and a puff pastry with low glycemic index and no added sugar, said millefeuille having a glycemic index from about 30 to 54.
11. The solid or semi-solid cream product according to claim 5, wherein said product is a dessert kit for the preparation of ice cream with vanilla flavour comprising a dry mix of product according to claim 5 and a syrup with low glycemic index and no added sugar, said ice cream with vanilla flavour having a glycemic index from about 25 to 45.

- 5 12. The solid or semi-solid cream product according to claim 6, wherein said product is a dessert kit for the preparation of cheese cake comprising a dry mix of product according to claim 6 a biscuit crumbs with low glycemic index and no added sugar and a fruit topping with low glycemic index and no added sugar, said cheese cake having a glycemic index from about 30 to 54.
- 10 13. The solid or semi-solid cream product according to claim 6, wherein said product is a dessert kit for the preparation of cream & cookies comprising a dry mix of product according to claim 6, biscuits and biscuit crumbs with low glycemic index and no added sugar, said cream & cookies has a glycemic index from about 30 to 54.
- 15 14. The solid or semi-solid cream product according to claim 7, wherein said product is a dessert kit for the preparation of ice cream with chocolate flavour comprising a dry mix of product according to claim 7 and a syrup with low glycemic index and no added sugar, said ice cream with chocolate flavour having a glycemic index from about 30 to 50.
- 20 15. The solid or semi-solid cream product according to claim 8, wherein said product is a dessert kit for the preparation of cream caramel comprising a dry mix of product according to claim 8 and a syrup with low glycemic index and no added sugar, said cream caramel having a glycemic index from about 15 to 40.
- 25 16. A process for the preparation of a solid or semi-solid cream product comprising a dry mix of sweeteners, milk proteins, vegetable fat, emulsifiers, stabilisers and an effective quantity of fibers, such as wheat dextrins as bulking agent, wherein said product has no added sugar, low glycemic index, low fat content and increased amount of fibers, which process comprises:
- 30 - hydration of the dry mix with water or skim milk
- the hydrated mix is either refrigerated or used for the preparation of a dessert, and
- subsequently, it is ready for consumption.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/000175

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A23L1/19 A23L1/307 A23L1/035 A23L1/236 A23C9/154
 A21D13/00
 ADD.
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 A23L A23C A21D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EPO-Internal, WPI Data, FSTA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GR 1 007 045 B (GIOTIS A E VIOMICHANIA THREPTIKON PROIONTON [GR]) 8 November 2010 (2010-11-08) the whole document	1-16
X	GR 1 007 046 B (GIOTIS A E VIOMICHANIA THREPTIKON PROIONTON [GR]) 8 November 2010 (2010-11-08) the whole document	1-16
X	GR 1 007 436 B (GIOTIS A E VIOMICHANIA THREPTIKON PROIONTON [GR]) 17 October 2011 (2011-10-17) the whole document	1-16
	----- -/--	

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
---	---

Date of the actual completion of the international search 16 November 2012	Date of mailing of the international search report 27/11/2012
---	--

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Tallgren, Antti
--	---

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/000175

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GR 1 007 052 B (GIOTIS A E VIOMICHANIA THREPTIKON PROIONTON [GR]) 10 November 2010 (2010-11-10) the whole document	1-16
X	EP 1 817 964 A1 (SWEETWELL NV [BE]) 15 August 2007 (2007-08-15) paragraphs [0110], [0111], [0130]; claims 1,10,17-35, 48; examples 1-11; tables 1-16	1-16
X	EP 0 221 709 A2 (NABISCO BRANDS INC [US]) 13 May 1987 (1987-05-13) claims 1,2,5,8,10; examples 1,2	1-16
X	& US 4 510 166 A (LENCIN JULIANNE M [US] ET AL) 9 April 1985 (1985-04-09) cited in the application	1-16
X	WO 99/35919 A1 (DAVISCO FOODS INT INC [US]; DAVIS MARTIN E [US]; OLSON PAULINE M [US];) 22 July 1999 (1999-07-22) examples 1-6	1-16
X	US 3 766 165 A (RENNHARD H) 16 October 1973 (1973-10-16) examples XXVIII,XXIX,XXX	1-16
X	JP 1 218553 A (GEN FOODS CORP) 31 August 1989 (1989-08-31) abstract	1-16
X	CN 1 304 671 A (HAICHUAN IND CO LTD [CN]) 25 July 2001 (2001-07-25) abstract	1-16

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/EP2012/000175

Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
GR 1007045	B	08-11-2010	-----	
GR 1007046	B	08-11-2010	-----	
GR 1007436	B	17-10-2011	-----	
GR 1007052	B	10-11-2010	-----	
EP 1817964	A1	15-08-2007	AU 2007214827 A1	23-08-2007
			BR PI0707914 A2	17-05-2011
			CA 2642466 A1	23-08-2007
			CN 101453913 A	10-06-2009
			EP 1817964 A1	15-08-2007
			EP 1991067 A1	19-11-2008
			JP 2009526530 A	23-07-2009
			US 2010003370 A1	07-01-2010
			WO 2007093293 A1	23-08-2007
EP 0221709	A2	13-05-1987	EP 0221709 A2	13-05-1987
			JP 62115252 A	26-05-1987
			US 4663177 A	05-05-1987
WO 9935919	A1	22-07-1999	AU 2231899 A	02-08-1999
			WO 9935919 A1	22-07-1999
US 3766165	A	16-10-1973	NONE	
JP 1218553	A	31-08-1989	NONE	
CN 1304671	A	25-07-2001	NONE	