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(54) Title: A FATTY PREPARATION, A PROCESS FOR MAKING SAID FATTY PREPARATION, AND A PRODUCT CONTAINING THE SAME

(57) Abstract: The present invention relates to a process for making an anhydrous fatty preparation to be incorporated in a product selected from a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks, preferably a bakery product, wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats. The present invention further relates to a anhydrous fatty preparation and to a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks, preferably a bakery product comprising the same.

A FATTY PREPARATION, A PROCESS FOR MAKING SAID FATTY PREPARATION, AND A PRODUCT CONTAINING THE SAME.

FIELD OF THE INVENTION

The present invention relates to the field of foodstuff. In particular, the present invention relates to an anhydrous fatty preparation which does not comprise fats with a saturated fat content higher than 35% by weight, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats, i.e. all harmful fatty acids for health, a process for making such fatty preparation and a product containing the same.

BACKGROUND

The discussion about the use of palm oil in the processed food industry has marked the entire sector in recent years. However, while the social and media pressure grows against a foodstuff whose nutritional properties and its productive process are questioned, the sector is betting more than ever on this ingredient.

The first data of 2017 show that the trend continues to rise. According to the trade register, palm oil has been imported by a value of 216 million between January and February, almost twice as much as in the same months of the previous year.

However, the sector intends to calm the discussion about this product. Sources of the Spanish processed food industry assure that the properties of this ingredient "allow to enjoy a wide range of safe products for human consumption". In particular, it is highlighted that it allows to extend the useful life of food.

There are many voices which have criticized the use of this food. On the one hand, NGOs and environmental organizations have criticized the environmental impact of their production. But the criticism of palm oil is made, above all, from the point of view of health. In 2016, the European Food Safety Agency (EFSA) conducted an assessment of three potential food contaminants: glycidyl fatty acid esters (GE), 3-monochloropropanediol (3-MCPD), and 2-monochloropropanediol (2-MCPD). These substances are present in many different oils and fats, although, the highest levels of GE, 3-MCPD, and 2-MCPD are found in palm oil and palm fats. They are formed during food processing, particularly when refining oils at high

temperatures (about 200°C). For consumers aged three and above, margarines and 'pastries and cakes' were the main sources of exposure to all substances.

The present inventors have particularly focused on the bakery sector. Salt, added sugar and saturated and hydrogenated fats are three unhealthy elements that are often present in ultra processed products, such as industrial bakery. Regarding fats, among which oil is included, most of them which are used in these products are of low nutritional quality. One of the reasons is the price. Employing cheap ingredients also reduces the final cost for the final consumer.

Palm oil is an ingredient that fits very well with this description, it has a texture that allows it to be used as a substitute for butters and margarines and as a replacement ingredient for hydrogenated and trans fats. These characteristics make it the ideal candidate to be part of many products that the population usually consume, but it is very rich in saturated fats. Its nutritional profile is, therefore, different from that of sunflower oil or olive oil. Several scientific studies suggest that a diet rich in saturated fats can increase cardiovascular risk, in addition to increasing the levels of "bad" cholesterol and insulin resistance, a risk factor for type 2 diabetes. To these harmful effects the weight gain is also added.

Nowadays it is well known the recommendation of avoiding foods that contain palm oil, coconut oil, or hydrogenated or partially hydrogenated fats, since these last nomenclatures indicate that this is a product with trans fatty acids.

However, this kind of products are very attractive, and not only for the price. Its composition makes them very palatable, something that influences in food preferences. Some researches state that the most preferred products have a common trait: a flavor that is enhanced with three ingredients (salt, sugar and fat) that, in excess, are dangerous for health.

However, it is not the only fat that we can use to make sweet products. We find a large number of lipids that are worth knowing. The main fats that can be used in bakery are:

- Edible animal fats: Butter, lard, ghee, ...
- Fats of non-animal origin
- Transformed or mixed fats: Margarines
- Edible vegetable fats: Oils, cocoa butter, coconut oil or butter, palm butter, shortenings.

Accordingly, the present inventors provide a new fatty preparation, a process for making thereof and products containing thereof that solve the above mentioned problems. In particular, they have achieved the following goals:

- Reduction or removal of saturated fats with respect to coconut or palm fats
- Does not contain partially or totally hydrogenated fatty acids
- Without trans fatty acids
- Rich in oleic and linoleic acids
- Decrease of the environmental impact compared to palm oil or butter
- In case of products with salt, the introduction of water or glycerin (aqueous base) in the bakery formula facilitates the dispersion of the salt giving rise to a more homogeneous product and even allowing an increase in the useful life, also admitting a greater salt concentration for its greater solubility in water than in oil.
- The use of carrageenan improves the stability of the formula avoiding losses of oil.

SUMMARY OF THE INVENTION

In a first aspect, the present invention relates to a process for making a anhydrous fatty preparation to be incorporated in a product selected from a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks, preferably a bakery product, wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats.

In a second aspect, the present invention relates to an anhydrous fatty preparation as defined further below.

In a third aspect, the present invention relates to a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks, preferably a bakery product, comprising the anhydrous fatty preparation according to the second aspect.

In a fourth aspect, the present invention relates to the use of the anhydrous fatty preparation according to second aspect, as a substitute component for fat or animal-derived ingredients to be incorporated in a product selected from a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks.

DETAILED DESCRIPTION OF THE INVENTION

In a first aspect, the present invention relates to a process for making an anhydrous fatty preparation to be incorporated, in particular as a substitute component for fat or animal-derived ingredients, in a product selected from a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks, wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats, comprising the steps of:

a) heating an oil selected from the group consisting of high oleic sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil, grapeseed oil and any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats, preferably selected from the group consisting of high oleic sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil and grapeseed oil, in an amount preferably between 1 and 96% by weight with respect to the total preparation in a butterfly-propeller or cutter-type-mixer up to between 60°C and 95°C;

b) adding a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof in an amount preferably between 1 and 60% by weight with respect to the total preparation to mixer of step a) until obtaining a complete dissolution;

c) increasing the temperature of the dissolution in step b) to or keeping at a maximum of 95°C;

d) adding glycerol in an amount preferably between 0.1 and 20% by weight with respect to the total preparation into a cutter-type mixer and dispersing carob and carrageenan in an amount each preferably between 0.25 and 10% by weight with respect to the total preparation into the glycerol until an homogeneous semi-solid is obtained;

e) pouring the solution obtained in c) over the semi-solid obtained in d) until a viscous homogeneous liquid is obtained,

providing that the amount of the components added in steps a) to d) does not exceed 100%.

The percentage for each component should be considered independently each other.

Examples of “said other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats” are, but not limited thereto, rice bran oil, cotton oil, safflower oil and almond oil.

In a further embodiment, the process further comprises the step of:

f) packing the viscous homogeneous liquid obtained in step e) and optionally, storing the packed viscous homogeneous liquid in a refrigerator for at least 24 hours.

In the context of the present invention the term “a saturated fat” is understood as fatty acids which do not have double bonds in their chain. Examples thereof include, but not limited thereto, palm or coconut oil.

The term “trans fats” is understood as unsaturated fats that are formed in the industrial processing of some foods known as hydrogenation, during which their configuration is changed. Examples thereof include, but not limited thereto, partially hydrogenated fats.

The term “totally or partially hydrogenated oils or fats” is understood as unsaturated fats that undergo a chemical process (hydrogenation) in order to incorporate hydrogen into their structure and thus solidify them. The process can be applied completely making them completely saturated or partial saturated (only a part of the fat is used). Partial hydrogenation can lead to trans fats.

The term “interesterified fats” is understood as fats that have undergone a chemical process by catalysts or enzymes, rearranging their fatty acids to convert them into solid fats.

The term “bakery product” is understood as food products which are basically made with fermented or non-fermented, stuffed or non-stuffed flour dough, whose main ingredients are flours, oils or fats, water, with or without yeast, to which other foods, bread additives or authorized additives can be added and which have been subjected to a suitable thermal treatment. Examples thereof include, but not limited thereto, puff pastry, croissant, “pain au chocolat”, ensaimadas, brioche, “elephant ears”,…

The term “personal care product” is understood as any substance or preparation that, without having the legal consideration of cosmetic, biocide, sanitary product or medication, is intended to be applied on the skin, teeth or mucous membranes of the human body for the purpose of hygiene or aesthetics, or to neutralize or eliminate ectoparasites. Examples thereof include, but not limited thereto, deodorants, toothpastes, shampoo …

The term “cosmetics” is understood as a substance intended to be applied to the human body to clean, beautify or alter the appearance without affecting the structure of the body or functions thereof. Examples thereof include, but not limited thereto, moisturizers, sunscreens, makeup …

The term “dermocosmetic” is understood as complex mixtures that are mainly composed of an aqueous phase and a fat phase, in addition to other additives that provide the cream with the

desirable texture, color or smell from a commercial point of view, as well as stabilizers, antioxidants, preservatives, perfumes and the active ingredients that determine the purpose of the cream. The fat phase is in a solid or semi-solid condition for obtaining a final product with an adequate oiliness to spread on the skin and melt at body temperature. The melting ranges can range from 35 to 60°C depending on the use of the cream. Preferably, the environment temperature is preferably 45ºC but that depends on the type used: penetrating, non-penetrating creams, ointments, protectors,...

The term “snacks” is understood as a light food usually eaten between meals. Examples thereof include, but not limited thereto, chips, popcorn, cereal bars with and without chocolate,…

The present invention encompass different products such as a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks, which incorporate the fatty preparation as disclosed herein. The reason for including so different products such as food products and cosmetics is that all of them follow an equivalent formulation or composition, have a similar texture and melting point. Generally speaking, in the case of bakery products, an aqueous phase usually water or a milk based product or milk or yogurt to which other soluble solutes are added and a fat phase usually butter, palm fat etc ... in a solid or semi-solid condition to achieve a product which melts at a body temperature of about 25-40ºC so that the food can be metabolized. The mouth melting point is about 36ºC. This product also contains stabilizers, antioxidants, preservatives and flavors for each specific purpose.

E-471 is also defined as fatty acid mono- and diglycerides.

E-472 is also defined as fatty acid mono- and diglycerides esters.

E-475 is also defined as fatty acid polyglycerides esters.

In a preferred embodiment, wherein in step d) in addition to carob and carrageenan at least one of the following ingredients is added: guar gum, gum Arabic, meal, starch (rice, corn, potato), modified starch, salt, soy lecithin, sunflower lecithin, sunflower waxes, rice waxes, antioxidant, colorant, maltodextrin, glucose, sweetener, alginate, anhydrous citric acid or lactic acid or acetic acid or a mixture thereof, pectin, cellulose, water, and flavouring. A person of ordinary skill in the art can choose one or another or a combinations thereof depending on the final purpose. The present invention specifically encompass the individual addition of said

ingredients or of any group (at least two ingredients) of said ingredients in the anhydrous fatty preparation.

In another preferred embodiment, the oil is in an amount between 30 and 96% by weight with respect to the total preparation, more preferably, in an amount between 70 and 96% by weight with respect to the total preparation.

In another preferred embodiment, the fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof is added in an amount between 5 and 40% by weight with respect to the total preparation, more preferably, in an amount between 5 and 25% by weight with respect to the total preparation.

In another preferred embodiment, the glycerol is added in an amount between 0.1 and 12% by weight with respect to the total preparation, more preferably in an amount between 0.1 and 5% by weight with respect to the total preparation.

In another preferred embodiment, the carob and carrageenan are added in an amount between 0.25 and 5% by weight with respect to the total preparation, more preferably in an amount between 0.3 and 3% by weight with respect to the total preparation.

In another preferred embodiment, the oil in step a) is heated to a temperature between 75 and 90°C, more preferably the oil in step a) is heated to a temperature between 80 and 88°C.

In another preferred embodiment, the anhydrous preparation as disclosed in any of the embodiments disclosed herein is to be incorporated in a bakery product.

In another preferred embodiment, the carob and carrageenan in step d) are previously mixed with anhydrous citric acid or lactic acid or acetic acid or a mixture thereof when the fatty preparation is to be incorporated in a bakery product being puff pastry.

In another preferred embodiment, the carob and carrageenan in step d) are previously mixed with sunflower lecithin and rice starch when the fatty preparation is to be incorporated in a bakery product being a cocoa cream ingredient.

In another preferred embodiment, the fatty preparation made by the process disclosed in the first aspect of the invention and all the embodiments included therein is to be incorporated in a product selected from popcorn, extruded snacks, chocolate toppings, prepared dishes,

shortbread cookie, nougat, dehydrated soups, cereal bars/cakes, ice creams, cakes, cookies, pastries not based on puff pastry, chocolates, confectionery and jelly beans, toasted bread, cereals, margarine and milk powder, preferably popcorn, cakes, cookies, pastries not based on puff pastry, chocolate toppings, more preferably, cakes, cookies, pastries not based on puff pastry, chocolate toppings.

It is noted that any of the previous embodiments related to the process can be combined each other.

In second aspect, the present invention relates to an anhydrous fatty preparation comprising or consisting of the following components:

a) an oil selected from the group consisting of oleic high sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil, grapeseed oil or any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats, preferably selected from the group consisting of high oleic sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil and grapeseed oil, in an amount between 1 and 96% by weight with respect to the total preparation;

b) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof in an amount between 1 and 60% by weight with respect to the total preparation

c) glycerol in an amount between 0.1 and 20% by weight with respect to the total preparation

d) carob in an amount between 0.25 and 10% by weight with respect to the total preparation;

e) carrageenan in an amount between 0.25 and 10% by weight with respect to the total preparation;

wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight nor trans fats, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats;

providing that the amount of all the components in the final preparation does not exceed 100%.

In a preferred embodiment, said anhydrous fatty preparation comprises or consists of the following components:

a) an oil selected from the group consisting of high oleic sunflower oil, olive oil, sunflower seed oil, rapeseed oil grapeseed oil or any other vegetable oil which is liquid at room

temperature containing less than 30% wt of saturated fats, preferably selected from the group consisting of high oleic sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil and grapeseed oil, in an amount between 30 and 96% by weight with respect to the total preparation

b) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof in an amount between 5 and 40% by weight with respect to the total preparation

c) glycerol in an amount between 0.1 and 12% by weight with respect to the total preparation

d) carob in an amount between 0.25 and 5% by weight with respect to the total preparation;

e) carrageenan in an amount between 0.25 and 5% by weight with respect to the total preparation;

wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight nor trans fats, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats;

providing that the amount of all the components in the final preparation does not exceed 100%.

In another preferred embodiment, said anhydrous fatty preparation comprises or consists of the following components:

a) an oil selected from the group consisting of high oleic sunflower oil, olive oil, sunflower seed oil, rapeseed oil grapeseed oil or any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats, preferably selected from the group consisting of high oleic sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil and grapeseed oil, in an amount between 70 and 96% by weight with respect to the total preparation

b) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof in an amount between 5 and 25% by weight with respect to the total preparation

c) glycerol in an amount between 0.1 and 5% by weight with respect to the total preparation

d) carob in an amount between 0.3 and 2% by weight with respect to the total preparation;

e) carrageenan in an amount between 0.3 and 2% by weight with respect to the total preparation;

wherein said fatty preparation does not comprise fats with a saturated fat content higher than

35% by weight nor trans fats, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats;

providing that the amount of all the components in the final preparation does not exceed 100%.

It is noted that any of the previous embodiments or any element of each embodiment related to the solid fatty preparation can be combined each other, i.e., as an example, component a) of one embodiment can be combined with component b) of another embodiment.

In a preferred embodiment, said anhydrous fatty preparation further comprises at least one of: guar gum, gum Arabic, meal, starch (rice, corn, potato), salt, soy lecithin, sunflower lecithin, antioxidant, colorant, preservative, maltodextrin, glucose, sweetener, alginate, anhydrous citric acid or lactic acid or acetic acid or a mixture thereof, pectin, cellulose, water, and flavouring. A person of ordinary skill in the art can choose one or another or a combinations thereof depending on the final purpose. The present invention specifically encompass the individual addition of said other solid and liquid ingredients or of any group (at least two ingredients) of said other solid and liquid ingredients in the fatty preparation.

In a preferred embodiment, said anhydrous fatty preparation further comprises anhydrous citric acid or lactic acid or acetic acid or a mixture thereof. In another preferred embodiment, said fatty preparation further comprises sunflower lecithin and rice starch. In another preferred embodiment, said fatty preparation further comprises anhydrous citric acid or lactic acid or acetic acid or a mixture thereof, and sunflower lecithin and rice starch.

In a third aspect, the present invention relates to a product selected from a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks, preferably a bakery product, comprising the fatty preparation according to the second aspect of the invention and all the embodiments included therein. In a preferred embodiment, said bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks is selected from popcorn, extruded snacks, chocolate toppings, prepared dishes, shortbread cookie, nougat, dehydrated soups, cereal bars/cakes, ice creams, cakes, cookies, pastries not based on puff pastry, chocolates, confectionery and jelly beans, toasted bread, cereals, margarine and milk powder, preferably popcorn, cakes, cookies, pastries not based on puff pastry, chocolate toppings, more preferably, cakes, cookies, pastries not based on puff pastry, chocolate toppings.

In a particular embodiment, the present invention relates to puff pastry comprising the fatty preparation comprising

a) an oil selected from the group consisting of oleic high sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil, grapeseed oil, and any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats, preferably selected from the group consisting of high oleic sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil and grapeseed oil, in a range between 1% and 96% w/w;

b) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof preferably in a range between 1 and 60% w/w;

c) glycerol preferably in a range between 1 and 20% w/w;

d) carob preferably in a range between 0.25% and 10% w/w;

e) carrageenan preferably in a range between 0.25% and 10% w/w,

f) anhydrous citric acid or lactic acid or acetic acid or a mixture thereof, preferably in a range between 0.1% and 2% w/w,

wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight nor trans fats, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats;

providing that the amount of all the components in the final preparation does not exceed 100%.

In another particular embodiment, the present invention relates to a cocoa cream comprising the fatty preparation comprising

a) an oil selected from the group consisting of oleic high sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil, grapeseed oil, and any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats, preferably selected from the group consisting of high oleic sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil and grapeseed oil, in a range between 1% and 96% w/w;

b) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof preferably in a range between 1 and 60% w/w;

c) glycerol preferably in a range between 1 and 20% w/w;

d) carob preferably in a range between 0.25% and 10% w/w;

e) carrageenan preferably in a range between 0.25% and 10% w/w,

f) sunflower lecithin and rice starch, preferably each in a range between 1% and 10% w/w;

wherein said fatty preparation does not comprise fats with a saturated fat content higher than

35% by weight nor trans fats, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats;

providing that the amount of all the components in the final preparation does not exceed 100%.

In a further aspect, the present invention relates to the use of the anhydrous fatty preparation according to any of embodiments disclosed herein, as a substitute component for fat or animal-derived ingredients to be incorporated in a product selected from a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks; preferably said product is a bakery product.

The invention will now be further described by way of the following non-limiting examples.

EXAMPLES

Example 1: Manufacture of "elephant ears"

The application of the inventive fat in a puff pastry product like "elephant ears" is conducted. In order to do so, a fat formulation is prepared with the following ingredients (% by weight):

- 62% high oleic sunflower oil
- 20% E-471
- 15% glycerin
- 1.5% carrageenan
- 1.5% carob

Process:

a) Oil is heated to 80°C and E-471 is added under stirring when said temperature is reached. Stirring is maintained until total dissolution. The temperature is increased up to 90°C.

b) The solids are dispersed in glycerin.

c) The mixture of a) is poured on the product obtained in b)

d) Stirring is increased until obtaining a homogenous viscous mixture.

e) The product obtained in d) is packaged in a plastic mixer and cold stored for 24 hours.

"*Elephant ears*":

The elephant ears are made following a traditional recipe replacing the complete percentage of palm fat with the fat of the invention. The puff pastry product as obtained has similar characteristics to those of the original product made with palm fat.

Example 2: Manufacture of brioche

The application of the inventive fat in a non-puff pastry product like brioche is conducted. In order to do so, a fat formulation is prepared with the following ingredients (% by weight):

- 70% olive oil
- 20% E-471
- 7% glycerin
- 2% carrageenan
- 1% carob

Process:

a) Oil is heated to 75°C and E-471 is added under stirring when said temperature is reached. Stirring is maintained until total dissolution. The temperature is increased up to 85°C.

b) The solids are dispersed in glycerin.

c) The mixture of a) is poured on the product obtained in b)

d) Stirring is increased until obtaining a homogenous viscous mixture.

e) The product obtained in d) is packaged in a plastic mixer and cold stored for 24 hours.

Brioche:

The brioche is made following a traditional recipe replacing the complete percentage of fat with the fat of the invention. The product as obtained has similar characteristics to those of the original product made with harmful fats.

CLAIMS

1.- Process for making an anhydrous fatty preparation to be incorporated as a substitute component for fat or animal-derived ingredients in a product selected from a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks, wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats, comprising the steps of:

a) heating an oil selected from the group consisting of high oleic sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil, grapeseed oil or any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats in an amount between 1 and 96% by weight with respect to the total preparation in a butterfly-propeller or cutter-type-mixer up to between 60°C and 95°C;

b) adding a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof in an amount between 1 and 60% by weight with respect to the total preparation to mixer of step a) until obtaining a complete dissolution;

d) increasing the temperature of the dissolution in step b) to or keeping at a maximum of 95°C;

d) adding glycerol in an amount between 0.1 and 20% by weight with respect to the total preparation into a cutter-type mixer and dispersing carob and carrageenan in an amount each between 0.25 and 10% by weight with respect to the total preparation into the glycerol until an homogeneous semi-solid is obtained;

e) pouring the solution obtained in c) over the semi-solid obtained in d) until a viscous homogeneous liquid is obtained,

providing that the amount of the components added in steps a) to d) does not exceed 100%.

2.- Process according to claim 1, further comprising the step of:

f) packing the liquid obtained in step e) and optionally, storing the packed liquid in a refrigerator for at least 24 hours.

3.- Process according to claim 1 or 2, wherein in step d) in addition to carob and carrageenan at least one of the following ingredients is added: guar gum, gum Arabic, meal, starch (rice, corn, potato), modified starch, salt, soy lecithin, sunflower lecithin, sunflower waxes, rice waxes, antioxidant, colorant, maltodextrin, glucose, sweetener, alginate, anhydrous citric acid or lactic acid or acetic acid or a mixture thereof, pectin, cellulose, water, and flavouring.

4.- Process, according to any of claims 1 to 3, wherein the oil is in an amount between 30 and 96% by weight with respect to the total preparation.

5.- Process according to claim 4, wherein the oil is in an amount between 70 and 96% by weight with respect to the total preparation.

6.- Process according to any of the preceding claims, wherein the fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof is added in an amount between 5 and 40% by weight with respect to the total preparation.

7.- Process according to claim 6, wherein the fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof is added in an amount between 5 and 25% by weight with respect to the total preparation.

8.- Process according to any of the preceding claims, wherein the glycerol is added in an amount between 0.1 and 12% by weight with respect to the total preparation.

9.- Process according to claim 8, wherein the glycerol is added in an amount between 0.1 and 5% by weight with respect to the total preparation.

10.- Process according to any of the preceding claims, wherein the carob and carrageenan are added in an amount between 0.25 and 5% by weight with respect to the total preparation.

11.- Process according to claim 10, wherein the carob and carrageenan are added in an amount between 0.3 and 3% by weight with respect to the total preparation.

12.- Process according to any of the preceding claims, wherein the oil in step a) is heated to a temperature between 75 and 90°C.

13.- Process according to claim 12, wherein the oil in step a) is heated to a temperature between 80 and 88°C.

14.- Process according to any of claims 1 to 13, wherein said anhydrous fatty preparation is to be incorporated in a bakery product.

15.- Process according to any of the preceding claims, wherein carob and carrageenan in step d) are previously mixed with anhydrous citric acid or lactic acid or acetic acid or a mixture thereof when the fatty preparation is to be incorporated in a bakery product being puff pastry.

16.- Process according to any of claims 1 to 14, wherein carob and carrageenan in step d) are previously mixed with sunflower lecithin and rice starch when the fatty preparation is to be incorporated in a bakery product being a cocoa cream ingredient.

17.- Process, according to any of the claims 1 to 13, wherein said fatty preparation is incorporated in a product selected from popcorn in bags, extruded snacks, chocolate toppings, prepared dishes, shortbread cookie, nougat, dehydrated soups, cereal bars/cakes, ice creams, cakes, cookies, pastries not based on puff pastry, chocolates, confectionery and jelly beans, toasted bread, cereals, margarine and milk powder.

18.- An anhydrous fatty preparation comprising or consisting of the following components:

d) an oil selected from the group consisting of oleic high sunflower oil, olive oil, extra virgin olive oil, sunflower seed oil, rapeseed oil, grapeseed oil or any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats in an amount between 1 and 96% by weight with respect to the total preparation;

e) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof in an amount between 1 and 60% by weight with respect to the total preparation

f) glycerol in an amount between 0.1 and 20% by weight with respect to the total preparation

d) carob in an amount between 0.25 and 10% by weight with respect to the total preparation;

e) carrageenan in an amount between 0.25 and 10% by weight with respect to the total preparation;

wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight nor trans fats, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats;

providing that the amount of all the components in the final preparation does not exceed 100%.

19.- An anhydrous fatty preparation according to claim 18, wherein the components are present independently in the final composition in the following ranges (% w/w):

b) an oil selected from the group consisting of high oleic sunflower oil, olive oil, sunflower seed oil, rapeseed oil grapeseed oil or any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats in an amount between 30 and 96% by weight with respect to the total preparation

e) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof in an amount between 5 and 40% by weight with respect to the total preparation

f) glycerol in an amount between 0.1 and 12% by weight with respect to the total preparation

g) carob in an amount between 0.25 and 5% by weight with respect to the total preparation;

e) carrageenan in an amount between 0.25 and 5% by weight with respect to the total preparation.

providing that the amount of all the components in the final preparation does not exceed 100%.

20.- An anhydrous fatty preparation according to claim 19, wherein the components are present independently in the final composition in the following ranges (% w/w):

a) an oil selected from the group consisting of high oleic sunflower oil, olive oil, sunflower seed oil, rapeseed oil, grapeseed oil or any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats in an amount between 70 and 96% by weight with respect to the total preparation

b) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof in an amount between 5 and 25% by weight with respect to the total preparation

c) glycerol in an amount between 0.1 and 5% by weight with respect to the total preparation

d) carob in an amount between 0.3 and 2% by weight with respect to the total preparation;

e) carrageenan in an amount between 0.3 and 2% by weight with respect to the total preparation.

providing that the amount of all the components in the final preparation does not exceed 100%.

21.- An anhydrous fatty preparation according to any of claims 18 to 20, further comprising:

- anhydrous citric acid or lactic acid or acetic acid or a mixture thereof.

22.- An anhydrous fatty preparation according to any of claims 18 to 20, further comprising:
- sunflower lecithin and rice starch.

23.- An anhydrous fatty preparation according to any of claims 18 to 20, further comprising:
- anhydrous citric acid or lactic acid or acetic acid or a mixture thereof, and sunflower lecithin and rice starch.

24.- Product selected from a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks, preferably a bakery product, comprising the fatty preparation according to any of claims 18 to 20.

25.- Puff pastry comprising the fatty preparation according to claim 21.

26.- Cocoa cream Ingredient comprising the fatty preparation according to claim 22.

27.- Puff pastry according to claim 25, comprising
a) an oil selected from the group consisting of high oleic sunflower oil, olive oil, sunflower seed oil, rapeseed oil, grapeseed oil or any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats in an amount between 1% and 96% w/w;
b) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof preferably in a range between 1 and 60% w/w;
c) glycerol preferably in a range between 1 and 20% w/w;
d) carob preferably in a range between 0.25% and 10% w/w;
e) carrageenan preferably in a range between 0.25% and 10% w/w,
f) anhydrous citric acid or lactic acid or acetic acid or a mixture thereof, preferably in a range between 0.1% and 2% w/w,
wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight nor trans fats, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats;
providing that the amount of all the components in the final preparation does not exceed 100%.

28.- Cocoa, according to claim 26, comprising

a) an oil selected from the group consisting of high oleic sunflower oil, olive oil, sunflower seed oil, rapeseed oil, grapeseed oil or any other vegetable oil which is liquid at room temperature containing less than 30% wt of saturated fats in an amount between 1% and 96% w/w;
b) a fatty acid mono- and diglycerides-type emulsifier selected from E-471, E-472, E-475 or a mixture thereof preferably in a range between 1 and 60% w/w;
c) glycerol preferably in a range between 1 and 20% w/w;
d) carob preferably in a range between 0.25% and 10% w/w;
e) carrageenan preferably in a range between 0.25% and 10% w/w,
f) sunflower lecithin and rice starch, preferably each in a range between 1% and 10% w/w;
wherein said fatty preparation does not comprise fats with a saturated fat content higher than 35% by weight nor trans fats, nor trans fats, nor animal-derived products, nor totally or partially hydrogenated oils or fats, nor interesterified or transesterified fats, nor palm or coconut-derived oils or fats;

providing that the amount of all the components in the final preparation does not exceed 100%.

29.- Product according to claim 24, wherein said bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks is selected from popcorn, extruded snacks, chocolate toppings, prepared dishes, shortbread cookie, nougat, dehydrated soups, cereal bars/cakes, ice creams, cakes, cookies, pastries not based on puff pastry, chocolates, confectionery and jelly beans, toasted bread, cereals, margarine and milk powder.

30.- Use of the anhydrous fatty preparation according to any of claims 18 to 23, as a substitute component for fat or animal-derived ingredients to be incorporated in a product selected from a bakery product, a personal care product, cosmetics, dermocosmetics, soaps, varnishes, paints or snacks.

31.- The use according to claim 30, wherein said product is a bakery product.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2019/058823

A. CLASSIFICATION OF SUBJECT MATTER
INV. A23D7/005 A23D7/01 A21D2/16 A21D2/18 A21D10/00
A21D13/068 A21D13/16 A23D9/007 A23D9/013 A23G1/32
A23G1/36 A23D9/02 A23G3/34 A23G9/40 A23G9/52

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)
A23D A21D A23G

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, BIOSIS, COMPENDEX, FSTA, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 968 583 A (GAUTCHIER PETER MICHAEL [US] ET AL) 19 October 1999 (1999-10-19) column 8, line 1 - line 14; claims 1,6,9,12,14,15,19,20,23; example 1 column 5, line 32 - line 48 column 7, line 55 - line 62	1-31
A	US 5 612 078 A (FILETI CHRISTINA M [US] ET AL) 18 March 1997 (1997-03-18) claims; examples	1-31
A	US 2017/258106 A1 (RABAULT JEAN LUC [FR] ET AL) 14 September 2017 (2017-09-14) example 3	1-31

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

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"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
20 June 2019	01/07/2019

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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