[0012]

As a result of intensive studies to accomplish the above object, the present inventors have found that the baked fatty or oily confectionery comprising a glucide selected from isomaltulose, mannitol, and reduced palatinose (Registered Trademark) becomes baked confectionery having crispy texture to the core; and based on this, the present invention has been accomplished.

[0013]

Namely, the present invention relates to the following baked confectionery and a manufacturing method thereof.

[1] A method of manufacturing baked fatty or oily confectionery, comprising preparing a fatty or oily confectionery composition containing a glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark), and baking the composition.

[2] The method according to [1], wherein the content of the glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark) in the fatty or oily confectionery composition is 3-25 wt%.

[3] The method according to [1] or [2], wherein the fatty or oily confectionery composition comprises sucrose.

[4] The method according to [3], wherein the weight ratio of the glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark) to the sucrose in the fatty or oily confectionery composition is 1:1-1:14.

[5] The method according to any one of [1] to [4], wherein the fatty or oily confectionery composition comprises cocoa powder.

[6] The method according to any one of [1] to [5], wherein the baking temperature is 160°C-250°C.

[0014]

[7] Baked fatty or oily confectionery made by baking a fatty or oily confectionery composition, wherein the fatty or oily confectionery composition comprises a glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark).

[8] Baked fatty or oily confectionery manufactured by the method according to any one of [1] to [6].

[0015]

In further embodiments, the present invention relates to the following baked confectionery and its manufacturing method.

(1) A manufacturing method of baked confectionery, characterized in that a fatty or oily confectionery composition comprising isomaltulose is prepared and baked.

(2) The manufacturing method of baked confectionery according to (1), wherein the content of the isomaltulose is 3-25 wt%.

(3) The manufacturing method of baked confectionery according to (1) or (2), wherein cocoa powder is contained.

(4) The manufacturing method of baked confectionery according to any one of (1) to (3), wherein the baking temperature is 160°C-250°C.

(5) Baked fatty or oily confectionery comprising isomaltulose.

(6) The baked fatty or oily confectionery according to (5), wherein the content of the isomaltulose is 3-25 wt%.

(7) The baked fatty or oily confectionery according to (5) or (6), comprising cocoa powder.

Advantageous Effects of Invention

[0016]

The baked confectionery of the present invention is a baked fatty or oily confectionery having a crispy texture to the core

without burnt taste, and therefore it is heat resistant, and suitable as a product for summer season consumption that is often exposed to high temperature.

[Description of Embodiments]

[0017] (Definition)

In the present application, the fatty or oily confectionery is not limited to chocolate that meets the standards, but it means a wide variety of fatty or oily confectioneries including chocolate and quasi chocolate defined in the provisions of the Fair Competition Codes concerning labeling of chocolate, as well as fat cream that does not fall into the provisions.

[0018]

In the present application, the baked fatty or oily confectionery is literally a fatty or oily confectionery that was baked in an oven, etc. The baking temperature is approximately 100°C or higher as the internal air temperature of the oven, etc.

[0019]

(Raw materials)

In the baked confectionery of the present application, a glucide selected from isomaltulose, mannitol, and reduced palatinose (Registered Trademark) is used as an essential ingredient.

[0020]

In the baked confectionery of the present application, it is preferable that the content of the glucide selected from isomaltulose, mannitol, and reduced palatinose (Registered Trademark) is 3–25 wt%, because texture of the baked confectionery becomes suitable for the object of the present invention.

[0021]

Furthermore, in the baked confectionery of the present

application, it is preferable that the content of the glucide selected from isomaltulose, mannitol, and reduced palatinose (Registered Trademark) is 6-15 wt%, because texture of the baked confectionery becomes particularly suitable for the object of the present invention.

[0022]

In the present application, raw materials other than the glucide selected from isomaltulose, mannitol, and reduced palatinose (Registered Trademark) are the same as those for general fatty or oily confectionery; sugar (sucrose), whole milk powder, cocoa mass, cocoa butter, vegetable oil, lecithin, etc. can be used.

[0023]

As other raw materials, other glucides, dairy products, fats and oils, salts such as common salt, pigments, emulsifiers, flavors, and other ingredients may also be appropriately used as necessary in a range that meets the object of the present application.

[0024]

As examples of the other glucides, it is possible to use sugars such as starch, pregelatinized starch, lactose, glucose, fructose, trehalose, dextrin, and cellulose, sugar alcohols such as maltitol and sorbitol.

[0025]

It is preferable that the fatty or oily confectionery composition further comprises sugar (sucrose); preferably, of all glucides in the fatty or oily confectionery composition, sucrose accounts for 15-95% wt%, preferably 30-90 wt%, more preferably 40-80 wt%, because texture of the baked confectionery becomes particularly suitable for the object of the present invention.

In the present specification, "total glucide" also includes other glucides, e.g., lactose derived from dairy products and polysaccharides such as starch, in addition to sugar (sucrose) and a glucide selected from isomaltulose, mannitol, and reduced palatinose (Registered Trademark).

[0026]

In the fatty or oily confectionery composition, it is preferable that the weight ratio of the glucide selected from isomaltulose, mannitol, and reduced palatinose (Registered Trademark) to sugar (sucrose) is 1:0.5–1:15, preferably 1:1–1:14, and more preferably 1:2–1:7, because texture of the baked confectionery becomes particularly suitable for the object of the present invention.

[0027]

It is desirable that the fatty or oily confectionery composition comprises cocoa powder; the content of the cocoa powder in the fatty or oily confectionery composition is 1–10 wt%, preferably 2–5 wt%, because taste of the baked confectionery becomes particularly suitable for the object of the present invention.

[0028]

Preferably, the cocoa content (total amount of cocoa nibs, cocoa mass, cocoa butter, cocoa cake and cocoa powder excluding moisture) in the fatty or oily confectionery composition is 7 wt% or more, preferably 15 wt% or more, and furthermore preferably 21 wt% or more, because taste of the baked confectionery becomes particularly suitable for the object of the present invention.

[0029]

Examples of dairy product include skimmed milk powder, cream powder, and dry whey, etc.

[0030]

Examples of fats and oils include tempering fats and non-tempering fats derived from animals, plants or both, or their mixture of substitute fats and oils, including sal fat butter, shea fat, palm oil, milk fat, DHA, EPA, shortening, and margarine, etc.

[0031]

Examples of emulsifier include sucrose fatty acid esters, polyglycerol fatty acid esters, etc.

[0032]

Examples of flavor include vanillin and vanilla extract, etc.

[0033]

(Manufacturing method)

The baked confectionery of the present application can be manufactured, for example, as follows.

First, a fatty or oily confectionery composition of the present application can be obtained as follows: a glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark), and powder materials such as sugar, lactose, whole milk powder, skimmed milk powder, cream powder, etc., and oily liquid materials such as melted cocoa mass, cocoa butter, vegetable oil, lecithin, etc. are mixed by stirring such that the oily content of the mixture becomes suitable for refining (generally 25-30%), thereby obtaining a paste-type seed composition; then the seed composition is refined and the obtained flakes are subjected to conching, and liquidized into a paste-like condition; then, further oily materials such as cocoa butter and vegetable oil, etc., as well as lecithin are added and mixed by stirring to achieve the desired oily content and viscosity.

Furthermore, flavors, etc. may be added as necessary.

[0034]

Next, thus-obtained fatty or oily confectionery composition is baked in an oven, etc. Baking is carried out at an internal air temperature of the oven of 160-250°C, more preferably 160-200°C, taking into account flavors after completion of the baking. In order to bake the composition such that crispy texture is achieved to the core without generating burnt taste, it is necessary to appropriately adjust the baking time in accordance with baking temperature. In addition, it is preferable that the thickness of the baked confectionery after baking is adjusted to 10 mm or less, preferably less than 10 mm, more preferably 1-8 mm, and furthermore preferably 2-5 mm, because texture of the baked confectionery becomes particularly suitable for the object of the present invention. Thus, the baked confectionery of the present application can be obtained.

[Examples]

[0035]

Hereinafter, the present invention is explained in detail with reference to examples; however, the present invention is not limited thereto.

[0036]

Test example 1

A fatty or oily confectionery composition was prepared by homogeneously mixing 90 parts by weight of a basic composition with the formulation listed in Table 1 and 10 parts by weight of an added substance shown in Table 2, and the composition was formed into 28-mm height, 28-mm width and 3-mm thickness, baked in an oven at 200°C, and the hardness and texture of the baked confectionery obtained were evaluated. Table 3 shows the

results.

Samples to which isomaltulose, mannitol or reduced palatinose (Registered Trademark) was added exhibited preferable crispy texture.

Samples to which sugar (sucrose) was added did not exhibit crispy texture by baking for a short period of time; whereas they exhibited crispy texture by baking for a long period of time, but with burnt taste.

The whole milk powder used here comprises approximately 36 wt% of lactose.

[0037]

Measurement condition of hardness

Samples: The baked confectionery obtained as described above is subjected to aging for 20 hr under the environmental conditions of 20°C and relative humidity of 25%.

The number of samples and calculation method: Measurement is performed at 5 points in each experimental section, and an average value is calculated.

Rheometer: RTC-301 OD-CW from Fudoh

Plunger: Cylindrical shape with 3-mm diameter

Approach speed: 4 cm/min

Penetration depth: 3 mm

[0038]

[Table 1]

Raw material	Formulation (wt%)
Cocoa mass	6
Whole milk powder (containing approx. 36 wt% of lactose)	26
Sugar	44.4
Cocoa butter	23
Lecithin	0.6

[0039]

[Table 2]

	Added substance	Method of addition, Baking condition
Ex. 1	Isomaltulose hydrate	Homogeneously mixed into basic composition, 7-min baking
Ex. 2	Mannitol	Homogeneously mixed into basic composition, 7-min baking
Ex. 3	Reduced palatinose (Registered Trademark)	Homogeneously mixed into basic composition, 7-min baking
Control	None	Basic composition alone, 7-min baking
Comp. ex. 1	Sucrose (powdered sugar)	Homogeneously mixed into basic composition, 7-min baking
Comp. ex. 2	Sucrose (powdered sugar)	Homogeneously mixed into basic composition, 15-min baking

[0040]

[Table 3]

	Hardness (gf)	Texture
Ex. 1	1330	Sufficient crispy texture
Ex. 2	2237	Sufficient crispy texture
Ex. 3	2717	Sufficient crispy texture
Control	1170	Crunchy light texture
Comp. ex. 1	1713	Moist
Comp. ex. 2	1667	Sufficient crispy texture, with burnt taste

[0041]

Test example 2

A fatty or oily confectionery composition was prepared using the basic composition of Table 1 and in accordance with the formulation of Table 4, baked in an oven at 200°C for 7 min, and the hardness and texture of the baked confectionery obtained were evaluated similarly to Test example 1.

Table 5 shows the results. Particularly preferred texture was obtained in Examples 6, 7 and 8.

[0042]

[Table 4]

Raw material	Ex. 4	Ex. 5	Ex. 6	Ex. 7	Ex. 8	Ex. 9
Basic composition	90	86.951	90	79.979	73.002	59.457
Whole milk powder	0.518	0	0	0	0	0
Sugar	0	1.364	0	1.254	1.145	0.933
Cocoa butter	2.255	3.182	0	5.564	7.929	12.523
Isomaltulose	3	4.545	6	9.594	14.601	24.38
Cocoa butter, 12 wt% oily content	4.227	3.958	4	3.639	3.323	2.707

[0043]

[Table 5]

	Hardness (gf)	Texture
Ex. 4	1517	Crispy texture
Ex. 5	1080	Crispy texture
Ex. 6	1148	Sufficient crispy texture
Ex. 7	1360	Sufficient crispy texture
Ex. 8	1980	Sufficient crispy texture
Ex. 9	1450	Sufficient crispy texture with oozing of slight oil

[Claims]

1. A method of manufacturing baked fatty or oily confectionery selected from baked chocolate, baked quasi chocolate, and baked fat cream, comprising adding 3-25 wt% of a glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark) into a fatty or oily confectionery composition selected from chocolate, quasi chocolate, and fat cream, and baking the composition.

2. A method of manufacturing baked fatty or oily confectionery without burnt taste and with crispy texture to the core, selected from baked chocolate, baked quasi chocolate, and baked fat cream, comprising adding a glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark) into a fatty or oily confectionery composition selected from chocolate, quasi chocolate, and fat cream, and baking the composition.

3~~2~~. The method according to Claim ~~1~~ 2, wherein the content of the glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark) ~~in the fatty or oily confectionery composition~~ is 3-25 wt%.

4~~3~~. The method according to any one of Claims 1 ~~or 2~~ to 3, wherein the fatty or oily confectionery composition comprises sucrose.

5~~4~~. The method according to Claim ~~3~~ 4, wherein the weight ratio of the glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark) to the sucrose in the fatty or oily confectionery composition is 1:1 to 1:14.

65. The method according to any one of Claims 1 to ~~4~~ 5, wherein the fatty or oily confectionery composition comprises cocoa powder.

76. The method according to any one of Claims 1 to ~~5~~ 6, wherein the baking temperature is from 160°C to 250°C.

87. Baked fatty or oily confectionery made by baking a fatty or oily confectionery composition selected from chocolate, quasi chocolate, and fat cream, wherein the fatty or oily confectionery composition comprises 3-25 wt% of a glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark).

9. Baked fatty or oily confectionery without burnt taste and with crispy texture to the core, which is made by baking a fatty or oily confectionery composition selected from chocolate, quasi chocolate, and fat cream, wherein the fatty or oily confectionery composition comprises a glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark).

10. Baked fatty or oily confectionery without burnt taste and with crispy texture to the core, which is made by baking a fatty or oily confectionery composition selected from chocolate, quasi chocolate, and fat cream, wherein the fatty or oily confectionery composition comprises 3-25 wt% of a glucide selected from isomaltulose, mannitol and reduced palatinose (Registered Trademark).

11~~8~~. Baked fatty or oily confectionery manufactured by the method according to any one of Claims 1 to~~ 6~~ 7.