

SPECIFICATION

STARCH FOR BAKED CONFECTIONERY

5 TECHNICAL FIELD

[0001]

The present invention relates to a starch for baked confectionery.

10 BACKGROUND ART

[0002]

Patent Documents 1 and 2 disclose techniques relating to a starch used for baked confectionery.

Patent Document 1 (Japanese Unexamined Patent Publication No. 15 2013-212104) describes a technique relating to a mix for baked confectionery capable of producing baked confectionery which is transparent after baking by baking a batter using a heated mold and can maintain the transparency and the shape even in a case where the batter is stored after baking and it is described that the mix for 20 baked confectionery contains a specific type of potato starch in a specific amount and does not substantially include cereal flour.

[0003]

Patent Document 2 (Japanese Unexamined Patent Publication No. 2009-82108) describes that a starch composition for producing cakes 25 contains specific amounts of natural starch, modified starch, and processed starch with respect to the total amount of cereal flour, and the blending weight ratio thereof is set to be in a specific range.

With this constitution, according to the starch composition for producing cakes described in the same document, it is possible to provide a starch composition for producing cakes which forms a stable cake batter even in a case where wheat cereal flour is entirely replaced with starch as flour, has excellent batter foam stability in a heating step and can be industrially stably produced and has excellent eating texture, such as soft feeling, elasticity, melt-in-the-mouth feeling, and moist feeling, which is difficult to achieve only with flour.

10

RELATED DOCUMENT

PATENT DOCUMENT

[0004]

[Patent Document 1] Japanese Unexamined Patent Publication No.

15 2013-212104

[Patent Document 2] Japanese Unexamined Patent Publication No.

2009-82108

SUMMARY OF THE INVENTION

20 TECHNICAL PROBLEM

[0005]

However, the present inventors have found that in a case where the above-mentioned technique is used, there is room for improvement in obtaining baked confectionery having an excellent balance of eating texture, melt-in-the-mouth feeling, finely texture of a batter or dough after baking, and sweetness even in a case where gluten-free and gliadin-free baked confectionery is used.

25

MEANS OF SOLVING THE PROBLEM

[0006]

According to the present invention, there is provided a starch
5 for baked confectionery including 20% by mass or more and 100% by
mass or less of component (A): acetylated distarch phosphate from
tapioca starch.

[0007]

According to the present invention, there is provided a mixed
10 powder for baked confectionery including the starch for baked
confectionery of the present invention.

In addition, according to the present invention, there is
provided a batter or dough for baked confectionery including the
starch for baked confectionery of the present invention.

15 Further, according to the present invention, there is provided
baked confectionery including the starch for baked confectionery of
the present invention.

[0008]

According to the present invention, there is provided a method
20 for improving melt-in-the-mouth feeling of baked confectionery
including the starch for baked confectionery of the present invention
in a batter or dough and baking the batter or dough.

[0009]

It is to be noted that any combination of these respective
25 constitutions and those obtained by converting the expression of the
present invention between a method, an apparatus, and the like are
also effective as embodiments of the present invention.

For example, the present invention also includes the use of the starch for baked confectionery of the present invention in a method for producing a mixed powder for baked confectionery, a batter or dough for baked confectionery, or baked confectionery.

5 In addition, the present invention also includes the use of the mixed powder for baked confectionery of the present invention in a method for producing a batter or dough for baked confectionery or baked confectionery.

10 Further, the present invention also includes the use of the batter or dough for baked confectionery of the present invention in a method for producing baked confectionery.

ADVANTAGEOUS EFFECTS OF THE INVENTION

[0010]

15 As described above, according to the present invention, even in a case where gluten-free and gliadin-free baked confectionery is produced, it is possible to obtain baked confectionery having an excellent balance of eating texture, melt-in-the-mouth feeling, finely texture of a batter or dough after baking, and sweetness.

20

DESCRIPTION OF EMBODIMENTS

[0011]

Hereinafter, embodiments of the present invention will be described with reference to specific examples of each component.

25 Each component can be used alone or in combination of two or more thereof.

[0012]

(Starch for Baked Confectionery)

In the embodiment, a starch for baked confectionery is a composition constituted of one or two or more types of starches, and includes 20% by mass or more and 100% by mass or less of component
5 (A): acetylated distarch phosphate from tapioca starch.

[0013]

(Component (A))

The acetylated distarch phosphate from tapioca starch (acetylated phosphoric acid crosslinked tapioca starch) of the
10 component (A) is specifically starch which is not pregelatinized, that is, β -starch.

The swelling degree in cold water of the component (A) is preferably 2 or more and less than 3.5. The component (A) may be subjected to processing other than acetylation and crosslinking with
15 phosphoric acid within a range not impairing the effects of the present invention.

[0014]

The starch for baked confectionery may consist of the component (A) or may include starches other than the component (A).

20 The content of the component (A) in the starch for baked confectionery is 20% by mass or more, preferably 25% by mass or more, more preferably 30% by mass or more, and even more preferably 40% by mass or more with respect to the entire starch for baked confectionery from the viewpoint that the balance of eating texture,
25 melt-in-the-mouth feeling, finely texture of the batter or dough after baking, and sweetness of baked confectionery is preferable.

In addition, from the viewpoint of improving the eating texture

of baked confectionery, the content of the component (A) in the starch for baked confectionery is 100% by mass or less, preferably 90% by mass or less, more preferably 80% by mass or less, even more preferably 70% by mass or less, and still even more preferably 60% by mass or less with respect to the entire starch for baked confectionery.

[0015]

Further, the starch for baked confectionery may further include one or two or more starches selected from the group consisting of component (B): distarch phosphate and component (C): pregelatinized starch as starches other than the component (A).

[0016]

(Component (B))

The distarch phosphate (phosphoric acid crosslinked starch) of the component (B) is specifically starch which is not pregelatinized, that is, β starch.

The swelling degree in cold water of the component (B) is preferably 2 or more and less than 3.5. The component (B) may be subjected to processing other than crosslinking with phosphoric acid within a range not impairing the effects of the present invention. Here, the component (B) does not include the component (A).

[0017]

As the raw material starch of the component (B), one or two or more selected from the group consisting of tapioca starch, potato starch, and waxy corn starch are preferable and tapioca starch is more preferable from the viewpoint that the balance of eating texture of baked confectionery, melt-in-the-mouth feeling, finely texture of a batter or dough after baking, and sweetness of baked confectionery

is preferable.

[0018]

In a case where the starch for baked confectionery includes the component (B), from the viewpoint of improving the eating texture of baked confectionery, the content of the component (B) in the starch for baked confectionery is more than 0% by mass with respect to the entire starch for baked confectionery, preferably more than 20% by mass or more, more preferably 30% by mass or more, and even more preferably 40% by mass or more.

In addition, from the same viewpoint, the content of the component (B) in the starch for baked confectionery is preferably 80% by mass or less, more preferably 70% by mass or less, and even more preferably 60% by mass or less with respect to the entire starch for baked confectionery.

[0019]

In a case where the starch for baked confectionery includes the component (B), the content of the component (B) with respect to the total of the components (A) and (B) is, by mass ratio $((B)/((A) + (B)))$, preferably 0.4 or more, more preferably 0.45 or more, and even more preferably 0.5 or more from the viewpoint of improving the eating texture of the baked confectionery.

In addition, from the same viewpoint, the mass ratio $((B)/((A) + (B)))$ is preferably 0.9 or less, more preferably 0.8 or less, and even more preferably 0.75 or less, and still even more preferably 0.7 or less.

[0020]

(Component (C))

Next, the component (C) will be described.

The component (C) is pregelatinized starch that is processed for a pregelatination, such as jet cooker processing, drum dryer processing, and extruder processing.

5 The swelling degree in cold water of the component (C) is preferably 3.5 or more, more preferably 5 or more, and even preferably 10 or more from the viewpoint that the balance of eating texture, melt-in-the-mouth feeling, finely texture of a batter or dough after baking, and sweetness of baked confectionery is preferable.

10 In addition, from the same viewpoint, the swelling degree in cold water of the component (C) is preferably 40 or less, more preferably 30 or less, and even more preferably 20 or less.

The method for measuring the swelling degree in cold water of the component (C) will be described later in Examples.

15 [0021]

As the raw material starch of the component (C), one or two or more selected from the group consisting of tapioca starch, potato starch, waxy corn starch, and processed starches thereof are preferable, one or two or more selected from the group consisting of tapioca starch and processed starch thereof are more preferable, and acetylated distarch phosphate from tapioca starch is even more preferable from the viewpoint that the balance of eating texture, melt-in-the-mouth feeling, finely texture of a batter or dough after baking, and sweetness of baked confectionery is preferable.

25 The raw material starch of the component (C) may be the same as or different from the raw material starch of the component (A) or the component (B).

[0022]

In a case where the starch for baked confectionery includes the component (C), the content of the component (C) is preferably 1% by mass or more, more preferably 2% by mass or more, even more preferably 3% by mass or more, and still even more preferably 4% by mass or more with respect to the entire starch for baked confectionery from the viewpoint of obtaining more preferable finely texture of the batter or dough after baking of baked confectionery.

In addition, from the same viewpoint, the content of the component (C) in the starch for baked confectionery is preferably 20% by mass or less, more preferably 10% by mass or less, and even more preferably 8% by mass or less with respect to the entire starch for baked confectionery.

[0023]

In a case where the starch for baked confectionery includes the components (B) and (C), the content of the component (C) with respect to the total of the components (A) and (B) is, by mass ratio $((C)/((A) + (B)))$ is preferably 0.04 or more, and more preferably 0.05 or more from the viewpoint of improving the eating texture of baked confectionery.

In addition, from the same viewpoint, the mass ratio $((C)/((A) + (B)))$ is preferably 0.08 or less, and more preferably 0.07 or less.

[0024]

Since the starch for baked confectionery in the embodiment includes the component (A), the starch for baked confectionery can be preferably used for baked confectionery. More specifically, by using the starch for baked confectionery including the component (A),

even in a case where the starch is gluten-free and gliadin-free, baked confectionery having an excellent balance of eating texture, melt-in-the-mouth feeling, finely texture of a batter or dough after baking, and sweetness can be obtained.

5 In addition, by using the starch for baked confectionery including the component (A), for example, in a gluten-free and gliadin-free baked confectionery, an effect of enhancing sweetness can be obtained, and thus the amount of sweetness component, such as sugar, to be blended into the baked confectionery can also be
10 reduced.

 In addition, by using the starch for baked confectionery including the component (A), for example, the melt-in-the-mouth feeling of baked confectionery can also be improved.

[0025]

15 (Mixed Powder for Baked Confectionery)

 In the embodiment, a mixed powder for baked confectionery is a composition including the above-described starch for baked confectionery. More specifically, the mixed powder for baked confectionery is a mixed powder including the component (A), and
20 preferably includes the component (A) and one or two selected from the group consisting of the component (B) and the component (C).

[0026]

 Further, the mixed powder for baked confectionery may further include components other than the components (A) to (C).

25 Examples of components other than the components (A) to (C) include starches other than the components (A) to (C) described above, cereal flours, sweetness components such as sugar and sweeteners,

dairy products, eggs such as egg powder and egg white powder, emulsifiers, leavening agents, seasonings, flavors, flavor powders such as green tea and cocoa powder, pigments, thickeners, and oils and fats, and among these, powdery components are preferable.

5 Further, solids such as nuts and chocolate chips may be added.

In addition, the mixed powder for baked confectionery is preferably gluten-free and gliadin-free.

[0027]

The content of the starch for baked confectionery in the mixed
10 powder for baked confectionery can be set, for example, according to the type of baked confectionery, and from the viewpoint that the balance of eating texture, melt-in-the-mouth feeling, finely texture of a batter or dough after baking, and sweetness of baked confectionery is preferable, the content of the starch for baked confectionery is
15 preferably 20% by mass or more, more preferably 30% by mass or more, and even more preferably 40% by mass or more with respect to the entire mixed powder for baked confectionery.

In addition, from the same viewpoint, the content of the starch for baked confectionery in the mixed powder for baked confectionery
20 is 100% by mass or less, preferably 90% by mass or less, even more preferably 80% by mass or less, still even more preferably 70% by mass or less, and yet even more preferably 60% by mass or less with respect to the entire mixed powder for baked confectionery.

[0028]

25 (Batter or Dough for Baked Confectionery)

In the embodiment, a batter or dough for baked confectionery includes the above-described starch for baked confectionery. More

specifically, the batter or dough for baked confectionery includes the component (A), and preferably includes the component (A) and one or two or more selected from the group consisting of the component (B) and the component (C).

5 [0029]

The batter or dough for baked confectionery may further include components other than the components (A) to (C).

Examples of components other than the components (A) to (C) include starches other than the components (A) to (C) described above,
10 cereal flours, sweetness components such as sugar, honey, and sweeteners, dairy products, eggs such as whole eggs, egg white, egg yolk, and egg powder, emulsifiers, leavening agents, seasonings, flavors, flavor powders such as green tea and cocoa powder, pigments, thickeners, oils and fats, fruit and vegetable juices, soy milk, and
15 water. Further, solids such as nuts and chocolate chips may be added.

The batter or dough for baked confectionery is preferably gluten-free and gliadin-free.

[0030]

The content of the starch for baked confectionery in the batter
20 or dough for baked confectionery can be set, for example, according to the type of the baked confectionery, and from the viewpoint that the balance of eating texture, melt-in-the-mouth feeling, finely texture of a batter or dough after baking, and sweetness of baked confectionery is preferable, the content of the starch for baked
25 confectionery is preferably 10% by mass or more, more preferably 15% by mass or more, and even more preferably 20% by mass or more with respect to the entire batter or dough for baked confectionery.

In addition, from the same viewpoint, the content of the starch for baked confectionery in the batter or dough for baked confectionery is 100% by mass or less, preferably 70% by mass or less, more preferably 60% by mass or less, even more preferably 55% by mass or less, and
5 still even more preferably 50% by mass or less with respect to the entire batter or dough for baked confectionery.

[0031]

(Baked Confectionery)

In the embodiment, baked confectionery includes the starch for
10 baked confectionery described above.

Specific examples of baked confectionery include pound cake, madeleine, sponge cake, cookies, baumkuchen, and financier. From the viewpoint of improving the balance of the eating texture, melt-in-the-mouth feeling, finely texture of the batter or dough
15 after baking, and sweetness of baked confectionery, the baked confectionery is preferably one selected from the group consisting of pound cake, madeleine, sponge cake, and cookie, and more preferably one selected from the group consisting of pound cake, madeleine, and sponge cake.

20 The baked confectionery is preferably gluten-free and gliadin-free.

[0032]

In the embodiment, the baked confectionery can be obtained, for example, by a production method including adding the above-mentioned
25 starch for baked confectionery in a batter or dough and baking the batter or dough.

Since the baked confectionery obtained in the embodiment

includes the starch for baked confectionery including the component (A) in the batter or dough, the baked confectionery has an excellent balance of eating texture, melt-in-the-mouth feeling, and finely texture of the batter or dough after baking, and sweetness.

5 In addition, in the embodiment, a method for improving the melt-in-the-mouth feeling of the baked confectionery includes, for example, including the starch for baked confectionery in a batter or dough and baking the batter or dough.

10 Further, in the embodiment, the method for improving the sweetness of the baked confectionery includes, for example, including the starch for baked confectionery in a batter or dough and baking the batter or dough.

[Examples]

[0033]

15 Examples of the present invention are shown below, but the gist of the present invention is not limited thereto.

In the following examples, "%" is "% by mass" unless otherwise specified. Unless otherwise noted, "parts" means "parts by mass".

[0034]

20 (Raw Material)

The following materials were mainly used as raw materials.

(Starch Component)

Acetylated distarch phosphate from tapioca starch (component (A)): ACTBODY ATP-25, manufactured by J-Oil Mills. Inc., swelling
25 degree in cold water: 2.2

Distarch phosphate from tapioca starch (component (B)): ACTBODY TP-4W, manufactured by J-Oil Mills. Inc., swelling degree in cold

water: 2.1

Pregelatinized acetylated distarch phosphate from tapioca starch (component (C)): JELCALL GT- α , manufactured by J-Oil Mills. Inc., swelling degree in cold water: 14.1

5 (Processed Oil and Fat)

Processed oil and fat 1: MEISTER GENERTA, manufactured by J-Oil Mills. Inc.

Processed oil and fat 2: ACRO 10, manufactured by J-Oil Mills. Inc.

10 Processed oil and fat 3: SPLENDOR HG, manufactured by J-Oil Mills. Inc.

Processed oil and fat 4: SPLENDOR L, manufactured by J-Oil Mills, Inc.

(Other Components)

15 Soft flour: HEART, manufactured by Nippon Flour Mills Co., Ltd.

Hard flour: EAGLE, manufactured by Nippon Flour Mills Co., Ltd.

Baking powder: F-UP, manufactured by Aikoku Corporation

Sugar: caster sugar, manufactured by Nissin Sugar Manufacturing Co., Ltd.

20 Powdered sugar: manufactured by Nissin Sugar Manufacturing Co., Ltd.

Skim milk powder: manufactured by Morinaga Milk Industry Co., Ltd.

[0035]

25 (Method for Measuring Swelling Degree in Cold water)

The swelling degree in cold water was measured by the method described in "Experimental Method for Starches and Related

Carbohydrates", pp. 279-280, 1986, Gakkai Shuppan Center.

Specifically, the swelling degree in cold water was measured by the following method.

(1) A sample was heated and dried at 125°C using a moisture meter
5 (model number MX50, manufactured by Kensei Co., Ltd.) to measure the moisture content, and the amount of dry substance was calculated from the obtained moisture value.

(2) 1 g of the sample was precisely weighed in terms of the amount of dried substance, placed in a centrifuge tube, and impregnated with
10 1 mL of methyl alcohol, and distilled water at 25°C was added to make exactly 50 mL while stirring with a glass rod. The mixture was shaken and left to stand at 25°C for 20 minutes. The mixture was centrifuged at $2860 \times g$ at 25°C for 30 minutes to separate a precipitation layer and a supernatant layer.

15 (3) The supernatant layer was removed, the mass of the precipitation layer was measured, and this measured value was defined as B (g).

(4) The mass when the precipitation layer was dried (105°C, constant mass) was defined as C (g).

20 (5) The value obtained by dividing B by C was defined as the swelling degree in cold water.

[0036]

(Examples 1 to 6 and Comparative Examples 1 and 2)

In these examples, a pound cake was prepared and evaluated.
25 Table 1 shows formulations and evaluation results of the pound cake. In each example shown in Table 1, the starch for baked confectionery includes at least one of components (A) to (C).

[0037]

(Method for Producing Pound Cake)

1. Among the raw materials shown in Table 1, each processed oil and fat and sugar were put into a 5-quart bowl and mixed at a medium
5 speed for 8 minutes using a Hobart mixer equipped with a beater.

2. Whole eggs were added to 1. above in three portions. After each addition, the materials were mixed at a medium speed for 2 minutes to obtain a mixture.

3. On the other hand, among the raw materials shown in Table
10 1, in each of Examples, components (A) to (C) and a baking powder were uniformly mixed to prepare a mixed powder. In Reference Example, the soft flour and the baking powder were uniformly mixed to obtain a mixed powder. Each of the obtained powders was added to the mixture in 2. above, and mixed at a low speed for 1 minute 30 seconds to obtain
15 a batter. A specific gravity of the batter was about 0.8.

4. 320 g of the batter was put into the pound type (S) and baked under the following conditions.

Oven: Prince oven: PJS3-222B, manufactured by MARUZEN Co., LTD.

Baking temperature: upper stage: 180°C/lower stage: 180°C

20 Baking time: 35 minutes

[0038]

(Evaluation Method)

The eating texture of the pound cake, melt-in-the-mouth feeling, the finely texture of the batter after baking, and the sweetness
25 (intensity of sweetness) were evaluated by the discussion of two expert panelists. The evaluation standards were as follows, and 3 points or higher was accepted.

(Eating Texture)

4: Soft and moist

3: Slightly soft and moist

2: Slightly hard and dry

5 1: Hard and dry

(Melt-In-the-Mouth Feeling)

4: Very good melt-in-the-mouth feeling

3: Good melt-in-the-mouth feeling

2: Not very good melt-in-the-mouth feeling

10 1: Poor melt-in-the-mouth feeling

(Finely texture of Batter After Baking)

4: The texture is fine.

3: The texture is slightly fine.

2: The texture is slightly rough or slightly clogged.

15 1: The texture is rough or the texture is clogged.

(Sweetness (Intensity of Sweetness))

4: The sweetness is stronger than that of Reference Example.

3: The sweetness is the same degree as that of Reference Example.

2: The sweetness is weaker than that of Reference Example.

20 1: The sweetness is much weaker than that of Reference Example.

[0039]

[Table 1] Pound Cake

		Reference Example	Example 1	Example 2	Example 3	Example 4	Example 5	Example 6	Comparative Example 1	Comparative Example 2
Raw material (g)	Processed oil and fat 1	240	240	240		240	240	240	240	240
	Processed oil and fat 2				240					
	Sugar	270	270	270	250	250	250	250	250	250
	Whole egg	300	300	300	300	300	300	300	300	300
	(A) Acetylated distarch phosphate from tapioca starch		300	150	150	150	150	75		
	(B) Distarch phosphate from tapioca starch			150	150	150	150	225	300	300
	(C) Pregelatinized acetylated distarch phosphate from tapioca starch					15	21	15		15
	Soft flour	300								
	Baking powder	3	4.5	4.5	4	4	4	4	4	4
Total amount of batter (g)		1113	1114.5	1114.5	1094	1109	1115	1109	1094	1109
Content of component (A) in total mass of batter (% by mass)		0	26.9	13.5	13.7	13.5	13.5	6.8	0	0
Mixed powder (g)		303	304.5	304.5	304	319	325	319	304	319
Starch for baked confectionery (g)		0	300	300	300	315	321	315	300	315
Content of starch for baked confectionery in mixed powder (% by mass)		0	98.5	98.5	98.7	98.7	98.8	98.7	98.7	98.7
Content of starch for baked confectionery in total mass of batter (% by mass)		0	26.9	26.9	27.4	28.4	28.8	28.4	27.4	28.4
(B)/((A) + (B))		-	0	0.50	0.50	0.50	0.50	0.75	1.00	1.00
(C)/((A) + (B))		-	0	0.00	0.00	0.05	0.07	0.05	0	0.05
Evaluation item	Eating texture	4	3	4	3	4	4	3	2	2
	Melt-in-the-mouth feeling	3	4	4	4	4	4	4	3	2
	Finely texture of batter after baking	4	3	3	3	4	4	4	4	4
	Sweetness	3	4	4	3	3	3	3	3	3

[0040]

According to Table 1, in each of Examples, compared to each of Comparative Examples, the balance of eating texture of the pound cake, melt-in-the-mouth feeling, finely texture of the batter after baking,
5 and sweetness was excellent.

Further, in Examples, in a case where the amount of sugar added was the same as the amount of sugar added in Reference Example, the sweetness was felt stronger than the sweetness in Reference Example. In addition, in Examples, in a case where the amount of sugar added
10 was smaller than the amount of sugar added in Reference Example, the sweetness was the same degree of the sweetness control of Reference Example.

[0041]

(Example 7)

15 In this example, madeleine was prepared and evaluated. Table 2 shows formulations and evaluation results of the madeleine.

[0042]

(Method for Producing Madeleine)

1. Among the raw materials shown in Table 2, in Example, the
20 starch for baked confectionery consisting of components (A) to (C) and sugar were mixed in a plastic bag to prepare a mixed powder. In Reference Example, soft flour and sugar were put in a plastic bag and mixed to obtain a mixed powder.

2. Whole eggs and the mixed powder obtained in 1. above were
25 put in a 5-coat bowl and uniformly stirred with a Hobart mixer equipped with a beater.

3. Processed oil and fat 1 heated and dissolved at 50°C was added,

and the mixture was stirred uniformly.

4. A batter was placed at 25°C for 1 hour.

5. The batter was put in a squeezing bag, about 80 g of the dough was poured into chrysanthemum-shaped aluminum, and baked under the

5 following conditions.

Oven: Prince oven

Baking temperature: upper stage: 180°C/lower stage: 200°C

Baking time: 17 minutes

[0043]

10 (Evaluation Method)

For the eating texture, melt-in-the-mouth feeling, finely texture of the batter after baking, and sweetness of the obtained madeleine, each madeleine was evaluated according to the same evaluation standards as for the above-described pound cake evaluation

15 method.

[0044]

[Table 2] Madeleine

		Reference Example	Example 7
Raw material (g)	(A) Acetylated distarch phosphate from tapioca starch		200
	(B) Distarch phosphate from tapioca starch		200
	(C) Pregelatinized acetylated distarch phosphate from tapioca starch		20
	Soft flour	400	
	Sugar	400	360
	Whole egg	400	400
	Processed oil and fat 1	400	400
Total amount of batter (g)		1600	1580
Content of component (A) in total mass of batter (% by mass)		0	12.7
Mixed powder (g)		800	780
Starch for baked confectionery (g)		0	420
Content of starch for baked confectionery in mixed powder (% by mass)		0	53.8
Content of starch for baked confectionery in total mass of batter (% by mass)		0	26.6
(B)/((A) + (B))		-	0.5
(C)/((A) + (B))		-	0.05
Evaluation item	Eating texture	4	4
	Melt-in-the-mouth feeling	4	4
	Finely texture of batter after baking	4	4
	Sweetness	3	3

[0045]

According to Table 2, the madeleine obtained in Example has an excellent balance of eating texture, melt-in-the-mouth feeling, finely texture of the batter after baking, and sweetness.

Further, in the madeleine obtained Example, the amount of sugar added was smaller than the amount of sugar added in Reference Example, but the sweetness was the same degree of the sweetness of Reference Example.

[0046]

(Example 8)

In this example, a sponge cake was prepared and evaluated. Table 3 shows formulations and evaluation results of the sponge cake.

15 [0047]

(Method for Producing Sponge Cake)

1. Among the raw materials shown in Table 3, in the Example,

the starch for baked confectionery consisting of components (A) and (B), sugar, and baking powder were added and mixed well to prepare a mixed powder. In Reference Example, soft flour, sugar, and baking powder were mixed in a plastic bag to obtain a mixed powder.

5 2. Whole eggs, each processed oil and fat, and the mixed powder obtained in 1. above was placed in a 5-coat bowl, and mixed at a medium speed for 5 minutes using a Hobart mixer equipped with a beater.

3. 280 g of a batter after mixing was put in a No. 6 round type mold and baked under the following conditions.

10 Oven: Prince oven

Specific gravity of batter: 0.45

Baking conditions: upper stage: 180°C/lower stage: 180°C

Baking time: 23 minutes

[0048]

15 (Evaluation Method)

The eating texture, melt-in-the-mouth feeling, finely texture of the batter after baking, and sweetness of the obtained sponge cake were evaluated according to the evaluation method of the pound cake described above.

[0049]

[Table 3] Sponge Cake

		Reference Example	Example 8
Raw material (g)	(A) Acetylated distarch phosphate from tapioca starch		100
	(B) Distarch phosphate from tapioca starch		100
	(C) Pregelatinized acetylated distarch phosphate from tapioca starch		
	Soft flour	200	
	Sugar	220	200
	Baking powder		3
	Whole egg	300	300
	Processed oil and fat 3	30	30
	Processed oil and fat 4	80	80
Total amount of batter (g)		830	813
Content of component (A) in total mass of batter (% by mass)		0	12.3
Mixed powder (g)		420	403
Starch for baked confectionery (g)		0	200
Content of starch for baked confectionery in mixed powder (% by mass)		0	49.6
Content of starch for baked confectionery in total mass of batter (% by mass)		0	24.6
(B)/((A) + (B))		-	0.5
(C)/((A) + (B))		-	0
Evaluation item	Eating texture	3	4
	Melt-in-the-mouth feeling	3	4
	Finely texture of batter after baking	4	4
	Sweetness	3	3

[0050]

According to Table 3, the sponge cake obtained in each of Examples 5 had an excellent balance of eating texture, melt-in-the-mouth feeling, finely texture of the batter after baking, and sweetness.

In addition, in the sponge cake obtained in Example, the amount of sugar added was smaller than the amount of sugar added in Reference Example, but the sweetness was the same degree of the sweetness control of Reference Example.

[0051]

(Example 9)

In this example, cookies were prepared and evaluated. Table 4 shows formulations and evaluation results of the cookies.

15 [0052]

(Method for Producing Cookies)

1. Among the raw materials shown in Table 4, materials from

processed oil and fat 1 to water were mixed at a low speed with a Hobart mixer equipped with a beater.

2. The component (A) was added to the mixture obtained 1. above in Example 9, and hard flour was added to the mixture obtained 1. above in Reference Example.

3. After mixing at a low speed with a Hobart mixer and mixing uniformly, the dough was molded into a rod shape.

4. The dough was put into a freezer and cooled and hardened for 30 minutes.

10 5. Using a kitchen knife, the dough sliced to a thickness of about 7 mm.

6. A baking sheet was placed on the top plate, and the dough was arranged and baked under the following conditions.

Oven: Prince oven

15 Baking temperature: upper stage: 180°C/lower stage: 180°C

Baking time: 15 minutes

[0053]

(Evaluation Method)

20 The eating texture, melt-in-the-mouth feeling, finely texture of the dough after baking, and sweetness of the obtained cookies were evaluated according to the same evaluation standards as in the evaluation method of the pound cake described above.

[0054]

[Table 4] Cookies

		Reference Example	Example 9
Raw material (g)	Processed oil and fat 1	210	210
	Sugar	108	100
	Skim milk powder		15
	Salt	2.1	2.1
	Water	12	12
	(A) Acetylated distarch phosphate from tapioca starch		300
	(B) Distarch phosphate from tapioca starch		
	(C) Pregelatinized acetylated distarch phosphate from tapioca starch		
	Hard flour	300	
Total amount of dough (g)		632.1	639.1
Content of component (A) in total mass of dough (% by mass)		0	46.9
Starch for baked confectionery (g)		0	300
Content of starch for baked confectionery in total mass of dough (% by mass)		0	46.9
(B)/((A) + (B))		-	0
(C)/((A) + (B))		-	0
Evaluation item	Eating texture	3	3
	Melt-in-the-mouth feeling	4	4
	Finely texture of dough after baking	4	4
	Sweetness	3	3

[0055]

As shown in Table 4, the cookies obtained in Example had an
5 excellent balance of eating texture, melt-in-the-mouth feeling,
finely texture of the dough after baking, and sweetness.

[0056]

This application claims priority based on Japanese Patent
Application No. 2017-235758 filed on December 8, 2017, the disclosure
10 of which is incorporated herein in its entirety.

CLAIMS

1. A starch for baked confectionery comprising:
20% by mass or more and 100% by mass or less of component (A):
5 acetylated distarch phosphate from tapioca starch.
2. The starch for baked confectionery according to claim 1, further comprising:
more than 0% by mass and 80% by mass or less of component (B):
10 distarch phosphate with respect to an entire starch for baked confectionery.
3. The starch for baked confectionery according to claim 2,
wherein a raw material starch of the component (B) is one or
15 two or more selected from the group consisting of tapioca starch, potato starch, and waxy corn starch.
4. The starch for baked confectionery according to claim 2 or 3,
wherein a content of the component (B) with respect to a total
20 of the components (A) and (B) in the starch for baked confectionery is 0.4 or more and 0.9 or less by mass ratio.
5. The starch for baked confectionery according to any one of claims 1 to 4, further comprising:
25 component (C): pregelatinized starch.
6. The starch for baked confectionery according to claim 5,

wherein a content of the component (C) with respect to a total of components (A) and (B) in the starch for baked confectionery is 0.04 or more and 0.08 or less by mass ratio.

5 7. A mixed powder for baked confectionery comprising:
the starch for baked confectionery according to any one of claims
1 to 6.

8. The mixed powder for baked confectionery according to claim 7,
10 wherein the mixed powder for baked confectionery is gluten-free
and gliadin-free.

9. A batter or dough for baked confectionery comprising:
the starch for baked confectionery according to any one of claims
15 1 to 6.

10. The batter or dough for baked confectionery according to claim
9,
wherein the batter or dough for baked confectionery is
20 gluten-free and gliadin-free.

11. Baked confectionery comprising:
the starch for baked confectionery according to any one of claims
1 to 6.

25 12. The baked confectionery according to claim 11,
wherein the baked confectionery is one selected from the group

consisting of pound cake, madeleine, sponge cake, and cookies.

13. The baked confectionery according to claim 11 or 12,
wherein the baked confectionery is gluten-free and
5 gliadin-free.

14. A method for improving melt-in-the-mouth feeling of baked
confectionery, the method comprising:
including the starch for baked confectionery according to any
10 one of claims 1 to 6 in a batter or dough and baking the batter or
dough.