DESCRIPTION

TITLE OF INVENTION: OIL / FAT FOR COATING FROZEN DESSERT AND CHOCOLATE FOR COATING FROZEN DESSERT

TECHNICAL FIELD

[0001]

The present invention relates to: an oil and fat for coating frozen dessert, containing an interesterified oil for coating frozen dessert and a non-interesterified POP-containing oil and fat, which can be used for obtaining chocolates for coating frozen dessert that have a low saturated fatty acid content, are soft when biting while frozen and yet dry rapidly, appropriately remain, and have a thick flavor; and chocolates for coating frozen dessert that contain the oil and fat for coating frozen dessert.

BACKGROUND ART

[0002]

In some cases, a frozen dessert product such as an ice cream is coated with an oily food material such as a chocolate for increasing the variety of a flavor, avoiding the transition of moisture, and imparting texture. Here, suitable properties required of a common oil and fat composition for coating include thin and uniform coating, rapid drying (solidifying), no cracking after solidifying, and good melt in the mouth when eaten. Furthermore, it is important for a chocolate for frozen dessert to harmonize with the texture of frozen dessert as an object to be coated. Therefore, an oil and fat composition for coating frozen dessert, which solves all of these points, has not been obtained.

[0003]

To address this concern, various oils and fats are proposed as an oil and fat used in a chocolate for coating frozen dessert. For example, Patent Literature 1 discloses a selective interesterified oil of palm oil and liquid oil. Also, Patent Literature 2 discloses a method of using a specific amount of an oil and fat obtained by randomly transesterifying an oil and fat formulation that contains 70% by mass or more of a palm fractionated soft oil to achieve a specific solid fat content (SFC).

CITATION LIST

PATENT LITERATURE

[0004]

Patent Literature 1: JP-A-2001-321076

Patent Literature 2: JP-A-2010-268749

SUMMARY OF THE INVENTION

PROBLEMS TO BE SOLVED BY THE INVENTION

[0005]

Problems of the present invention are to provide: an oil and fat for coating frozen dessert, which can be used for obtaining chocolates for coating frozen dessert that have a low saturated fatty acid content, are soft when biting while frozen and yet dry rapidly, appropriately remain, and have a thick flavor; and chocolates for coating frozen dessert that contain the oil and fat for coating frozen dessert.

SOLUTIONS TO THE PROBLEMS

[0006]

The present inventor intensively conducted research for solving the problems. The oil and fat described in Patent Literature 1 was good in solidifying properties but

had problems in that texture is hard when biting, and melting properties in the mouth are poor in spite of a thin flavor, resulting in an oily sense. Also, there was the description that it is a selective interesterified oil and is not suitable for ice coating applications when it is a random interesterified oil. The oil and fat described in Patent Literature 2 has a high melting point and needs to contain a large amount of a liquid oil for achieving a specific SFC, leading to a problem in that it has a thin flavor and causes an oily sense.

[0007]

The present inventors further conducted research toward solving the problems. As a result, the present invention has been accomplished by finding that when a random interesterified oil, in which the make-up of constituent fatty acids and the SFC (solid fat content) are defined, is contained together with a non-interesterified POP-containing oil and fat, there can be obtained chocolates for coating frozen dessert which have a low saturated fatty acid content, are soft when biting while frozen and yet dry rapidly, appropriately remain, and have a thick flavor.

[0008]

That is, the present invention relates to.

(1) an oil and fat for coating frozen dessert, including a random interesterified oil and a non-interesterified POP-containing oil and fat, in which conditions of (i) to (vi) described below are all satisfied:

(i) a saturated fatty acid content in constituent fatty acids of the random interesterified oil is 20.0% by weight to 30.0% by weight;

(ii) a content of saturated fatty acids with 20 or more carbon atoms in constituent fatty acids of the random interesterified oil is less than 2.0% by weight;

(iii) a stearic acid content in constituent fatty acids of the random interesterified oil is 2.0% by weight to 11.5% by weight;

(iv) a weight ratio of palmitic acid/stearic acid in constituent fatty acids of the random interesterified oil (P/St) is 0.5 to 8.0;

(v) a solid fat content (SFC) at 5°C of the random interesterified oil is less than 10%, and an SFC at 15°C is less than 6.0%; and

(vi) a POP content of the non-interesterified POP-containing oil and fat is 20.0% by weight to 70.0% by weight,

where P represents palmitic acid, and O represents oleic acid.

(2) The oil and fat for coating frozen dessert according to (1), in which (vii) a lauric acid content in constituent fatty acids of the random interesterified oil is less than 2.0% by weight.

(3) The oil and fat for coating frozen dessert according to (1) or (2),

in which (viii) a formulation amount of the random interesterified oil is 10% by weight to 95% by weight, and a formulation amount of the non-interesterified POP-containing oil and fat is 5% by weight to 90% by weight.

(4) The oil and fat for coating frozen dessert according to any one of (1) to (3), in which (ix) a raw material oil and fat of the random interesterified oil includes one or more selected from symmetrical triglyceride-rich oils and fats.

(5) Chocolates for coating frozen dessert, containing the oil and fat for coating frozen dessert according to any one of (1) to (4).

(6) Chocolates for coating frozen dessert, containing the oil and fat for coating frozen dessert according to any one of (1) to (4) in an amount of 10.0% by weight to 70.0% by weight.

(7) The chocolates for coating frozen dessert according to (5) or (6), in which a content of laurin-based fat is 25.0% by weight or less.

(8) A method of manufacturing an oil and fat for coating frozen dessert, including: formulating a random interesterified oil and a non-interesterified POP-containing oil and fat, in which conditions of (i) to (vi) described below are all satisfied:

(i) a saturated fatty acid content in constituent fatty acids of the random interesterified oil is 20.0% by weight to 30.0% by weight;

(ii) a content of saturated fatty acids with 20 or more carbon atoms in constituent fatty acids of the random interesterified oil is less than 2.0% by weight;

(iii) a stearic acid content in constituent fatty acids of the random interesterified oil is 2.0% by weight to 11.5% by weight;

(iv) a weight ratio of palmitic acid/stearic acid in constituent fatty acids of the random interesterified oil (P/St) is 0.5 to 8.0;

(v) a solid fat content (SFC) at 5°C of the random interesterified oil is less than 10%, and an SFC at 15°C is less than 6.0%; and

(vi) a POP content of the non-interesterified POP-containing oil and fat is 20.0% by weight to 70.0% by weight,

where P represents palmitic acid, and O represents oleic acid.

(9) The method of manufacturing an oil and fat for coating frozen dessert according to (8), in which (vii) a lauric acid content in constituent fatty acids of the random interesterified oil is less than 2.0% by weight.

(10) The method of manufacturing an oil and fat for coating frozen dessert according to (8) or (9),

in which (viii) a formulation amount of the random interesterified oil is 10% by weight to 95% by weight, and a formulation amount of the non-interesterified POP-containing oil and fat is 5% by weight to 90% by weight.

(11) The oil and fat for coating frozen dessert according to any one of (8) to (10), in which (ix) a raw material oil and fat of the random interesterified oil includes one or more selected from symmetrical triglyceride-rich oils and fats.

EFFECTS OF THE INVENTION

[0009]

According to the present invention, there can be provided chocolates for coating frozen dessert, which have a low saturated fatty acid content, are soft when biting while frozen and yet dry rapidly, appropriately remain, and have a thick flavor.

BEST MODE FOR CARRYING OUT THE INVENTION

[0010]

Hereinafter, the present invention will be specifically described.

[0011]

As described in the present invention, the type of frozen dessert is not particularly limited, as long as it is confectionery that is eaten in the refrigerant temperature range. Typical examples thereof include ice cream, ice milk, and lacto ice defined by the “Ministerial Ordinance Concerning Compositional Standards, etc. of Milk and Milk Products”, so-called “Milk, etc. Ordinance”, and ice dessert defined by the “Standards and criteria for food and food additives, etc.” announced by the Ministry of Health and Welfare.

Also, as described in the present invention, chocolates for coating refer to a commercial product having a continuous phase of oil and fat without substantially containing water and correspond to chocolates for coating which are used for coating the entirety or a part of the surface of frozen dessert. As described herein, chocolates include not only chocolate, semi-chocolate, and chocolate-utilizing food products defined by the National Chocolate Industry Fair Trade Council and the Chocolate-Utilizing Food Product Fair Trade Conference but also oil and fat processed food products obtained by containing oils and fats as an essential ingredient and formulating as necessary auxiliary raw materials such as saccharides, powdered milk, cocoa butter, fruit juice powder, fruit power, a taste material, an emulsifier, a flavor, and a colorant at an optional ratio.

[0012]

The oil and fat for coating frozen dessert according to the present invention contains a random interesterified oil and a non-interesterified POP-containing oil and fat.

[0013]

The saturated fatty acid content in constituent fatty acids of the random interesterified oil contained in the oil and fat for coating frozen dessert according to the present invention is 20.0% by weight to 30.0% by weight and more preferably 21.0% by weight to 28.0% by weight. As described in the present invention, saturated fatty acids indicate caprylic acid, capric acid, lauric acid, myristic acid, palmitic acid, stearic acid, arachidic acid, behenic acid, and lignoceric acid. The measurement method of these constituent fatty acids is performed in accordance with the method of AOCS Official Method Ce 1h-05. When the saturated fatty acid content in constituent fatty acids of the random interesterified oil exceeds the upper limit value, chocolates sometimes become

hard when biting. Conversely, when the saturated fatty acid content in constituent fatty acids of the random interesterified oil is less than the lower limit value, chocolates sometimes dry slowly.

[0014]

The content of saturated fatty acids with 20 or more carbon atoms in constituent fatty acids of the random interesterified oil contained in the oil and fat for coating frozen dessert according to the present invention is less than 2.0% by weight, more preferably less than 1.8% by weight, and further preferably less than 1.6% by weight. When the content of saturated fatty acids with 20 or more carbon atoms exceeds the upper limit value, melt in the mouth sometimes deteriorates. Therefore, in the random interesterified oil of the present invention, it is preferable not to use high erucic rapeseed oil and hydrogenated oil of mustard oil, which are an oil and fat that contains a large amount of fatty acids with 20 or more carbon atoms.

[0015]

The content of stearic acid, which is a saturated fatty acid with 18 carbon atoms, in constituent fatty acids of the random interesterified oil contained in the oil and fat for coating frozen dessert according to the present invention is 2.0% by weight to 11.5% by weight and more preferably 2.0% by weight to 10.0% by weight. When the content of stearic acid exceeds the upper limit value, melt in the mouth sometimes deteriorates. Conversely, when the content of stearic acid is less than the lower limit value, chocolates sometimes become hard when biting.

[0016]

The weight ratio of palmitic acid/stearic acid in constituent fatty acids of the random interesterified oil (P/St) contained in the oil and fat for coating frozen dessert according to the present invention is 0.5 to 8.0 and more preferably 1.0 to 7.0. When the

P/St in constituent fatty acids exceeds the upper limit value, chocolates sometimes become hard when biting. Conversely, when the P/St in constituent fatty acids is less than the lower limit value, melt in the mouth sometimes deteriorates.

[0017]

The solid fat content (SFC) at 5°C of the random interesterified oil contained in the oil and fat for coating frozen dessert according to the present invention is less than 10.0% and more preferably less than 7.0%. When the SFC at 5°C is equal to or more than the upper limit value, a chocolate for coating frozen dessert sometimes becomes hard when biting, leading to occurrence of cracks.

[0018]

The SFC at 15°C of the random interesterified oil contained in the oil and fat for coating frozen dessert according to the present invention is less than 6.0% and more preferably less than 4.0%. When the SFC at 15°C is equal to or more than the upper limit value, chocolates for coating frozen dessert sometimes become hard when biting, leading to occurrence of cracks.

[0019]

The POP content of the non-interesterified POP-containing oil and fat contained in the oil and fat for coating frozen dessert according to the present invention is 20% by weight to 70% by weight, preferably 20% by weight to 60% by weight, more preferably 20% by weight to 50% by weight, and still more preferably 20% by weight to 40% by weight. When the POP content of the non-interesterified POP-containing oil and fat exceeds the upper limit, melt in the mouth sometimes deteriorates, and a thick chocolate flavor cannot be obtained. Conversely, when the POP content of the non-interesterified POP-containing oil and fat is less than the lower limit value, chocolates sometimes dry slowly.

[0020]

The content of lauric acid as a saturated fatty acid with 12 carbon atoms in constituent fatty acids of the random interesterified oil contained in the oil and fat for coating frozen dessert according to the present invention is preferably less than 2.0% by weight, more preferably less than 1.5% by weight, and further preferably less than 1.0% by weight. When the lauric acid content exceeds the upper limit value, chocolates sometimes become hard when biting.

[0021]

In the oil and fat for coating frozen dessert according to the present invention, the formulation amount of the random interesterified oil is preferably 10% by weight to 95% by weight, preferably 15% by weight to 90% by weight, more preferably 15% by weight to 85% by weight, and further preferably 20% by weight to 80% by weight. When the formulation amount of the random interesterified oil exceeds the upper limit value, chocolates sometimes dry slowly. Conversely, when the formulation amount of the random interesterified oil is less than the lower limit value, chocolates sometimes become hard when biting.

[0022]

In the oil and fat for coating frozen dessert according to the present invention, the formulation amount of the non-interesterified POP-containing oil and fat is preferably 5% by weight to 90% by weight, preferably 5% by weight to 85% by weight, more preferably 5% by weight to 73% by weight, and further preferably 5% by weight to 80% by weight. When the formulation amount of the non-interesterified POP-containing oil and fat exceeds the upper limit value, chocolates sometimes become hard when biting. Conversely, when the formulation amount of the non-interesterified POP-

containing oil and fat is less than the lower limit value, chocolates sometimes dry slowly.

[0023]

No particular limitation applies to an oil and fat to be used as the oil and fat for coating frozen dessert according to the present invention, as long as it satisfies the above-described configuration. However, it is preferable to formulate, in an oil and fat that is liquid at 10°C, 8% by weight or more of an oil and fat in which the total content of palmitic acid and stearic acid is 25% by weight or more, and the content of saturated fatty acids with 20 or more carbon atoms is 5% by weight or less, perform random transesterification and thereafter a refining process, and mixing the resultant product with a non-interesterified POP-containing oil and fat. When the oil and fat, in which the total of palmitic acid and stearic acid is 25% by weight or more, and the content of saturated fatty acids with 20 or more carbon atoms is 5% by weight or less, exceeds the upper limit value, melt in the mouth sometimes deteriorates. Conversely, when the oil and fat, in which the total content of palmitic acid and stearic acid is 25% by weight or more, and the content of saturated fatty acids with 20 or more carbon atoms is 5% by weight or less, is less than the lower limit value, chocolates sometimes have a little taste.

[0024]

Here, specific examples of the oil and fat that is liquid at 10°C include soybean oil, rapeseed oil (canola oil), corn oil, cottonseed oil, olive oil, peanut oil, rice oil, safflower oil, and sunflower oil. Preferably, canola oil, corn oil, high oleic safflower oil, high oleic sunflower oil, perilla oil, and the like, which are vegetable oils and fats in which the saturated fatty acid content is less than 15% by weight, can be used.

[0025]

Also, as the oil and fat, in which the total content of palmitic acid and stearic acid is 25% by weight or more, and the content of saturated fatty acids with 20 or more carbon atoms is 5% by weight or less, it is possible to use, specifically, one or two or more selected from cacao butter, shea butter, sal fat, illipe butter, Allan blackia fat, mango kernel oil, high-stearic acid·high-oleic sunflower oil, other interesterified oils used for manufacturing cacao butter substitute fat, and fractionated oil thereof.

Furthermore, as the oil and fat, in which the total content of palmitic acid and stearic acid is 25% by weight or more, and the content of saturated fatty acids with 20 or more carbon atoms is 5% by weight or less, extremely hardened oil can be used. Specific examples include extremely hardened oil of soybean oil, rapeseed oil, corn oil, sunflower oil, high oleic sunflower oil, safflower oil, olive oil, cottonseed oil, rice oil, palm oil, and palm kernel oil.

As a preferable embodiment, a raw material oil and fat of the random interesterified oil preferably contains one or more selected from symmetrical triglyceride-rich oils and fats in order to impart the body taste of the chocolate for coating frozen dessert. As described herein, a symmetrical triglyceride-rich oil and fat is an oil and fat that contains a symmetrical triglyceride in which a saturated fatty acid residue is bonded at the 1- and 3-positions of a triglyceride, and an unsaturated fatty acid residue is bonded at the 2-position. Specific examples thereof include StOSt, POSt, and POP (St: stearic acid, P: palmitic acid, O: oleic acid). As described herein, “-rich” indicates 40% by weight or more.

[0026]

As a preferable embodiment, an oil and fat that contains a large amount of medium chain fatty acid is preferably formulated, because the chocolate for coating frozen dessert becomes soft when biting. Specifically, medium chain fatty acid

triglyceride (MCT) is preferably used. As described in the present invention, MCT denotes a triglyceride constituted by saturated fatty acids with 8 and 10 carbon atoms. In the present invention, the fatty acids constituting the medium chain fatty acid triglyceride are not particularly limited, but it is preferable to especially contain fatty acids with 8 and 10 carbon atoms at a ratio of 50:50 to 80:20. More preferably, the fatty acids with 8 and 10 carbon atoms are contained at a ratio of 60:40 to 70:30.

[0027]

As described in the present invention, the method for performing a random transesterification reaction is not particularly limited, and an example thereof is a method of using, as a catalyst, an alkali catalyst such as sodium methylate or an enzyme such as lipase.

[0028]

The present invention is also chocolates for coating frozen dessert in which the above-described oil and fat for coating frozen dessert is used. Other than the raw materials defined above, raw materials commonly used in an oil and fat for coating can be used. Specifically, cacao mass, cocoa content, sugar, flavors, and the like can be appropriately used within a scope that does not impair the advantageous effects of the present invention.

[0029]

When the chocolate for coating frozen dessert according to the present invention is used for coating applications, the content of the oil and fat for coating frozen dessert to be formulated in the chocolates for coating frozen dessert is preferably 10.0% by weight to 70.0% by weight, more preferably 20.0% by weight to 65.0% by weight, and further preferably 25.0% by weight to 65.0% by weight. When the content of the oil and fat for coating frozen dessert is less than the lower limit value, chocolates

sometimes have a little taste. Conversely, when the content of the oil and fat for coating frozen dessert exceeds the upper limit value, melt in the mouth sometimes deteriorates.

[0030]

The chocolates for coating frozen dessert according to the present invention can contain, in addition to the above-described oil and fat for coating frozen dessert, laurin-based fat. In the present invention, laurin-based fat refers to an oil and fat in which the content of a saturated fatty acid with 12 carbon atoms in the constituent fatty acid make-up of the oil and fat is 40% by weight or more. Specific examples thereof include coconut oil, palm kernel oil, and oils and fats obtained by treating these oils and fats by one or two or more physical or chemical treatments such as hydrogenation, fractionation, and transesterification. In the present invention, these oils and fats can be used individually or in a combination of two or more. However, it is preferable to use coconut oil and/or palm kernel oil and more preferable to use coconut oil, because good melt in the mouth and good snapping properties can be achieved. The content of the above-described laurin-based fat in the chocolates for coating frozen dessert according to the present invention is preferably 25.0% by weight or less in the chocolates for coating frozen dessert.

[0031]

The chocolates for coating frozen dessert according to the present invention can contain, other than the above-described oils and fats, any other oils and fats commonly usable in chocolates for coating frozen dessert, within a scope that does not impair the advantageous effects of the present invention. Examples of the other oils and fats include cacao mass, cocoa butter contained in cocoa and the like, and whole milk powder. However, these can be used as-is as oils and fats, and in these oils and fats, oils and fats processed by hydrogenation, fractionation, transesterification, or the like can be

used. Also, the chocolates for coating frozen dessert according to the present invention can contain a fractionated low melting point part of palm.

The content of the other fats and oils in the chocolates for coating frozen dessert according to the present invention is preferably 30.0% by weight or less. When the content of the other oils and fats exceeds the upper limit value, a flavor sometimes deteriorates.

[0032]

The total oil content of the chocolates for coating frozen dessert according to the present invention is preferably 40.0% by weight to 70.0% by weight, more preferably 45.0% by weight to 65.0% by weight, and further preferably 50.0% by weight to 63.0% by weight. When the total oil content exceeds the upper limit value, the chocolates for coating frozen dessert sometimes have a weakened flavor, leading to a strong oily sense. Conversely, when the total oil content is less than the lower limit value, the chocolates for coating frozen dessert sometimes have an increased viscosity during coating and dry slowly. In the present invention, the total oil content refers to the total amount of oil contents derived from oils and fats and all oil contents contained in raw materials of chocolates, such as cacao mass, cocoa, and powdered milk.

EXAMPLES

[0033]

Hereinafter, the present invention will be more specifically described. It is noted that “parts” and “%” in sentences are based on weight, unless otherwise specifically stated.

For the interesterified oil composition for frozen dessert, fatty acids in the oil and fat were analyzed by gas chromatography. Also, trans-type unsaturated fatty acids were measured in accordance with the method of AOCS Official Method Ce 1h-05.

[0034]

(Oil and fat A-1)

A reaction oil was obtained by mixing 30.0 parts by weight of high oleic sunflower oil in which the oleic acid content in constituent fatty acids is 86.0% and 70.0 parts by weight of ethyl stearate, and thereafter performing transesterification with 1,3-position selective lipase. Ethyl ester was distilled away from this reaction oil, and solvent fractionation was performed with acetone. Then, decoloring and deodorizing were performed by an ordinary method to obtain, as a refined oil, oil and fat A-1 (iodine value: 33.0, saturated fatty acid content: 64.2% by weight) which is a fractionated medium melting point part.

[0035]

(Oil and fat A-2)

Ethyl ester was distilled away from a reaction oil that is the same as oil and fat A-1, and solvent fractionation was performed with acetone. Then, decoloring and deodorizing were performed by an ordinary method to obtain, as a refined oil, oil and fat A-2 (iodine value:58.0, saturated fatty acid content: 38.1% by weight) which is a fractionated low melting point part.

[0036]

(Random interesterified oil 1)

There were mixed 5.0 parts by weight of medium chain fatty acid triglyceride (iodine value: 0.5 or less, saturated fatty acid content: 100% by weight, fatty acids with 8 and 10 carbon atoms at 60:40), 82 parts by weight of corn oil (iodine value: 123.0,

saturated fatty acid: 14.5% by weight), and 13 parts by weight of oil and fat A-1. Then, a random transesterification reaction was performed with sodium methylate as a catalyst. Thereafter, decoloring and deodorizing were performed by an ordinary method to obtain, as a refined oil, interesterified oil 1.

[0037]

(Random interesterified oil 2)

There were mixed 5.0 parts by weight of medium chain fatty acid triglyceride (iodine value: 0.5 or less, saturated fatty acid content: 100% by weight, fatty acids with 8 and 10 carbon atoms at 60:40), 59.0 parts by weight of corn oil (iodine value: 123.0, saturated fatty acid: 14.5% by weight), and 36.0 parts by weight of oil and fat A-2. Then, a random transesterification reaction was performed with sodium methylate as a catalyst. Thereafter, decoloring and deodorizing were performed by an ordinary method to obtain, as a refined oil, interesterified oil 2.

[0038]

(Random interesterified oil 3)

There were mixed 5.0 parts by weight of medium chain fatty acid triglyceride (iodine value: 0.5 or less, saturated fatty acid content: 100% by weight, fatty acids with 8 and 10 carbon atoms at 60:40), 80.0 parts by weight of corn oil (iodine value: 123.0, saturated fatty acid: 14.5% by weight), 10.0 parts by weight of oil and fat A-2, and 5.0 parts by weight of extremely hardened oil of palm oil (manufactured by Fuji Oil Co., Ltd., iodine value: 1 or less, saturated fatty acid content: 95.0% by weight). A random transesterification reaction was performed with sodium methylate as a catalyst. Thereafter, decoloring and deodorizing were performed by an ordinary method to obtain, as a refined oil, interesterified oil 3.

[0039]

(Random interesterified oil 4)

There were mixed 86.3 parts by weight of corn oil (iodine value: 123.0, saturated fatty acid: 14.5% by weight) and 13.7 parts by weight of oil and fat A-1. Then, a random transesterification reaction was performed with sodium methylate as a catalyst. Thereafter, decoloring and deodorizing were performed by an ordinary method to obtain, as a refined oil, interesterified oil 4.

[0040]

(Random interesterified oil 5)

There were mixed 5.0 parts by weight of medium chain fatty acid triglyceride (iodine value: 0.5 or less, saturated fatty acid content: 100% by weight, fatty acids with 8 and 10 carbon atoms at 60:40), 82 parts by weight of corn oil (iodine value: 123.0, saturated fatty acid: 14.5% by weight), and 13 parts by weight of POP oil and fat (manufactured by Fuji Oil Co., Ltd., POP content: 63.9% by weight, iodine value: 34.0, saturated fatty acid content: 59% by weight). Then, a random transesterification reaction was performed with sodium methylate as a catalyst. Thereafter, decoloring and deodorizing were performed by an ordinary method to obtain, as a refined oil, interesterified oil 5.

[0041]

(Random interesterified oil 6)

There were mixed 81.5 parts by weight of corn oil (iodine value: 123.0, saturated fatty acid: 14.5% by weight) and 18.5 parts by weight of oil and fat A-1. Then, a random transesterification reaction was performed with sodium methylate as a catalyst. Thereafter, decoloring and deodorizing were performed by an ordinary method to obtain, as a refined oil, interesterified oil 6.

[0042]

(Random interesterified oil 7)

There were mixed 5.0 parts by weight of medium chain fatty acid triglyceride (iodine value: 0.5 or less, saturated fatty acid content: 100% by weight, fatty acids with 8 and 10 carbon atoms at 60:40), 86.6 parts by weight of corn oil (iodine value: 123.0, saturated fatty acid: 14.5% by weight), and 8.4 parts by weight of coconut oil (manufactured by Fuji Oil Co., Ltd., iodine value: 8.5, saturated fatty acid content: 91.6% by weight). Then, a random transesterification reaction was performed with sodium methylate as a catalyst. Thereafter, decoloring and deodorizing were performed by an ordinary method to obtain, as a refined oil, interesterified oil 7.

[0043]

As oil and fat B, palm olein (manufactured by Fuji Oil Co., Ltd., POP content: 46.0% by weight, iodine value: 57.0, saturated fatty acid: 45.8% by weight) was used.

[0044]

As oil and fat C, coconut oil, which was also used as a raw material of interesterified oil 7, was used.

[0045]

As oil and fat D, cocoa butter (manufactured by Fuji Oil Co., Ltd., iodine value: 35.0, saturated fatty acid: 62.4% by weight) was used.

[0046]

The raw material oils and fats of the obtained random interesterified oils contained a symmetrical triglyceride-rich oil and fat.

[0047]

[Table 1]

	Random interesterified oil							Oil and fat		
	1	2	3	4	5	6	7	B	C	D
Saturated fatty acid content [wt%]	22.7	24.2	26.4	20.1	22.8	22.7	22.8	45.8	91.6	62.4
Content of saturated fatty acids with 20 or more carbons [wt%]	0.7	0.7	0.6	0.7	0.8	0.7	1.2	0.1	0.0	0.2
Lauric acid content in constituent fatty acids [wt%]	0.0	0.0	0.0	0.0	0.1	0.0	3.6	0.2	47.5	0.0
Palmitic acid content in constituent fatty acids [wt%]	9.6	8.9	13.9	10.0	16.6	10.0	10.3	40.5	9.6	25.9
Stearic acid content in constituent fatty acids [wt%]	9.0	10.9	8.5	9.3	2.3	12.0	1.7	4.0	4.0	36.2
Weight ratio of palmitic acid/stearic acid in constituent fatty acids	1.1	0.8	1.6	1.1	7.2	0.8	6.1	10.1	2.4	0.7
SFC at 5℃ [%]	2.0	2.5	3.5	5.4	7.8	4.6	2.5	44.7	93.2	91.3
SFC at 15℃ [%]	1.0	1.3	2.3	2.1	1.6	2.5	0.1	20.8	68.7	84.6

[0048]

(Preparation of chocolates for coating frozen dessert)

According to the formulation of Table 2, chocolates for coating frozen dessert were prepared. The preparation conditions of chocolates were according to a known method. That is, appropriate amounts of vegetable oil and fat and lecithin were added to cocoa (oil content: 11.0%), cacao mass, whole milk powder, milk sugar, and sugar, and the mixture was mixed while heating by a mixer to prepare a dough. This dough was atomized by a roll refiner (manufactured by BUHLER Co., Three-roll mill STDY300) into a granularity of about 20 μm and added with the whole quantity of remaining oil and fat and lecithin. The product was uniformly kneaded by a conching machine (Conche) to obtain chocolates.

[0049]

[Table 2]

[wt%]		Example								Comparative Example			
		1	2	3	4	5	6	7	8	1	2	3	4
Vegetable oil/fat	Oil and fat B	37.0	37.0	37.0	35.0	14.0	17.0	37.0	37.0	17.0	34.0	17.0	17.0
	Random interesterified oil 1	17.0			17.0	17.0	17.0						
	Random interesterified oil 2		17.0										
	Random interesterified oil 3			17.0									
	Random interesterified oil 4							17.0					
	Random interesterified oil 5								17.0				
	Random interesterified oil 6											17.0	
	Random interesterified oil 7												17.0
	Oil and fat C						20.0			37.0	20.0	20.0	20.0
	Oil and fat D				2.0	23.0							
Sugar		31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8	31.8
Cocoa		13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
Lecithin		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

[0050]

(Coating test)

The obtained chocolates for coating frozen dessert were melted while heating and adjusted to 50°C. Then, a commercially available ice cream bar (manufactured by Lotte Co., Ltd., lacto ice) was coated with the resultant chocolates and subjected to a coating test (room temperature: 20°C).

[0051]

(Evaluation method of chocolates for coating frozen dessert)

The evaluation items and criteria were as described below, and four evaluation levels were set. When evaluation of B or above was obtained in two or more items of three items, the overall evaluation was “acceptable”. The sensory evaluation was performed by six panelists who were engaged in the development of materials for frozen dessert, using a coated ice cream bar which had been placed in a domestic freezer (-15°C) one hour before tasting. The evaluation results are described in Table 3.

[0052]

(Evaluation criteria of chocolates for coating frozen dessert)

Drying) Time until the surface of chocolates for coating is completely solidified

A: Very rapid

B: Rapid

C: Average

D: Slow

When biting)

A: Soft, and plasticity is strongly sensed.

B: Soft, and plasticity is sensed.

C: Soft, but plasticity is not sensed.

D: Hard or not soft when biting.

Body taste)

A: Appropriately remains, and chocolates have a thick flavor.

B: Appropriately remains, and the flavor of chocolates is sensed.

C: Remains in the mouth, but the flavor of chocolates remains for a short time.

D: Shortly melts, and no flavor of chocolates is sensed.

[0053]

[Table 3]

	Example								Comparative Example			
	1	2	3	4	5	6	7	8	1	2	3	4
Drying	B	B	B	A	A	B	B	A	B	C	C	C
When biting	A	B	B	B	B	B	B	B	D	D	B	D
Body taste	A	B	B	B	A	B	B	B	D	B	B	D

[0054]

As illustrated in Table 3, the chocolates for coating frozen dessert of the Examples, which contain a defined amount of the oil and fat for coating frozen dessert according to the present application, were all soft when biting while frozen and yet dried rapidly, appropriately remained, and had a thick flavor.

CLAIMS

[Claim 1]

An oil and fat for coating frozen dessert, comprising a random interesterified oil and a non-interesterified POP-containing oil and fat, wherein conditions of (i) to (vi) described below are all satisfied:

(i) a saturated fatty acid content in constituent fatty acids of the random interesterified oil is 20.0% by weight to 30.0% by weight;

(ii) a content of saturated fatty acids with 20 or more carbon atoms in constituent fatty acids of the random interesterified oil is less than 2.0% by weight;

(iii) a stearic acid content in constituent fatty acids of the random interesterified oil is 2.0% by weight to 11.5% by weight;

(iv) a weight ratio of palmitic acid/stearic acid in constituent fatty acids of the random interesterified oil (P/St) is 0.5 to 8.0;

(v) a solid fat content (SFC) at 5°C of the random interesterified oil is less than 10%, and an SFC at 15°C is less than 6.0%; and

(vi) a POP content of the non-interesterified POP-containing oil and fat is 20.0% by weight to 70.0% by weight,

where P represents palmitic acid, and O represents oleic acid.

[Claim 2]

The oil and fat for coating frozen dessert according to claim 1, wherein (vii) a lauric acid content in constituent fatty acids of the random interesterified oil is less than 2.0% by weight.

[Claim 3]

The oil and fat for coating frozen dessert according to claim 1 or 2, wherein (viii) a formulation amount of the random interesterified oil is 10% by weight to 95% by weight, and a formulation amount of the non-interesterified POP-containing oil and fat is 5% by weight to 90% by weight.

[Claim 4]

The oil and fat for coating frozen dessert according to any one of claims 1 to 3, wherein (ix) a raw material oil and fat of the random interesterified oil includes one or more

selected from symmetrical triglyceride-rich oils and fats.

[Claim 5]

Chocolates for coating frozen dessert, containing the oil and fat for coating frozen dessert according to any one of claims 1 to 4 in an amount of 10.0% by weight to 70.0% by weight.

[Claim 6]

The chocolates for coating frozen dessert according to claim 5, wherein a content of laurin-based fat is 25.0% by weight or less.