

ROLL-IN EMULSIFIED OIL AND FAT COMPOSITION

Technical Field

The present invention relates to a Roll-in emulsified oil and fat composition.

Background Art

Generally, a Roll-in emulsified oil and fat composition used for pastry such as croissant requires excellent workability, such as good extensibility or the like. In addition, some consumers in recent years hope the pastry obtained by using the above composition to be high in juiciness.

Patent document 1 discloses a roll-in plastic water-in-oil emulsion, characterized in that it comprises 5~50wt% of laurin-based hard butter, 3~50wt% of non-selective interesterification oil and fat derived from palm oil, and more than 1% of milk fat, the SFC of oil phase is more than 40% at 10°C and less than 10% at 35°C, and it substantially does not contain trans-fatty acid.

Moreover, Patent document 2 discloses a roll-in plastic water-in-oil emulsion, wherein the roll-in plastic water-in-oil emulsion includes 6~20 wt% of fully hydrogenated fat which comprises high erucic rapeseed oil and 5~50 wt% of oil and fat which is in a liquid state at room temperature, the SFC of oil phase is 30%~50% at 10°C and more than 10% at 35°C, and it substantially does not contain trans-fatty acid.

Patent document 3 discloses an oil-in-water emulsified oil and fat composition for roll-in use, in which the content of triacylglycerol represented by SLOSL (SL: palmitic acid residue, stearic acid residue or arachic acid residue; O: oleic acid residue) in oil phase is 35wt% or more. Further, it also discloses that with respect to a water-in-oil emulsified roll-in margarine using symmetrical oil and fat for chocolate, which is a typical oil and fat with excellent

mouth feel, although it has excellent mouth feel, a pastry dough can hardly be stretched after rolling it, and strict temperature management with unit of 1°C is required, which substantially is nearly impossible.

Patent document 4 discloses a sheet-shaped water-in-oil emulsified oil and fat composition in its Claims, which is characterized in that, the sheet-shaped water-in-oil emulsified oil and fat composition as a whole contains 10-50wt% of cocoa-butter equivalent oil and fat, 5~20 wt% of laurin-based oil and fat, and does not use hydrogenated and/or interesterified oil and fat at all.

[Prior Art documents]

Patent document 1:

Japanese Unexamined Patent Application Publication(Kokai) No. 2008-193974;

Patent document 2:

Japanese Unexamined Patent Application Publication(Kokai) No. 2010-233547;

Patent document 3:

Japanese Unexamined Patent Application Publication(Kokai) No. 2002-306065;

Patent document 4:

Japanese Unexamined Patent Application Publication(Kokai) No. 2007-60912.

Contents of the Invention

Problems to be solved by the invention

The present invention relates to a Roll-in emulsified oil and fat composition which substantially does not contain trans-fatty acid and has an excellent extensibility, and whose croissant after being baked is juicy. The present invention also relates to a pastry such as croissant using the Roll-in emulsified oil and fat composition.

Technical means for solving the problems

The aforementioned prior arts have the following problems with regard to the above subjects.

In the Patent document 1, besides the requirement that 5~50wt% of laurin-based hard butter is blended, various conditions such as the requirement that SFC at 10°C is 40% or more have to be met, so that it is greatly restricted in blending, and thus some desired composition cannot be obtained.

In the Patent document 2, the fully hydrogenated fat of high erucic rapeseed oil is in an amount of 6~20wt%, so there is a speculation that it would encounter problem in uses requiring good mouth feel.

The Patent document 3 discloses 『that the water-in-oil emulsified roll-in margarine using symmetrical oil and fat for chocolate, (middle contents are omitted), is nearly impossible.』 In addition, the inventors of the present invention substantiated the difficulty explained in the Patent document3 with experiments and study. Further, the oil-in-water emulsion as prepared by the Patent document 3 has problem of putrefaction.

In the features of Patent document 4, laurin-based oil and fat has to be blended and hydrogenated and/or interesterified oil and fat should not be used at all, so its composition is greatly restricted. Further, its examples merely disclose a manufacturing method using pressure crystallization.

That is, a Roll-in emulsified oil and fat composition with both excellent extensibility and juiciness had not been obtained.

The inventors of the present invention had made great efforts to obtain a Roll-in emulsified oil and fat composition with both the excellent extensibility and the juiciness. The results thereof showed that when an oil phase contains a specific amount of SOS (2-oleo-1,3-

distearin), which is known to be unsuitable for a Roll-in emulsified oil and fat composition since it is expensive and has unique physical characteristics, a relatively large amount of liquid oils could be blended. Therefore, when making pastry such as croissant excellent extensibility was shown and very much juiciness was presented after baking and in such blending, even if milk fat was blended in a small amount, strong milk taste could still be presented due to a large amount of liquid oil, and thus the present invention has been achieved.

That is, the present invention relates to the following contents:

(1) A Roll-in emulsified oil and fat composition which substantially does not contain trans-fatty acid, characterized in that: an oil phase contains 25~55wt% of a liquid oil, and 6~33wt% of SOS (2-oleo-1,3-distearin), and lauric acid among fatty acids constituting the oil phase is in an amount of 7wt% or lower.

(2) The Roll-in emulsified oil and fat composition according to (1), in which, the liquid oil in the oil phase is in an amount 1.3~8 times the amount of the SOS.

(3) The Roll-in emulsified oil and fat composition according to (2), in which the oil phase further contains 0.2~17wt% of milk fat.

(4) The Roll-in emulsified oil and fat composition according to any one of (1) to (3), in which the oil phase further contains 2~6wt% of POP(2-oleo-1,3-dipalmitin).

(5) The Roll-in emulsified oil and fat composition according to (4), wherein the oil phase further contains 0.05wt% or more of an emulsifier having effect to promote crystallization of oil and fat.

(6) A method for preparing roll-in emulsified oil and fat, which is used for preparing the Roll-in emulsified oil and fat composition according to (5), characterized in that: the emulsifier having effect to promote crystallization of oil and fat is blended in an amount of 0.05 wt% or more into the oil phase.

(7) A pastry, which is prepared using the Roll-in emulsified oil and fat composition according to any one of (1) to (5).

Effects of the invention

According to the present invention, a Roll-in emulsified oil and fat composition which substantially does not contain trans-fatty acid and presents both excellent extensibility and juiciness is obtained.

Embodiments for Carrying Out the Invention

The Roll-in emulsified oil and fat composition of the present invention refers to an oil and fat composition that can be used for the roll-in of a pastry such as croissant, which typically is a water-in-oil emulsion. In addition, it usually is of sheet shape, but the oil and fat composition of block shape is also used.

The oil phase of the present invention refers to a mixture in state of blending an oil and fat and ingredients dissolved in the oil and fat in the emulsified oil and fat composition, and to a substance recognized as a part with oil and fat as main body which is separated when the emulsified oil and fat composition is heated and dissolved and its emulsion state is destroyed.

The liquid oil of the present invention refers to edible oil which is in liquid state at room temperature. Specifically, its examples are corn oil, cotton seed oil, soybean oil, rapeseed oil, rice oil, sunflower oil, safflower oil and fractionated palm oil, preferably corn oil, cotton seed oil, soybean oil, rapeseed oil, rice oil, sunflower oil and safflower oil, more preferably soybean oil and rapeseed oil. In addition, the liquid oil is in an amount of 25~55wt%, preferably 30~50wt%, more preferably 32~45wt% in the oil phase of the Roll-in emulsified oil and fat composition of the present invention. Excellent extensibility may not be obtained when the amount of the liquid oil is too small or too large.

The SOS (2-oleo-1,3-distearin) (hereinafter cited as SOS sometimes) of the present invention refers to a triglyceride esterified to stearic acid at the 1-, 3-position and oleic acid at the 2-position. As oil and fat rich in SOS, examples of natural fat are cocoa butter, shea butter, sal fat, illipe butter. Further, it can be also prepared by interesterification method using 1,3-specific lipase. In the present invention, the SOS prepared by interesterification method using 1,3-specific lipase is preferred due to its high SOS purity. Moreover, the required amount of SOS is 6~33wt%, preferably 6~25wt%, more preferably 7~16wt% in the oil phase of the Roll-in emulsified oil and fat composition of the present invention. If SOS is in a too small amount, the liquid oil may exude from the oil and fat composition; while if SOS is in a too large amount, the extensibility would deteriorate.

Moreover, in the present invention, SOS can hardly be replaced with another symmetric triglyceride, POP. Since POP adjusts the physical properties relating to the Roll-in emulsified oil and fat composition of the present invention, when POP is blended in an amount less than SOS workability such as extensibility may be improved sometimes. But if there is only POP or POP is used in an amount more than SOS, the excellent extensibility of the Roll-in emulsified oil and fat composition of the present invention and the excellent mouth feel of pastry such as croissant formulated therewith can hardly be obtained at the same time.

The phrase “lauric acid as constituting fatty acid of the oil phase is in an amount of 7wt% or less” in the present invention means that lauric acid does not reach an amount substantively influencing physical properties of the Roll-in emulsified oil and fat composition of the present invention. If lauric acid is in an amount larger than the upper limit, it may adversely influence the excellent extensibility that is presented under a specific amount of SOS and liquid oil. In addition, in the present invention, an amount of the lauric acid as constituting fatty acid of the oil phase is preferably 6wt% or less, more preferably 4.5wt% or less, most preferably 3wt% or less.

In the present invention, the phrase “substantially does not contain trans-fatty acid” means that trans-fatty acid originated from hydrogenated oil and fat is not contained. Natural fats such as milk fat may sometimes be used as raw material of oil and fat composition, but they may contain a bit of trans-fatty acid which is not hydrogenated. The present invention does not exclude the use of such natural fats. In addition, the liquid oil may sometimes contain a small amount of trans-fatty acid generated in refining process, and the present invention also does not exclude the use of such liquid oil.

The milk fat of the present invention refers to a fat originated from milk, which may be blended in form of butter or butter oil (alias is clarified butter), and cream. In addition, the milk fat in the oil phase of the Roll-in emulsified oil and fat composition of the present invention is suitably in amount of 0.2~17wt%, more preferably 2~17wt%, and further more preferably 5~17%. If milk fat is in a too small amount, it may lose in milk taste sometimes. Further, if milk fat is in a too large amount, cost will increase.

The POP (2-oleo-1,3-dipalmitin) (hereinafter cited as POP sometimes) of the present invention refers to a triglyceride esterified to palmitic acid at the 1-, 3-position and oleic acid at the 2-position. As oil and fats rich in POP, an example of a natural substance is fractionated palm oil. In addition, it also may be prepared by interesterification method using 1,3-specific lipase.

In the present invention, a variety of physical properties can be set on basis of the compounding ratio of SOS to the liquid oil, and a small amount of POP can be used when the physical properties are further adjusted slightly. The usage amount of POP at this moment in the oil phase of the Roll-in emulsified oil and fat composition can be preferably 2~6wt%, more preferably 3~6wt%, and further more preferably 4~5wt%. If the amount is too small or too large, the desired physical properties, especially extensibility, may not be obtained.

The phrase “emulsifier having effect to promote crystallization of oil and fat” in the present invention especially refers to an emulsifier having effect to promote crystallization of oil and fat in a rapid cooling process during preparation of the oil and fat composition. The crystallization rate of SOS is not very fast in the rapid cooling process during preparation of the oil and fat composition, so the production of the Roll-in emulsified oil and fat composition sometimes will be difficult. In such case, the Roll-in emulsified oil and fat composition can be prepared by adding an emulsifier having effect to promote crystallization of oil and fat. Specifically, examples are sorbitan fatty acid ester having esterification rate of 28~60% and sorbitol type amount of 20~40%, or sucrose fatty acid ester having HLB of 2 or below and linked with the palmitic acid. Sorbitan fatty acid ester having esterification rate of 28~60% and sorbitol type content of 20~40% is more preferable. Its amount in the oil phase of the Roll-in emulsified oil and fat composition can be preferably 0.05wt% or more, more preferably 0.1wt% or more, and further more preferably 0.5wt% or more. If the amount is too small, the effect of promoting crystallization of oil and fat may not be obtained sufficiently.

Specifically, the usable emulsifier having effect to promote crystallization of oil and fat can be RYOTO Sugar Ester P170 produced by Mitsubishi-Kagaku Foods Corporation, etc.

The most outstanding feature of the present invention is an oil and fat composition in the oil phase. The first feature is that SOS is used in a specific amount, while it is well known that SOS has excellent mouth feel as oil and fat for chocolate but is considered inappropriate for the Roll-in emulsified oil and fat composition from the viewpoint of the physical properties thereof. Excellent extensibility cannot be obtained even if SOS is simply blended heretofore.

The second feature is that for the Roll-in emulsified oil and fat composition, an unprecedented large amount of liquid oil is blended in the oil phase. Usually, when such a

large amount of liquid oil is blended, it is frequently encountered that the Roll-in emulsified oil and fat composition cannot obtain sufficient plasticity and excellent extensibility.

It is found in the present invention that when each of SOS and the liquid oil is blended in a specific amount, the Roll-in emulsified oil and fat composition having excellent extensibility and showing excellent mouth feel in preparing pastry of croissant can be obtained, and thus the present invention has been achieved.

In the present invention, emulsifiers, flavours or the like commonly used in the Roll-in emulsified oil and fat composition can be properly used within the range of not adversely influencing the effects of the present invention.

A general method illustrated hereinafter can be used for preparing the Roll-in emulsified oil and fat composition of the present invention.

In a prescribed composition, oil and fat and ingredients that dissolve in oil and fat, such as an oil soluble emulsifier, are dissolved in oil and fat to obtain an oil phase. The oil phase is dissolved completely. This depends on the melting point of the oil and fat, which is about 55~75°C.

On the other hand, in a prescribed composition, water and ingredients dissolve in water, such as a water-soluble flavor materials and the like, are mixed with water to obtain a water phase. Note that if the composition uses a liquid sugar, etc., instead of water, water soluble ingredients will be dissolved in or mixed with the liquid sugar.

After the oil phase and the water phase are ready, the water phase is added to the oil phase with stirring, and thus an approximate water-in-oil type emulsion “preparation” is obtained. At this moment, if the oil phase is stirred insufficiently or the temperature of the oil phase is too low, the emulsification may convert, and therefore, the oil phase should be stirred enough and the temperature should be high enough.

The preparation is sent by a pump, through a sterilizer, etc., if necessary, to equipment for manufacturing water-in-oil emulsified oil and fat composition. Just before being sent to the equipment for manufacturing water-in-oil emulsified oil and fat compositions, the preparation needs to be in a dissolved state, and its temperature needs to be 40-80°C, more preferably 50-70°C, and further more preferably 55-65°C. If the temperature of the preparation right before being sent to the equipment for manufacturing water-in-oil emulsified oil and fat compositions is too low, a crystal of oil and fat may be formed at that stage, leaving granular crystals in end product. On the other hand, if the temperature is too high, the equipment for manufacturing water-in-oil emulsified oil and fat compositions may require extra energy for cooling.

The equipment for manufacturing water-in-oil emulsified oil and fat compositions may be any equipment that has a cooling function. Specifically, it can be equipment provided with a scraped surface rapid cooling mixer such as Combinator, Perfector, Votator or the like. With the use of such equipment, the preparation is cooled to 3~15°C at a rate of 1~8°C/s at an outlet of the cooling equipment, for example. The cooling rate is preferably 1~7°C/s, more preferably 1~5°C/s. If the cooling rate is too slow, granular crystals may be formed easily, and if the cooling rate is too fast, more energy may be unnecessarily required.

After leaving the cooling equipment, the water-in-oil emulsified oil and fat composition is introduced to a resting tube, and formed into a sheet or block by a forming machine provided at an outlet of the resting tube. The size of the Roll-in emulsified oil and fat composition obtained in this way can be appropriately set according to the configuration of the forming machine. After the forming, it is refrigerated after packaging, filing, etc., and aged if necessary. Note that a refrigerating time of at least 24~48 hours or so may be required for a desired number of crystals.

Examples

Hereinafter, embodiments of the present invention are explained in details with reference to the examples.

Examples 1~9 and Comparative Examples 1~4

Based on the composition shown in Table 1, the Roll-in emulsified oil and fat compositions were prepared according to the method for preparing the Roll-in emulsified oil and fat composition as explained below.

Then, the workability was evaluated by the test method for croissant preparation explained below. Further, taste evaluation of each of croissant samples is performed according to the taste evaluation method.

Table 1 The composition of the Roll-in emulsified oil and fat composition

	Example 1	Example 2	Example 3	Example 4	Example 5	Example 6	Example 7	Example 8	Example 9	Comparative Example 1		Comparative Example 2		Comparative Example 3		Comparative Example 4	
	Whole composition	Ratio in oil phase	Whole composition	Ratio in oil phase	Whole composition	Ratio in oil phase	Whole composition	Ratio in oil phase	Whole composition	Ratio in oil phase	Whole composition	Ratio in oil phase	Whole composition	Ratio in oil phase	Whole composition	Ratio in oil phase	Ratio in oil phase
Butter	15.3%	15.3%	15.3%	15.3%		15.3%			58%		15.3%						
(Milk fat)		15.4%		15.4%		15.4%			5.7%		15.4%						
Interesterification oil A	5.9%	7.2%	5.9%	7.2%	30.0%	35.7%	30.0%	35.7%	15.4%	18.5%	5.9%	47.0%	56.0%	36.0%	42.9%	24.0%	28.5%
Interesterification oil B					6.0%	7.2%		3.6%							6.0%	7.2%	7.2%
Interesterification oil C	15.0%	18.3%	15.0%	18.3%		15.0%	18.3%		20.0%	23.9%	15.0%						
Laurin-based oil											20.0%						
SOS-containing fat	10.0%	12.2%	10.0%	12.2%	20.0%	23.9%	20.0%	41.5%	49.5%	12.0%		20.0%	23.9%	25.0%	29.8%	35.0%	41.8%
Fractionated palm oil	10.0%	12.2%	8.0%	6.1%													
Rapeseed oil	27.6%	33.7%	32.6%	39.8%	27.0%	32.2%	30.0%	35.8%	32.6%	38.9%	27.6%	16.0%	19.1%	16.0%	19.1%	18.0%	21.5%
Salt	1.3%	1.3%	1.3%	1.3%	1.0%	1.3%	1.0%	1.0%	1.3%		1.3%	1.0%		1.0%		1.0%	
Water	14.1%	14.1%	14.1%	14.1%	15.2%	14.1%	15.2%	15.2%	14.1%		14.1%	15.2%		15.2%		15.2%	
lecithin	0.4%	0.5%	0.4%	0.5%	0.4%	0.5%	0.4%	0.5%	0.4%	0.5%	0.4%	0.4%	0.5%	0.4%	0.5%	0.4%	0.5%
Sucrose fatty acid ester	0.3%	0.4%	0.3%	0.4%	0.3%	0.4%	0.3%	0.4%	0.3%	0.4%	0.3%	0.3%	0.4%	0.3%	0.4%	0.3%	0.4%
Monofatty acid ester	0.1%	0.1%	0.1%	0.1%	0.1%	0.4%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Ratio of SOS in oil phase		7.8%		7.8%		15.3%		15.3%		7.7%			15.3%		19.2%		26.8%
Ratio of liquid oil in oil phase		33.7%		39.8%		33.7%		35.8%		38.9%			19.1%		19.1%		21.5%
Ratio of POP in oil phase		5.6%		2.8%		0.0%		0.0%		0.0%			0.0%		0.0%		0.0%
Content of Lauric acid		1.6%		1.6%		6.7%		6.0%		2.9%			8.4%		7.8%		5.6%
Liquid oil/SOS		4.3		5.1		2.1		2.3		5.0			1.2		1.0		0.8

- Interesterification oil A is obtained by random interesterification using palm oil, fractionated palm kernel, etc., and has a melting point of 33°C
- Interesterification oil B is obtained by random interesterification using rapeseed oil and palm kernel oil, and has a melting point of 52°C.
- Interesterification oil C is obtained by random interesterification using palm oil and rapeseed oil, etc., and has a melting point of 46°C.
- Laurin-based oil is a fractionated palm kernel oil.
- SOS-containing fat is a fat for chocolate obtained by enzymatic interesterification. It contains 64.2wt% SOS.
- Fractionated palm oil is a palm mid fraction containing 46.2wt% of POP.
- An emulsifier having effect to promote crystallization of oil and fat is a sucrose fatty acid ester (RYOTO Sugar Ester P170 produced by Mitsubishi-Kagaku Foods Corporation).

(Method for preparing the Roll-in emulsified oil and fat composition)

1. The oil and fat and the oil soluble emulsifier were dissolved and mixed to obtain an oil phase. (Butter was added into the oil phase)
2. Water and the water soluble ingredients were mixed to obtain a water phase.
3. The water phase was added to the oil phase with stirring at 55~70°C, so it was emulsified approximately.
4. The Roll-in emulsified oil and fat composition in sheet shape was obtained by passing through a scraped surface rapid cooling mixer(Combinator), a resting tube, and a forming machine.
5. Keeping it in a refrigerator at 3~7°C for 3~7 days.

(Test method for croissant preparation)

1. A dough was prepared by the composition shown in Table 2 according to the following procedures.

Mixing time: 3 minutes at low speed, 3 minutes at middle speed

Kneading temperature: 26°C

Floor time: 40 minutes

Temperature/humidity of fermentation chamber: 27°C/75%

Dividing weight: Large

Retardation temperature/time: -8°C/1 hour

2. The Roll-in emulsified oil and fat composition was provided in an amount of 50 parts by weight based on 100 parts by weight of flours. The temperature of the Roll-in emulsified oil and fat composition was regulated to 15°C, 20°C, 25°C, respectively, and the sample which was thought to be best, was tested for fold.

3. Folding into thirds 3 times by a sheeter.

4. The final dough was spread and cut to form a triangle with a thickness of 4mm, a bottom of 120mm and a height of 180mm.

5. A croissant was formed, and final fermentation was performed.

35°C, 70% humidity, 60 minutes.

6. After the final fermentation, egg was brushed and baked.

Baking temperature: upper fire 120°C, lower fire 190°C, 15 minutes.

Note that as a control(reference) sheet margarine, ARTPIA GS produced by FUJI OIL Co., LTD. was used.

Table 2: Composition of croissant dough

	Part by weight
High protein flour or Hard flour	70
French flour(Middle protein flour)	30
Superfine sugar	8
Salt	1.8
Concentrated milk-based dairy product	8
Whole egg	8
Shortening	6
Yeast	4
Yeast food	0.1
Water absorption	49

※Concentrated milk-based dairy product was PROBEST500 produced by FUJI OIL Co., LTD..

※Shortening was PAMPAS LB produced by FUJI OIL Co., LTD..

(Workability evaluation in preparing croissant)

The extensibility in roll-in step was evaluated by a skilled worker.

In comparison with the control(reference), extensibility was evaluated as ◎, ○, X in which ◎ means ‘excellent extensibility and comparable level’, ○ means ‘slightly worse but within the acceptable range, and X means ‘inferior quality such as rupture of dough’. ○ and ◎ are pass.

(Evaluation of baked croissant)

The evaluation was performed by three tasting members, and end result was determined by mutual agreement.

A: Appearance evaluation

In comparison with the control(reference), sizes(expansion level) were evaluated as ◎, ○, X in which ◎ means ‘full expansion and comparable level’, ○ means ‘slightly worse but within the acceptable range’ and X means ‘clearly inferior’. ○ and ◎ are pass.

B: Inner layer evaluation

The croissants were cut off, and their inner layers were observed. In comparison with the control(reference), inner layer was evaluated as ◎,○, X in which ◎ means ‘fine layers and comparable level’, ○ means ‘slightly worse but within the acceptable range’, and X means ‘less layers and clearly inferior’. ○ and ◎ are pass.

C: Taste evaluation

Croissants were actually eaten, and taste evaluation was focused on mouth feel and juiciness. In comparison with the control(reference), taste was evaluated as ◎, ○, X in which ◎ means ‘superior level’, ○ means ‘comparable level’, and X means ‘dry and clearly inferior’. ○ and ◎ are pass.

(Result and discussion)

The results were summarized in Table 3.

- When only a large amount of liquid oil was blended, the obtained croissants showed worse appearance and inner layer, and also showed worse results in the taste evaluation (Comparative Example 1).

- When liquid oil and SOS fat were used in combination, the obtained croissants showed improvement in taste evaluation, but still had worse appearance and poor workability

(Comparative Example 2).

- In Comparative Examples 3 and 4, the content ratio of the liquid oil to SOS fat was changed and studied, but good results were not obtained (Comparative Examples 3, 4).

- As shown in the examples, the oil and fat compositions with good physical properties and resulting in qualified appearance, inner layer and taste evaluation of croissants were firstly obtained when the liquid oil was set as 25~55wt% and the SOS was set as 5~27wt% in the oil phase.

- When Examples 1 to 3 are compared with Example 9, the contents of SOS in oil phase in these Examples are all 7.7~7.8wt%, but the workability of Examples 1~3 in which POP was blended was better than that of Example 9, this was assumed to be the effect of POP.

Table 3: Results of Examples and Comparative Examples

	Example 1	Example 2	Example 3	Example 4	Example 5	Example 6	Example 7	Example 8	Example 9	Comparative example 1	Comparative example 2	Comparative example 3	Comparative example 4
Workability evaluation	◎	◎	◎	◎	○	◎	○	◎	○	×	×	×	×
A: Appearance evaluation	◎	◎	◎	◎	○	◎	○	◎	◎	×	×	×	×
B: Inner layer evaluation	◎	◎	◎	◎	○	◎	○	◎	◎	×	×	×	×
C: Taste evaluation	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	◎	◎	◎

Industrial Applicability

The Roll-in emulsified oil and fat composition with both of extensibility and mouth feel of pastry such as croissant can be obtained according to the present invention. This product reduces complexity in preparation of bread and stimulates the purchase intention of consumers simultaneously, and thus is a great help to the industry.

What is claimed is:

1. A Roll-in emulsified oil and fat composition which substantially does not contain trans-fatty acid, characterized in that its oil phase contains 32~45wt% of a liquid oil and 2~17wt% of milk fat and 7~16wt% of SOS (2-oleo-1,3-distearin), and lauric acid as constituting fatty acid of the oil phase is in an amount of 7wt% or less.
2. The Roll-in emulsified oil and fat composition according to Claim 1, wherein the oil phase further contains 0.05wt% or more of at least one selected from sorbitan fatty acid ester having esterification rate of 28~60% and sorbitol type amount of 20~40%, and sucrose fatty acid ester having HLB of 2 or below and linked with the palmitic acid as an emulsifier having effect to promote crystallization of oil and fat.
3. A method for preparing the Roll-in emulsified oil and fat composition according to Claim 2, characterized in that, 0.05wt% or more of at least one selected from sorbitan fatty acid ester having esterification rate of 28~60% and sorbitol type amount of 20~40%, and sucrose fatty acid ester having HLB of 2 or below and linked with the palmitic acid as the emulsifier having effect to promote crystallization of oil and fat is blended in the oil phase.
4. A pastry prepared by using the Roll-in emulsified oil and fat composition according to any one of Claims 1 to 3.