

COMPOSITE LAMINATED DOUGH  
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5       The invention relates to a composite laminated dough to be used for producing confectionery having a laminated structure, such as pies, pastries, crackers and lemon puffs and to a method of making such a dough.

10       Various methods are known for producing confectionery having a laminated structure.

15       Examples of known methods include a method which comprises wrapping a fat such as butter or margarine in a rolled dough to thereby form a dough/fat/dough structure and folding it in such a manner as to give a multilayered structure; and a method which comprises dispersing a fat in the form of particles in a dough to produce a structure wherein the fat is wrapped in the  
20       dough and then folding it in such a manner as to give a multilayered structure. When baked in an oven, the laminated dough with alternate dough and fat layers gives a confectionery product having a laminated structure, since the fat layer suppresses the emission of water  
25       vapour (including carbon dioxide when baker's yeast is employed) and thus expands or puffs up.

30       With the recent high growth of the economy and the increase in income levels, eating habits have changed accompanied by a demand for high-grade and diversified foods. In the field of baking, oven-fresh bakeries, which supply various fresh (as-baked) products including not only conventional white bread, bean-jam buns, jam buns and cream buns but also a number of variety buns,  
35       pies, pastries and buns stuffed with prepared foods, enjoy great popularity. The selling points of these oven-fresh bakeries reside in the freshness and variety of their products. Thus it is a serious problem for a

manager to characterise (differentiate) his shop from others and to obtain the necessary production space and manpower while keeping production costs reasonable.

5 It is difficult under these circumstances to prepare laminated confectionery products, such as pies and pastries, the preparation of which requires much labour in, e.g. fat wrapping, rolling and folding. When a high quality butter is to be used for producing these  
10 products, the characteristics of the butter (i.e., a large change in viscosity with changes in temperature) cause the split of the fat layer and the adhesion of the dough layers to each other which makes it impossible to form a good laminated dough. When a laminated dough is  
15 temporarily frozen in order to save labour, the deterioration is accelerated.

In the case of a laminated dough containing baker's yeast, the activity of the yeast is lowered whilst  
20 frozen, regardless of the use of butter. When such a dough is baked in an oven, the resulting laminated products have very poor puffing properties.

In general terms, it is the object of the present  
25 invention to provide a composite laminated dough wherein the above-mentioned disadvantages are eliminated or minimised.

Thus it is a first object of the present invention to  
30 provide a composite laminated dough which facilitates the production of various laminated confectionery products of widely varying properties, for example, puffing properties, flavour, colour tone, appearance and cost by combining various laminated doughs.

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It is a second object of the present invention to provide a composite laminated dough containing baker's yeast whose puffing properties, which are impaired by freezing are restored when thawed.

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According to the present invention a method of making a composite laminated dough includes making at least two laminated doughs, one of which contains baker's yeast and the other of which does not, by wrapping a fat in a dough  
10 mainly comprising wheat flour and rolling and folding each dough, superposing the laminated doughs and rolling and folding the superposed laminated doughs.

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The present invention permits a wide range of very satisfactory laminated confectionery products to be produced having widely varying properties, such a puffing properties, flavour, colour tone, appearance and cost by combining various laminated doughs.

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The present invention also embraces the composite laminated doughs produced by the method of the invention.

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The doughs comprising wheat flour which are used in the present invention may be prepared by adding a fat and water, optionally together with, for example, egg, milk powder, common salt, sugars, seasonings, baker's yeast and rising agent to wheat flour and kneading the resulting mixture. Examples of such doughs include pie dough, pastry dough, bread dough and croissant dough.

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The precise nature of the doughs mainly comprising wheat flour is not restricted provided that a fat can be wrapped therein. The manner of wrapping may also vary widely. For instance, a fat in the form of a sheet may be wrapped in the dough in the form of a bag.

Alternatively, a fat in the form of discrete particles may be dispersed in the dough. Thus, the terms "wrapping", "wrapped" and "wrap-in" in this specification can refer to fat being dispersed within a mass of dough,  
5 in discrete particles.

Substantially any fat, of emulsified or unemulsified type, may be used provided that it is edible. Examples of suitable fats include natural plastic fats such as  
10 butter, plasticised fats such as margarine, plastic shortening and reverse-phase margarine and various animal and vegetable fats.

The form of the fat to be used is not crucial provided that it can be wrapped in the dough. It may be in the form of sheets, cubes or particles.  
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The fat may be used in an amount ranging from 20 to 60 parts by weight, preferably from 30 to 50 parts by weight, per 100 parts by weight of dough.  
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The laminated doughs which are superposed on one another may be selected at will in dependence on their properties and the desired properties of the resulting composite laminated dough provided that one of the doughs contains baker's yeast and the other does not.  
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When a laminated dough containing baker's yeast is combined with a laminated dough containing no yeast, as described above, a composite laminated dough of excellent flavour is produced.  
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The rolling and folding procedures used to produce the laminated doughs may be performed with a rolling pin or a machine such as a reverse sheeter. It is preferred  
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that each of the laminated doughs consists of 12 to 64 layers.

5 The rolling and folding procedures which are performed after the superposition of the laminated doughs may be performed in a similar manner. It is preferred that the composite laminated dough thus obtained consists of 48 to 256 layers.

10 The composite laminated dough in accordance with the invention may be baked as such or it may be temporarily frozen and then thawed and baked.

15 The freezing procedure may be effected after the superposition of the laminated doughs using apparatus of the type commonly employed to freeze food.

20 This application is a divisional application from application number 9105517.8.

The invention will be further illustrated by way of the following Example and Comparative Example.

#### Example

25 A crust comprising a composite laminated dough of the present invention was produced from the compositions specified below in the following manner.

| <u>Dough</u> | 1           | 2   |
|--------------|-------------|-----|
| 30           | hard flour  | 500 |
|              | soft flour  | 700 |
|              | egg (net)   | 500 |
|              | common salt | 300 |
|              | shortening  | 100 |
| 35           | Sugar       | 10  |
|              |             | 100 |
|              |             | 120 |

|   |                                   |     |     |
|---|-----------------------------------|-----|-----|
|   | Skimmed milk                      |     | 30  |
|   | baker's yeast                     |     | 60  |
|   | water                             | 480 | 450 |
|   | <u>Fat for folding</u>            |     |     |
| 5 | margarine                         | 900 | 500 |
|   | (exclusively used for rolling-in) |     |     |

10 (1) The wheat flours of composition 2 were fed into a mixer.

(2) Cold water (at approximately 5°C), egg, common salt, sugar, skimmed milk, baker's yeast and yeast food were added to (1). The resulting mixture was mixed by stirring at a low speed for 2 minutes and then at a moderate speed for 3 minutes.

20 (3) After adding shortening, the mixture was mixed by stirring at a low speed for 2 minutes and at a moderate speed for 3 minutes. Kneading temperature: 20°C±1°C.

(4) The dough was introduced into a retarder at 0 - 2°C for resting for approximately 3 hours.

25 (5) The fat was wrapped with the dough.

(6) The dough was folded in three times to produce a laminated dough consisting of 9 layers and containing baker's yeast.

30 (7) The dough was introduced into a retarder for resting for approximately 3 hours.

35 (8) The dough was rolled until the thickness was reduced to 6 mm.

(9) A laminated dough free of baker's yeast and consisting of 64 layers was prepared from composition 1 by the following steps (10) to (17).

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(10) The wheat flours of composition 1 were fed into a mixer.

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(11) Cold water (at approximately 5°C), egg and common salt were homogeneously mixed together and added to (10). The resulting mixture was mixed by stirring at a low speed for 2 minutes and then at a moderate speed for 4 to 5 minutes.

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(12) After adding shortening, the mixture was mixed by stirring at a low speed for 2 minutes, at a moderate speed for 3 minutes, and then at a high speed for 1 minute, Kneading temperature: 20°C±1°C.

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(13) The dough was introduced into a retarder (2°C) for resting for approximately 1 hour.

(14) The fat was wrapped with the dough.

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(15) The dough was folded in four twice to give a dough consisting of 16 layers.

(16) The dough was introduced into a retarder for resting.

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(17) The dough was folded in four once and rolled until the thickness was 6 mm. Thus a laminated dough containing margarine and consisting of 64 layers was obtained.

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(18) The laminated dough obtained in (8) was superposed on the laminated dough obtained in (17), followed by folding in three once. The laminated dough thus obtained consisted of 27 layers of the laminated dough containing baker's yeast and 192 layers of the dough free from baker's yeast, making 219 layers in total.

(19) The composite laminated dough thus obtained was rolled until the thickness was reduced to 4 mm and then cut into rectangular pieces (120 mm in length, 100 mm in width). After placing a filling such as bean jam or sweet potato thereon, these pieces were moulded into a turnover shape.

(20) After baking at 200°C for 15 minutes, a laminated confectionery produced was obtained. The product rose 35 mm (the average of 10 pieces) and was well-baked to the bottom of the filling. It had a light texture and a butter-rich and fermented flavour.

The laminated confectionery product obtained in this Example, wherein a laminated dough containing baker's yeast (Danish pastry dough) is combined with a baker's yeast-free dough (pie dough), is a novel product having puffing properties of a type which is never observed in conventional products.

#### Comparative Example

A pie was produced by using composition 2 in the Example in the following manner.

(1) A laminated dough was prepared by steps (1) to (8) described in the Example. The laminated dough thus obtained was folded in three once, rolled until the

thickness was reduced to 4 mm, and then cut into rectangular pieces (120 mm in length, 100 mm in width). After placing a filling such as bean jam or sweet potato thereon, these pieces were moulded into a turnover shape.

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(2) After baking at 200°C for 15 minutes, a laminated confectionery produced was obtained. The product rose by 30 mm (the average of 10 pieces) and was not well-naked to the bottom of the filling. It had a fermented flavour and a heavy texture.

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CLAIMS

- 5 1. A method of making a composite laminated dough  
including <sup>making</sup> at least two laminated doughs, one of which  
contains baker's yeast and the other of which does not,  
by wrapping a fat in a dough mainly comprising wheat  
flour and rolling and folding each dough and then  
superposing the laminated doughs and rolling and folding  
10 the superposed laminated doughs.
- 15 2. A method of making a composite laminated dough  
substantially as specifically herein described in the  
Example.
- 20 3. A composite laminated dough substantially as  
specifically herein described in the Example.