

using cocoa butter that is degummed by an action of phospholipase thereon as the cocoa butter,

wherein a non-oil component does not contain a cacao component.

(8) The method of producing a chocolate-like food having photodegradation resistance according to (7),

wherein the phospholipase is phospholipase A2.

In addition, in other words:

(9) A method of producing cocoa butter having photodegradation resistance including degumming by causing phospholipase to act on cocoa butter.

(10) The method of producing cocoa butter having photodegradation resistance according to (9),

wherein the phospholipase is phospholipase A2.

(11) The method of producing cocoa butter having photodegradation resistance according to (10),

wherein an amount of the phospholipase A2 used is 500 to 200,000 IU with respect to 1 kg of cocoa butter.

(12) The method of producing cocoa butter having photodegradation resistance according to (9),

wherein the phospholipase is phospholipase A1.

(13) The method of producing cocoa butter having photodegradation resistance according to (12),

wherein an amount of the phospholipase A1 used is 500 to 200,000 IU with respect to 1 kg of cocoa butter.

(14) A method of imparting photodegradation resistance to cocoa butter comprising

degumming by causing phospholipase to act on cocoa butter.

(15) The method of imparting photodegradation resistance to cocoa butter according to (14),

(23) The method of producing the chocolate-like food having photodegradation resistance according to (22),

wherein the phospholipase is phospholipase A2.

(24) The method of producing the chocolate-like food having photodegradation resistance according to (23),

wherein an amount of the phospholipase A2 used is 500 to 200,000 IU with respect to 1 kg of cocoa butter.

(25) The method of producing the chocolate-like food having photodegradation resistance according to (22),

wherein the phospholipase is phospholipase A1.

(26) The method of producing the chocolate-like food having photodegradation resistance according to (25),

wherein an amount of the phospholipase A1 used is 500 to 200,000 IU with respect to 1 kg of cocoa butter.

[Advantageous Effects of Invention]

[0008]

According to the present invention, it is possible to impart photodegradation resistance to cocoa butter with a simple method.

[Description of Embodiments]

[0009]

Cocoa butter referred to in the present invention is the fat content of cacao beans. Generally, unpurified products are distributed in many cases, but purified products are also distributed in some cases. In the present invention, regardless of whether products are purified or not, commercially available cocoa butter can be appropriately used.

Phospholipases referred to in the present invention are enzymes that act on phospholipids. There are phospholipases A1, A2, B, C, and D according to acting portions. However, in the present invention, any phospholipase can be used. Among them, desirably, the

[0020]

○ Preparation of Examination Example 2 according to a general chemical degumming method of cocoa butter.

1. Cocoa butter was melted at 75 °C.

5 2. 0.1% of a 75 weight% aqueous phosphoric acid solution was mixed in with respect to cocoa butter and 2% of hot water with a temperature of 75 °C was mixed in with respect to cocoa butter.

3. The mixture was stirred using a HOMOMIXER (commercially available from PRIMIX Corporation) at 5,000 rpm for 3 minutes.

10 4. The mixture was centrifuged (2,000 g×10 minutes) and the bottom layer was removed.

5. 20 weight% of hot water with a temperature of 75 °C was mixed in and the mixture was stirred using a HOMOMIXER at 3,000 rpm for 3 minutes.

15 6. The mixture was centrifuged (2,000 g×10 minutes) and the bottom layer was removed.

7. Dehydration was performed at 110 °C for 10 minutes at 5 mmHg to obtain an oil of Examination Example 2.

[0021]

Examination 2 Treatment of cocoa butter using the phospholipase A1

20 As shown in Table 2, a degumming treatment was performed while an amount of the phospholipase A1 was changed. As a method, “○ Degumming method using phospholipase A1 treatment on cocoa butter” described below was performed.

“Cocoa butter DF200” (commercially available from Barry Callebaut Cocoa Asia Pacific Pte Ltd.) was used as cocoa butter. This product was unpurified cocoa
25 butter that was squeezed and extracted from cacao beans.

[0022]

Table 2 Concentration of phospholipase A1

“Phospholipase D from *Streptomyces Chromofuscus*” (commercially available from SIGMA-ALDRICH) was used as the phospholipase D. An activity value was 50,000 IU/g.

[0027]

- 5 ○ Degumming method using phospholipase D treatment on cocoa butter
 1. Cocoa butter was melted at 65 to 70 °C.
 2. 0.144% of a 45 weight% citric acid aqueous solution was mixed in with respect to cocoa butter.
 3. The mixture was stirred using a HOMOMIXER (commercially available from
 - 10 PRIMIX Corporation) at 3,000 rpm for 30 minutes.
 4. An oil temperature was set to 50 to 55 °C.
 5. A 4% aqueous sodium hydroxide solution was mixed in and a pH was set to 7.0 to 7.5.
 6. A 1 weight% phospholipase D suspension with a predetermined concentration was
 - 15 mixed thereinto.
 7. The mixture was stirred at an oil temperature of 50 to 55 °C using a HOMOMIXER at 3,000 rpm for 60 minutes.
 8. The mixture was centrifuged (2,000 g×10 minutes) and the bottom layer was removed.
 - 20 9. The oil temperature was set to 65 to 70 °C.
 10. 20 weight% of hot water with a temperature of 70 °C was mixed in and the mixture was stirred using a HOMOMIXER at 3,000 rpm for 3 minutes.
 11. The mixture was centrifuged (2,000 g×10 minutes) and the bottom layer was removed.
 - 25 12. Dehydration and deactivation of an enzyme were performed at 110 °C for 10 minutes at 5 mmHg.

[0028]

Examination 4 preparation of chocolate-like food

[0030]

○ Method of preparing chocolate-like food

1. An oil, sugar, and whole milk powder were mixed, and crushed using a roller.

2. Lecithin was added.

5 3. Conching was performed at 60 °C for 2 hours.

4. The temperature was adjusted to 30 °C, and “Chocolate Seed A” (commercially available from Fuji Oil Co., Ltd.) was added at 0.2% with respect to chocolate, and seed tempering was performed.

5. The mixture was filled into a PC chocolate mold No. 81 (38 mm×38 mm×3 mm: oil

10 3.5 g, chocolate 4.2 g), and solidified at 10 °C for 30 minutes.

[0031]

“○ Photodegradation acceleration test method”

1. A chocolate-like food sample was put into a polyethylene bag and left at 23 °C and 1,000 lx.

15 2. Sampling was performed every day for 3 days. Each sample was kept in a cool and dark place so that photodegradation did not proceed any further.

[0032]

○ Sensory evaluation method of chocolate-like food

7 trained panelists performed sensory evaluation using samples which were
20 photodegraded in the “○ Photodegradation acceleration test method” and a control sample. Evaluation criteria were as follows, and results were scored according to consultation among the panelists.

On the 3rd day in the acceleration test, three points or more was determined to be satisfactory.

25 5 points Evaluated as the same as the control.

[Claim 1]

A method of imparting photodegradation resistance to cocoa butter comprising:
degumming by causing phospholipase to act on cocoa butter.

[Claim 2]

5 The method of imparting photodegradation resistance to cocoa butter according
to claim 1,
 wherein the phospholipase is phospholipase A2.

[Claim 3]

10 The method of imparting photodegradation resistance to cocoa butter according
to claim 2,
 wherein an amount of the phospholipase A2 used is 500 to 200,000 IU with
respect to 1 kg of cocoa butter.

[Claim 4]

15 The method of imparting photodegradation resistance to cocoa butter according
to claim 1,
 wherein the phospholipase is phospholipase A1.

[Claim 5]

20 The method of imparting photodegradation resistance to cocoa butter according
to claim 4,
 wherein an amount of the phospholipase A1 used is 500 to 200,000 IU with
respect to 1 kg of cocoa butter.