

8

1 586 657

PATENT SPECIFICATION

(11) 1 586 657

- (21) Application No. 25527/78 (22) Filed 31 May 1978
(31) Convention Application No. 804823
(32) Filed 8 June 1977 in
(33) United States of America (US)
(44) Complete Specification published 25 March 1981
(51) INT CL³ A23D 5/00 A23L 1/36
(52) Index at acceptance
C5C 9B9C1 9B9CX 9BX
A2B 313 411 414 604 619 BCF



(54) PEANUT SKIN-OIL SUSPENSION

(71) We, CPC INTERNATIONAL, INC., a Corporation organized under the laws of the State of Delaware, United States of America, of International Plaza, Englewood Cliffs, New Jersey 07632, United States of America, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a process for treating peanut skins which will permit such skins to be added to a peanut butter product as a speck free coloring and flavoring agent. This invention also concerns a coloring agent comprising an edible oil and finely comminuted peanut skins for use in other food applications.

This disclosure is directed primarily to the use of the novel coloring agent in peanut butter. Conventional processes for making peanut butter products include the steps of roasting shelled peanuts, cooling and blanching the roasted peanuts to remove the skins, removing the germs from the blanched peanuts, sorting and discarding objectionable peanuts, and finely grinding the acceptable peanuts to obtain a peanut paste. Either before, during or after grinding, additional components are usually added such as sweeteners and salt to achieve desired flavor, a stabilizer to prevent oil separation, and emulsifiers and food grade oils to impart desired mouth feel, melt down in the mouth and good spreadability. The resulting paste can optionally be reground after the additional components are mixed into it to obtain a creamy peanut butter product.

The stabilizers generally employed are high melting fats having a melting point greater than about 110°F, but less than about 160°F. Exemplary of such stabilizers are partially and/or completely hydrogenated fats, mono- and/or di-glyceride esters of saturated fatty acids, and mixtures thereof.

Suitable emulsifiers include fatty monoglycerides, lecithin, and the like.

Illustrative of the food grade oils that can be used are peanut oil, cottonseed oil, palm oil, palm kernel oil, coconut oil, corn oil or soybean oil and mixtures thereof.

The prior art as characterized in U.S. Patent 3,619,207 has taught the blanching of the peanuts (i.e., removing the skins from the peanuts) in order to limit the amount of peanut skins to no more than about 0.75%, by weight, of the peanut paste component present. When more than this amount of peanut skins is present, the resulting peanut butter will contain dark specks and/or impart a bitter aftertaste. Conventional processing techniques show a marked preference for an upper limit of about 0.15% skins in the peanut paste.

Attempts have been made to increase the peanut skin content of peanut butter products in order to increase the intensity of the roasted flavor, impart a fuller peanut flavor, enhance the roasted color of the peanut butter, and the like. While some of these attempts have minimized the presence of dark specks in the product, the bitter aftertaste often imparted to the product had to be compensated for by increasing its sweetener content.

U.S. Patent 3,619,207 to Dzurik et al. (assigned to The Procter & Gamble Co.) discloses a method for producing a peanut butter in which the particle size of the peanut paste is controlled by a homogenizing step after initial grinding. This patent discloses that up to about 5% peanut skins, by weight, of the peanut paste may be incorporated into the peanut paste during homogenization of the peanut paste. The particle size of all components in the peanut paste is such that the largest particle is no more than 80 microns, and preferably at least 55% of the particles are in the

9

2

1,586,657

2

range of 8—20 microns and preferably no more than 30% of the particles are less than 10 microns in size. This particle sizing is accomplished due to high pressure and high velocity homogenizer conditions. As the level of peanut skins is increased into the range of 2—4% by weight of the peanut butter product, it becomes necessary to add additional sweeteners, at least 3% by weight and, preferably 4—10% by weight, to obtain an acceptable taste in the final product. This homogenized peanut butter with the added skins is said to have an appearance comparable to conventional peanut butter, that is, about the same or fewer specks as compared to conventional peanut butter.

It has been determined that if 100% native skins were left in a conventional peanut butter that they would make up about 3.5% of the weight of such finished product. However, problems of bitterness (i.e., off flavors) and of visible specks predominate in conventionally processed peanut butters having over about .15% peanut skins based on weight of peanut derived components.

An attempt was made to produce a conventional (that is, not highly sweetened) peanut butter containing 100% of the normal skin component and a major portion of the germ (50—60%). This product was speck laden as if it were sprinkled with larger particles of black pepper. Thereafter, this speckled product was passed through a Gaulin type homogenizer to further reduce the skin (speck) size and the attempt was successful in reducing the undesirable characteristics.

It was felt that the peanut skins might be directly introduced into the homogenizer for size reduction. This proved to be unsuccessful since the skins clogged the homogenizer. Then an attempt to disperse the skins by milling with a peanut butter product, resulting in a product containing pepper-like specks. It was further observed that homogenization and/or excessive milling of the total mass to reduce particle size of the skins caused a loss of desirable flavor volatiles and the presence of off flavors due to the high temperature generated during milling.

The present invention provides a process for obtaining a peanut skin-oil suspension free of bitter off-flavours useful for adjusting peanut butter color and flavour comprising

grinding peanut skins until 100% of the ground skins are capable of passing through at least a 100 U.S. standard mesh screen;

blending the ground skins with a food grade oil at a weight ratio of ground skins to oil in the range of from 1:1 to 1:3 to give a uniform, homogeneous blend; and

further reducing the particle size of the blend until 100% of the ground skins are capable of passing through at least a 200 U.S. standard mesh screen.

The peanut skin ingredient of this invention is a suspension type product comprising a uniform, homogeneous blend of ground peanut skins and a food grade oil free of bitter off-flavours, the particle size of the peanut skins being no greater than 75 microns, and preferably no greater than 20 microns, and the weight ratio of the ground skins to the oil being from 1:1 to 1:3. When incorporated into conventionally prepared peanut butter, it is found that the finely milled skin does not produce dark specks and the peanut butter prepared according to the prior art exhibits no bitter off-flavours. Even though the peanut butter contained significantly greater amounts of peanut skins when the skin ingredient is added to it, the sweetener content of the peanut butter does not have to be increased as the peanut butter does not impart a bitter aftertaste.

Futhermore, the peanut butter product containing the higher level of peanut skins is found to impart a richer peanut flavor, is creamy, and easy to spread, exhibits good mouth feel and melt down in the mouth, is of a uniform rich, brown color, and is free of dark specks.

The skin ingredient of the invention is obtained by milling peanut skins that are recovered during conventional friction-type blanching of peanuts. The peanut skins are milled to a powder using conventional apparatus such as an Alpine mill until 100% of the powdered peanut skins are capable of passing through at least a 100 U.S. standard mesh screen (150 microns). A slurry is then prepared with the powdered peanut skins and a food grade oil and it is then mixed in a Hobart (Registered Trade Mark) blender until a uniform, homogeneous blend is obtained in the form of a suspension. The weight ratio of skins to oil is from 1:1 to 1:3. Thereafter, the particle size of the slurry is reduced to permit 100% of the skins to pass through a 200 U.S. standard mesh screen (75 microns), such as by processing through a Gaulin type homogenizer or a roller type mill, to form a slurry which is very uniform in color and size. To prevent separation of this final oleoresin type

slurry, emulsifiers and/or stabilizers may be added to maintain a uniform product with age.

Examples of food grade oils that can be used in the present invention include peanut oil, cotton seed oil, palm oil, palm kernel oil, coconut oil, corn oil, soybean oil and mixtures of these. Preferably, the food grade oil is peanut oil.

When the peanut skin ingredient of the present invention is incorporated into a peanut butter composition it is preferably used in an amount not greater than 3% by weight of the composition.

The following samples are set forth to further illustrate the invention. In the examples, all amounts are by weight percent based upon the peanut paste.

EXAMPLE I

Skins obtained from conventional blanching of roasted peanuts were processed through an Alpine mill until the skins were in the form of a powder, and the particle size was reduced to below 150 microns. 200 grams of the powdered peanut skins were mixed with 200 grams of deodorized peanut oil using a Hobart blender. The blended components were further processed through a Ross (Registered Trade Mark) roller mill until the skin particle size was smaller than 74 microns.

The skin ingredient obtained as described above was added to conventional peanut butter at various levels to determine the effect it would have on the color of the peanut butter.

The results obtained are tabulated below wherein the color values are expressed as percent reflectance based on the Gardner Colorgard method:

TABLE I
Effect on Color of Peanut Butter Containing Various
Amounts of Food Ingredient

Sample	% Powdered Peanut Skins Based on Available Skins	% Powdered Skins based on Total Product	Color (% Reflectance)
1 (Control)	0	0	26.8
2	25	0.875	24.2
3	50	1.75	22.1
4	75	2.625	19.7
5	100	3.5	18.8

As indicated in Table I, the relationship of added skins to the change of the color of the peanut butter was such that the peanut butter became darker as the peanut skin-oil suspension was added to the peanut butter up to the "natural" weight of skins for the amount of peanuts utilized. There were no noticeable specks and the product took on a much darker but uniform appearance as the equivalent skin content reached the 75% and 100% levels. The higher skin levels were at the threshold of color change.

EXAMPLE II

The same procedure was followed as in Example I above except that a peanut butter processed to a different roast level was used. The weight ratio of peanut skins to oil was 1:1 and the roasted unbalanced peanuts contained 3.9% by weight peanut skins. The results obtained are set forth in Table II below.

TABLE II

Sample	% Powdered Peanut Skins Based on Available Skins	% Powdered Skins based on Total Product	Color (% Reflectance)
6 (Control)	0	0	24.8
7	25	.975	21.5
8	50	1.95	19.8
9	75	2.925	17.6
10	100	3.9	16.0
11	125	4.875	14.7
12	150	5.85	13.8

As can be seen from the results set forth in Tables I and II above, the color of each of the peanut butters darkened as the amount of peanut skin-oil suspension in the peanut butter was increased.

EXAMPLE III

Similar suspensions were prepared following the procedure of Example I except that 2 parts by weight and 3 parts by weight peanut oil were added to 1 part milled peanut skins. As the amounts of oil were increased, the mixing times to form a suspension decreased and the increased oil contents permitted more accurate metering of skin content. It was noted, however, that a large amount of suspension was necessary to be added to give the same color and flavor results as the more concentrated 1:1 mixtures of the earlier examples.

The peanut skin edible oil suspension of the present invention may be used as a coloring agent for other food products. In such case, the edible oil need not be peanut oil, but may be a food grade oil such as cottonseed oil, palm oil, palm kernel oil, coconut oil, corn oil or soybean oil, and mixtures thereof. The suspension may require suitable stabilizers and/or emulsifiers to keep the particulate matter in suspension.

WHAT WE CLAIM IS:—

1. A process for obtaining a peanut skin-oil suspension free of bitter off-flavours useful for adjusting peanut butter color and flavour comprising grinding peanut skins until 100% of the ground skins are capable of passing through at least a 100 U.S. standard mesh screen;

blending the ground skins with a food grade oil at a weight ratio of ground skins to oil in the range of from 1:1 to 1:3 to give a uniform, homogenous blend; and further reducing the particle size of the blend until 100% of the ground skins are capable of passing through at least a 200 U.S. standard mesh screen.

2. The process of claim 1 wherein the food grade oil is selected from peanut oil, cottonseed oil, palm oil, palm kernel oil, coconut oil, corn oil, soybean oil and mixtures thereof.

3. The process of claim 2 wherein the food grade oil is peanut oil.

4. A peanut skin ingredient comprising a uniform, homogeneous blend of ground peanut skins and a food grade oil free of bitter off-flavours, the particle size of the peanut skins being no greater than 75 microns and the weight ratio of the ground peanut skins to the food grade oil being in the range of from 1:1 to 1:3.

5. The peanut skin ingredient of claim 4, wherein the particle size of the ground peanut skins is no greater than 20 microns.

6. The peanut skin ingredient of claim 4 or claim 5 wherein the food grade oil is selected from peanut oil, cottonseed oil, palm oil, palm kernel oil, coconut oil and mixtures thereof.

7. The peanut skin ingredient of claim 6 wherein the food grade oil is peanut oil.

8. A peanut butter composition comprising ground roasted peanuts, salt, sugars, emulsifiers, stabilizers, and a homogeneous blend of ground peanut skins and a food grade oil free of bitter off-flavours, the particle size of the peanut skins being no greater than 75 microns and the weight ratio of the ground peanut skins to the food grade oil being in the range of from 1:1 to 1:3.

9. The peanut butter composition of claim 8 wherein the homogeneous blend of ground peanut skins and a food grade oil comprises no more than 3 percent, by weight of said composition.

10. The peanut butter composition of claim 8 wherein the food grade oil selected from peanut oil, cottonseed oil, palm oil, palm kernel oil, coconut oil and mixtures thereof.

11. The peanut butter composition of any one of claims 8 to 10 substantially as hereinbefore described in any one of Examples I to III.

STEVENS, HEWLETT & PERKINS,
Chartered Patent Agents,
5, Quality Court,
Chancery Lane,
London, W.C.2.

As can be seen from the results set forth in Tables I and II above, the color of each of the peanut butters darkened as the amount of peanut skin-oil suspension in the peanut butter was increased.

EXAMPLE III

Similar suspensions were prepared following the procedure of Example I except that 2 parts by weight and 3 parts by weight peanut oil were added to 1 part milled peanut skins. As the amounts of oil were increased, the mixing times to form a suspension decreased and the increased oil contents permitted more accurate metering of skin content. It was noted, however, that a large amount of suspension was necessary to be added to give the same color and flavor results as the more concentrated 1:1 mixtures of the earlier examples.

The peanut skin edible oil suspension of the present invention may be used as a coloring agent for other food products. In such case, the edible oil need not be peanut oil, but may be a food grade oil such as cottonseed oil, palm oil, palm kernel oil, coconut oil, corn oil or soybean oil, and mixtures thereof. The suspension may require suitable stabilizers and/or emulsifiers to keep the particulate matter in suspension.

WHAT WE CLAIM IS:—

1. A process for obtaining a peanut skin-oil suspension free of bitter off-flavours useful for adjusting peanut butter color and flavour comprising grinding peanut skins until 100% of the ground skins are capable of passing through at least a 100 U.S. standard mesh screen;

blending the ground skins with a food grade oil at a weight ratio of ground skins to oil in the range of from 1:1 to 1:3 to give a uniform, homogenous blend; and further reducing the particle size of the blend until 100% of the ground skins are capable of passing through at least a 200 U.S. standard mesh screen.

2. The process of claim 1 wherein the food grade oil is selected from peanut oil, cottonseed oil, palm oil, palm kernel oil, coconut oil, corn oil, soybean oil and mixtures thereof.

3. The process of claim 2 wherein the food grade oil is peanut oil.

4. A peanut skin ingredient comprising a uniform, homogeneous blend of ground peanut skins and a food grade oil free of bitter off-flavours, the particle size of the peanut skins being no greater than 75 microns and the weight ratio of the ground peanut skins to the food grade oil being in the range of from 1:1 to 1:3.

5. The peanut skin ingredient of claim 4, wherein the particle size of the ground peanut skins is no greater than 20 microns.

6. The peanut skin ingredient of claim 4 or claim 5 wherein the food grade oil is selected from peanut oil, cottonseed oil, palm oil, palm kernel oil, coconut oil and mixtures thereof.

7. The peanut skin ingredient of claim 6 wherein the food grade oil is peanut oil.

8. A peanut butter composition comprising ground roasted peanuts, salt, sugars, emulsifiers, stabilizers, and a homogeneous blend of ground peanut skins and a food grade oil free of bitter off-flavours, the particle size of the peanut skins being no greater than 75 microns and the weight ratio of the ground peanut skins to the food grade oil being in the range of from 1:1 to 1:3.

9. The peanut butter composition of claim 8 wherein the homogeneous blend of ground peanut skins and a food grade oil comprises no more than 3 percent, by weight of said composition.

10. The peanut butter composition of claim 8 wherein the food grade oil selected from peanut oil, cottonseed oil, palm oil, palm kernel oil, coconut oil and mixtures thereof.

11. The peanut butter composition of any one of claims 8 to 10 substantially as hereinbefore described in any one of Examples I to III.

STEVENS, HEWLETT & PERKINS,
Chartered Patent Agents,
5, Quality Court,
Chancery Lane,
London, W.C.2.

Printed for Her Majesty's Stationery Office, by the Courier Press, Leamington Spa, 1981
Published by The Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from
which copies may be obtained.



* C L M S *