

SPECIFICATION

Instant milk-containing coffee

5 Background of the invention

This invention relates to an instant milk-containing coffee packed in a bag and more particularly to an instant milk-containing coffee combination wherein dried coffee, cream powder and a sweet ingredient such as sugar are packed in a single elongated bag capable of being stored for a long period of time without alteration.

10 In general everybody agrees that it is possible to prepare a cup of instant coffee by pouring boiling water over instant coffee, cream and sugar which are prepared precontained in their given amount in a single package. However, in this instant milk-containing coffee combination, coffee and cream powder therein freely come to contact each other, flow and mix together and as a result, the acid in the coffee causes the milk fat and milk protein in the cream to become rancid. Even imitative cream powder also becomes more or less rancid since it contains fat and protein in place of the aforementioned fat and protein. For this reason, this kind of instant milk-containing coffee may not be stored for a long period of time and consequently the product has not been marketed.

Also, in general, there is a difference in individual tastes for coffee. For instance, one person prefers coffee with cream and a half amount of sugar while another may enjoy a cup of black coffee with sugar. Therefore, it is desired that all kinds of milk-coffee combination be available to coffee drinkers to allow a choice according to individual tastes.

Accordingly, it is a primary object of the present invention to provide an instant milk-containing coffee packed in a bag which is storable for a long term without alteration.

It is another object of the present invention to provide an instant coffee, instant cream and sugar combination packed in a bag wherein the amount of sugar or cream is easily adjustable to provide a milk coffee suitable for various kinds of tastes.

It is a further object of the present invention to provide an instant coffee, instant cream and sugar combination packed in a bag wherein a cup of coffee is simply prepared merely by opening the single bag and pouring the mixture into a cup of boiling water or vice versa in order to prevent cumbersomeness resulting from the fact that if these ingredients are stored in separate bags, three to four bags must be opened for a cup of coffee to produce six to eight sheets of waste paper.

It is a still another object of the invention to provide an instant milk-coffee which can clearly distinguish contents such as dried coffee component, cream powder and so on one from another through transparent portions or displays formed in the bag.

Brief description of the invention

In accordance with the present invention, there is provided an instant milk-containing coffee comprising three components, a dried coffee component, a dried cream component and a sweet component in the form of granules or powder, two components adjacent to each other among these three components having a relationship between average grain sizes p and q thereof as expressed by

$$\frac{1}{10} q < p < 10 q,$$

said three components being separately introduced into an elongated moisture-proof bag, from which air is removed to eliminate any substantial spaces, said components being sealed and packed to thereby prevent movement and mixture of said granules or powder with one another within said bag.

According to the present invention, there is provided an instant milk and instant coffee combination wherein dried coffee, cream powder and sugar are sealed and tightly contained in a single elongated bag to immobilize each of the contained materials.

Brief description of the drawings

The aforementioned and other objects and features of the present invention shall be described hereinafter in detail with reference to preferred embodiments thereof shown in the accompanying drawings, wherein:

Figure 1 is a partially cutaway top view illustrating a preferred embodiment of the present invention;

Figures 2A and 2B are respectively explanatory views which explain how components adjacent to each other of the invention are mixed according to their grain size;

Figure 3 is a partially cutaway perspective view illustrating that the contained materials of the instant milk-containing coffee in Figure 1 are put into a cup;

Figure 4 is a partially cutaway top view illustrating another embodiment of the present invention;

Figures 5A and 5B are respectively partially cutaway perspective views illustrating that the contained materials of the instant milk-containing coffee in Figure 4 are put into a cup; and

Figure 6 is a top view illustrating a further embodiment of the present invention.

Detailed description of the invention

Referring now to Figure 1, there is shown an instant milk-containing coffee including dried coffee 1, sugar

2 and cream powder 3, each sealed and tightly contained in a moisture-proof elongated bag 4. The coffee 1 and the cream powder 3 are arranged at the opposite ends of the bag 4 to avoid direct contact therebetween. The bag 4 has three transparent portions 1a, 2a and 3a formed to be positioned in central portions of the components 1, 2 and 3, respectively so that the contained materials are visible through these transparent portions 1a, 2a and 3a. However, each border portion of the components 1, 2 and 3 is hidden by each of non-transparent portions 5 and 6 of the bag 4. With this arrangement, if a relationship of

$$\frac{1}{10} q < p < 10 q$$

10 is maintained, where p represents the average grain size of the coffee 1 and q represents the average grain size of the sugar 2, it is possible to prevent mixture of the coffee 1 and the sugar 2. This relationship can be maintained between the sugar 2 and cream powder 3 and between the cream powder 3 and coffee 1, respectively. Therefore, for example, the ratio of the average grain sizes 100 : 1 possibly occurs between the components positioned at opposite ends of the bag 4.

15 Figures 2A and 2B illustrate the adjacent portions of two components. Let p and q represent the average grain sizes of the adjacent components, respectively, and if the relationship of

$$\frac{1}{10} q < p < 10 q$$

20 is satisfied as in Figure 2A, small granules are never entered between large-diameter granules and thus the mixture therebetween never occurs. On the contrary, if the relationship of

$$\frac{1}{10} q < p < 10 q$$

25 is not satisfied as in Figure 2B, small granules enter fine clearances between the large-diameter granules and thus the mixture therebetween occurs.

In Figure 3, there is shown an illustration for explaining the manner that the instant milk-containing coffee is put into a cup 7. The coffee 1, the sugar 2 and the cream powder 3 are in turn dropped from the opening at one end of the bag 4 into the cup 7. A cup of coffee having cream is easily prepared simply by pouring boiling water after the materials contained in the bag are transferred into the cup.

30 In the above-mentioned embodiment, the alteration and rancidity never occur because the coffee and the cream powder are not absolutely in contact with each other in the bag, whereby the instant coffee according to the present invention is storable for a long period of time. Further, the amount of sugar 2 or cream powder 3 is easy to control because these ingredients are separated in the bag. This is quite different from a conventional instant coffee wherein the contained materials are mixed together in a bag. The bag 4 may be composed of paper or plastic.

With reference to Figure 4, there is shown an instant milk-containing coffee including dried coffee 1, sugar 2 and cream powder 3 positioned in the middle, left and right, respectively, inside of a bag 4. They are sealed and tightly contained in the bag 4 by the adoption of, for instance, the vacuum draw process while maintaining the relationship as to the grain size between the adjacent ingredients as described above. As a consequence, it is absolutely impossible for these ingredients to move and mix with each other. Therefore, the dried coffee 1 and the milk powder 3 are only in contact with each other at the border surface therebetween. Since, of course, complete vacuum is not required by removal of air from the bag, there often remain extremely minor extra vacant spaces within the bag according to the degree of rigidity of the bag. Experiments reveal that even if vacant spaces within a few percents of apparent volume of the whole powder remain, the powder within the bag hardly moves and mixes in that state. Further, if extremely minor vacant spaces are present in the bag, it is advantageous in that when the upper end of the bag is opened while holding the bag longitudinally, it may be opened easily because there is no powder in the opening portion.

Figures 5(A) and 5(B) show two ways for preparing a cup of milk-coffee in accordance with the invention. Figure 5(A) shows the amount control of cream powder 3 and Figure 5(B) shows the amount control of sugar 2. In Figure 5(A), the sugar 2 and the coffee 1 have already been put into a cup 7 while only the cream powder 3 is left in the bag 4. Accordingly, a drinker who needs no cream may throw away the cream powder 3 to prepare a cup of black coffee. Another drinker who requires a small amount of cream may put the desired amount into the cup 7 and throw away the remainder.

55 In Figure 5(B), the cream powder 3 and the coffee 1 have already been put into the cup 7 while only the sugar 2 is left in the bag 4. Accordingly, a drinker who needs no sugar 2 may throw away the sugar 2 and another drinker who requires a little sugar 2 may put a necessary amount of sugar into the cup 7 and throw away the remainder along with the bag 4.

Figure 6 illustrates a further embodiment of the present invention which comprises coffee 1, sugar 2, cream powder 3, an elongated bag 4 accommodating therein said materials, and a slit-like transparent portion 4a formed in the elongated bag 4 so as to be able to see the contained material therethrough.

60 While the transparent portions have been formed in the preceding embodiments, it should be appreciated that if the elongated bag 4 is formed, for example, from an aluminum foil or the like, the bag may include thereon photographs, characters, patterns or the like indicating the contained materials in place of the transparent portion.

As described above, according to one preferred embodiment of the present invention, dried coffee and cream powder are arranged so as not to be in contact with each other with sugar positioned therebetween. In this embodiment, the alteration of fat and protein in cream is perfectly avoided because the dried coffee and cream are separated by the sugar.

- 5 In another preferred embodiment, sugar or cream is contained in the bag and positioned at the one end thereof making it easy to control the amount to be put into a cup. 5

- According to the present invention, there is avoided the alteration of fat and protein in cream because the dried coffee and cream are hardly mixed. This is due to the arrangement in which they are tightly contained and immobilized in the bag. This may be achieved, in packing the combination into the bag, by maintaining the grain size of the adjacent components, that is, the dried coffee 1, the sugar 2 and the cream powder 3 at a given relationship as previously mentioned. For example, let a represent the grain size of the dried coffee component 1 and b represent the grain size of the sugar component 2 arranged adjacent thereto, then 10 10

$$10 b > a > \frac{1}{10} b$$

- 15 is maintained. 15

CLAIMS

- 20 1. An instant milk-containing coffee comprising three components, a dried coffee component, a dried cream component and a sweet component in the form of granules or powder, two components adjacent to each other among these three components having a relationship between average grain sizes p and q thereof as expressed by 20

- 25 $\frac{1}{10} q < p < 10 q,$ 25

said three components being separately introduced into an elongated moisture-proof bag, from which air is removed to eliminate any substantial spaces, said components being sealed and packed to thereby prevent movement and mixture of said granules or powder with one another within said bag.

- 30 2. An instant milk-containing coffee as defined in claim 1, wherein the sweet component is arranged between the dried coffee component and the dried cream. 30

3. An instant milk-containing coffee as defined in claim 1, wherein the dried coffee component is arranged between two of said three components.

4. An instant milk-containing coffee as defined in any of claims 1 to 3, wherein one or more transparent portions or displays indicating the presence of the respective components are formed in the elongated moisture-proof bag. 35 35

5. A package containing instant milk-containing coffee, substantially as described with reference to the drawings.



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4. An instant milk-containing coffee as defined in any of claims 1 to 3, wherein one or more transparent 35 portions or displays indicating the presence of the respective components are formed in the elongated moisture-proof bag. 35

5. A package containing instant milk-containing coffee, substantially as described with reference to the drawings.