

JELLY RESEMBLING THE FLESH OF FRUIT AND
PROCESS FOR PRODUCING THE SAME

The present invention relates to a jelly which
5 resembles the flesh of fruit in flavor and palatability, as
well as a process for producing said jelly.

Jelly is a food preparation made by solidifying the
juice of fruit or the like with agar, gelatin, carrageenan,
10 etc. and is served cold in order to fully exhibit its
smoothness to the tongue and homogeneous consistency. Jelly
has therefore been a popular dessert for many people.

However, all of the jellies so far made available
have been rather monotonous in taste and are not completely
15 satisfactory for the people of today who have a very wide
variety of likes and dislikes in their food preferences.
One of the approaches that has been taken to fill this gap
is to add fragments of the flesh of various fruits to a
jelly so that a more versatile product range can be provided
20 in terms of flavor. Although such jelly products are
marketed in large quantities, the jelly itself is in no way
different from the traditional type.

An object, therefore, of the present invention is to
provide a jelly that resembles the flesh of fruit and which
25 is so unique as to drastically change the image of "jelly"
in the conventional sense of the term.

The present inventors have engaged in the study of jelly bases that have not previously been used in jelly products of the type contemplated by the present invention, and during their trial-and-error based research, they
5 thought of using the konjak jelly which they had developed previously. As a result of further studies made in this respect, the present inventors found that when this konjak jelly was treated under specified conditions, a jelly
10 unexpectedly enough presented palatability and flavor that were just like those of the fruit whose juice was contained in the jelly. The present invention has been accomplished on the basis of this finding.

In one aspect, the present invention provides a jelly
15 that resembles the flavor and palatability of the flesh of fruit and which contains a konjak flour or konjak mannan and the juice of a selected fruit or fruits as main ingredients.

In another aspect, the present invention provides a process for producing a jelly that resembles the flesh of
20 fruit which comprises the steps of: heating and cooling an alkaline konjak paste to prepare a konjak jelly; adding the juice of a fruit to said konjak jelly; stirring the ingredients to form a mixture; freezing the mixture; and finally thawing the frozen mixture.

25 The present invention is described hereinafter in detail.

In order to produce the jelly of the present invention which resembles the flesh of fruit, it is necessary that an alkaline konjak paste be prepared from a konjak flour, followed by production of konjak jelly. Details of
5 the process for producing konjak jelly are given in the specification of commonly assigned International Publication No. WO88/03760 which is incorporated herein as reference. Stated more specifically, either one of the following methods may be adopted to produce a konjak jelly:

- 10 (1) a konjak flour is swollen by addition of water, and an alkali agent is added and mixed with the swollen konjak flour to render it alkaline, the flour thereafter being heated and cooled to obtain a konjak jelly;
- (2) a konjak flour is swollen by addition of water
15 containing an alkali agent, and an alkali agent is added and mixed with the swollen konjak flour to render it alkaline, and thereafter the flour is heated and cooled to obtain a konjak jelly; or
- (3) an alkali agent is added and mixed with a konjak
20 flour, which is swollen by addition of water and thereafter heated and cooled under an alkaline condition to obtain a konjak jelly.

The konjak flour used in each of the methods described above is the flour of konjak or dried konjak.

25 The alkali agent to be used is a basic amino acid, a base or a mixture thereof.

Specific examples of the basic amino acid include arginine, histidine, lysine, citruline and ornithine. A

particularly preferred basic amino acid is arginine or lysine. These basic amino acids may be used either on their own or as admixtures.

5 The basic amino acid is preferably used in an amount of 1.25 - 15 wt% of the konjak flour.

Any basic edible salts may be used as bases but basic phosphate salts and organic acid salts are preferred. For example, sodium carbonate, sodium bicarbonate, calcium carbonate, disodium phosphate, trisodium phosphate, dipotas-
10 sium phosphate, tripotassium phosphate, sodium polyphosphate, sodium citrate, sodium lactate, etc. are preferably used.

The bases are preferably used in an amount of 0.01 - 5 wt% of the konjak flour.

15 In order to provide a buffer effect, acids such as citric acid and lactic acid or acidic salts such as sodium dihydrogenphosphate and potassium dihydrogenphosphate may be appropriately combined such as to produce a final pH in a weakly alkaline range.

20 The heating temperature and time should be adjusted in accordance with the concentration of salts used, the pH and the physical properties of the konjak jelly. If the pH of konjak paste is fairly high, the heating time is shortened, and vice versa.

25 The konjak jelly of the present invention has to be heated under alkaline conditions, and heating is desirably performed with the pH adjusted in such a way that the pH of

the konjak jelly obtained after cooling will lie within the range of 8.0 - 10.5, preferably 8.2 - 10.0.

The condition to be selected in this case is the combination of a heating temperature of 60 - 90°C with a
5 heating time of 5 - 210 minutes.

Preferred combination of pH, temperature and time must be selected in such a way that the pH of the konjak jelly obtained after cooling will lie within the preferred range set forth above. To this end, optimum conditions for
10 combination of these factors are desirably determined by preliminary experiments.

Preferred results will be obtained if the heating and cooling operations described above are performed after the konjak paste is placed and sealed in a bag or container made
15 of synthetic resins or some other suitable materials.

To the konjak jelly thus obtained, fruit juice or a substance containing it is added, the ingredients are mixed with stirring, and the resulting mixture is charged into a predetermined container. The mixture will normally gel in
20 the container but it is possible to use fruit juice or a substance containing it which will not cause such gelation of the mixture.

The fruit juice or substance containing it for use in the present invention may be selected from among any known
25 materials including natural fruit juice, concentrated fruit juice, fruit-juice containing beverages, fruit-juice containing refreshing drinks, and nectar. Examples of juices which are preferably used in the present invention are those

of soft-fleshed juicy fruits including peach, grape, melon, kiwi fruit, apricot, apple, strawberry, mango, pineapple, pear and mandarine orange. These fruit juices and substances containing them may be used either on their own or
5 as admixtures. If two or more kinds of fruit juice or fruit-juice containing substances are to be used in combination, they may be added successively to the konjak jelly. Alternatively, they may be mixed together before being added to the konjak jelly. Various other substances
10 such as fruit puree, fruit pulp and the flesh of fruit in fragments may also be added to the konjak jelly. The proportions in which fruit juice, substances containing it and other additives are mixed with the konjak jelly will vary with the desired physical properties and the concentra-
15 tion of the jelly used, but they are usually in the range of 0.5 - 5 parts by weight, preferably 2 - 4 parts by weight, per part by weight of the konjak jelly. If desired, common edible gelling agents such as agar, gelatin and pectin may be added to control the palatability and other properties of
20 the jelly which resembles the flesh of fruit.

Various other additives including sweeteners, seasonings, flavors, sour taste imparting agents, dyes, vitamins, etc. may also be added in accordance with a specific object desired to be attained.

25 Stirring is one of the important steps for producing the jelly of the present invention which resembles the flesh of fruit. Upon stirring, the mixture of konjak jelly and fruit juice forms a weak gel, whose properties will change

with the intensity of stirring. Therefore, the palatability of the final product can be controlled by proper adjustment of the stirring. Stirring can be done with any of the ordinary stirrers used in association with food articles, and stirrers for home use may be employed. With this type of stirring (200 rps), stirring is generally performed at 10 - 25°C for 20 - 100 seconds, preferably for 30 - 60 seconds.

There is no particular limitation on the type of container in which the mixture of konjak jelly and fruit juice is placed, and a suitable container may be selected in accordance with the shape of the jelly to be finally obtained.

After being gelled in the container by the steps described above, the mixture of konjak jelly and fruit juice must be frozen. Freezing is preferably performed at a temperature of -30°C to -5°C for a period of 6 - 30 hours. This can be done usually by placing the gelled mixture in a common freezer (ca. -20°C) for about 24 hours. The physical properties of the jelly can be subtly changed by adjusting the speed of freezing.

By thawing the frozen gel, a desired jelly is obtained that has flavor and palatability which are just like those of the flesh of the fruit whose juice is contained in the jelly. There is no particular limitation on the method of thawing the frozen gel but it is generally thawed at 15 - 40°C, preferably at room temperature.

EXAMPLES:

The following examples are provided for the purpose of further illustrating the present invention but are in no way to be taken as limiting.

5 Example 1

To 140 g of a konjak flour, 5 liters of water having 25 g of sodium carbonate and 25 g of sodium dihydrogenphosphate dissolved therein was added to fully swell the konjak flour. The swollen konjak flour was charged into a synthetic resin bag, sealed, heated at 70°C for 30 minutes and cooled to obtain a konjak jelly.

To 300 g of this konjak jelly, 600 ml of melon juice was added and the ingredients were mixed for one minute by stirring with a mixer at 200 rps. The mixture was packed into a synthetic resin container and allowed to gel. The gel was frozen for 24 hours in a freezer (ca. -20°C) and thereafter thawed at room temperature. A jelly having the flavor and palatability of melon was obtained.

Example 2

20 A konjak jelly was prepared as in Example 1 and to 200 g of this jelly, 600 ml of the juice of mashed peach was added and the ingredients were mixed for one minute by stirring with a mixer at 200 rps. The mixture was packed into a synthetic resin container and allowed to gel. The gel was frozen for 24 hours in a freezer (ca. -20°C) and thereafter thawed at room temperature. A jelly having the flavor and palatability of peach was obtained.

Example 3

A konjak jelly was prepared as in Example 1 and to
200 g of this jelly, a mixture of grape juice (600 ml) and
gelatin (4.5 g) dissolved in a small amount of hot water was
5 added, and the ingredients were mixed for one minute by
stirring with a mixer at 200 rps. The mixture was packed
into a synthetic resin container and allowed to gel. The
gel was frozen for 24 hours in a freezer (ca. -20°C) and
thereafter thawed at room temperature. A jelly having the
10 flavor and palatability of grapes was obtained.

Example 4

A konjak jelly was prepared as in Example 1 and to
200 g of this jelly, a mixture of kiwi fruit juice (600 ml)
and pectin (4 g) dissolved in a small amount of hot water
15 was added, and the ingredients were mixed for one minute by
stirring with a mixer at 200 rps. The mixture was packed
into a synthetic resin container and allowed to gel. The
gel was frozen for 24 hours in a freezer (ca. - 20°C) and
thereafter thawed at room temperature. A jelly having the
20 flavor and palatability of kiwi fruit was obtained.

Example 5

To 140 g of a konjak flour, 5 liters of water having
15 g of sodium carbonate and 15 g of sodium hydrogenphos-
phate dissolved therein was added to fully swell the konjak
25 flour. The swollen konjak flour was charged into a syn-
thetic resin bag, sealed, heated at 80°C for 25 hours and
cooled to obtain a konjak jelly.

To 200 g of this konjak jelly, 600 g of the juice of
mashed peach consisting of 1 part by weight of the flesh of
peach and 1 part by weight of syrup (Brix 18) was added and
the ingredients were mixed for one minute by stirring with a
5 mixer at 200 rps. This mixture was packed into a synthetic
resin container. The mixture of konjak jelly and peach
juice in the container was in the state of a sol rather than
a gel. The sol was frozen for 24 hours in a freezer
(ca. -20°C) and thereafter thawed at room temperature. The
10 thawed product was a gel, or a jelly having the flavor and
palatability of peach.

The jelly of the present invention which resembles
the flesh of fruit is an entirely novel food article in
15 jelly form that uses as a base the konjak flour or konjak
mannan, which has not previously been used in jelly products
of the type contemplated by the present invention. If peach
juice is incorporated, the palatability and flavor of the
jelly will be just like those of canned peaches. In other
20 words, the present invention provides a jelly that resembles
the palatability and flavor of the fruit whose juice is
incorporated therein.

Having such unique palatability and flavor, the jelly
of the present invention which resembles the flesh of fruit
25 is anticipated to fully satisfy the various taste prefer-
ences of the people of today who have a wide variety of
likes and dislikes. At the same time, the present invention
will offer great benefits to industry, having successfully

developed a method of utilizing fruits in a way that is improved not only in economic terms but also in terms of their keeping quality.



CLAIMS:

1. A jelly having a flavor and palatability resembling that of the flesh of fruit, and which is produced by

5 (a) adding the juice of fruit to konjak material prepared by the process comprising mixing water, konjak flour and a basic amino acid or a base, or a mixture thereof, to swell the konjak flour with water sufficiently,

10 (b) stirring the ingredients to form a mixture,

(c) freezing the mixture, and

(d) thawing the frozen mixture.

2. A jelly according to claim 1, wherein the
15 fruit juice originates from at least one fruit selected from the group consisting of peach, grape, melon, kiwi fruit, apricot, apple, strawberry, mango, pineapple, pear and mandarine orange.

3. A jelly according to claim 1 or claim 2,
20 which additionally contains at least one ingredient selected from the group consisting of the flesh of fruit in fragments, edible gelling agents, sweeteners, seasonings, flavors, sour taste imparting agents, dyes, and vitamins.

25 4. A process for producing a jelly that resembles the flesh of fruit, which comprises the steps of: heating and cooling an alkaline konjak paste to prepare a konjak jelly; adding the juice of fruit to said konjak jelly; stirring the ingredient to form a
30 mixture; freezing the mixture; and finally thawing the frozen mixture.

5. A process according to claim 4, wherein the
35 juice of fruit is added by incorporating at least one member selected from the group consisting of natural fruit juice, concentrated fruit juice, fruit-juice containing beverages, fruit-juice containing refreshing



drinks, nectar, fruit puree, fruit pulp, and the flesh of fruit in fragments.

6. A process according to claim 4 or claim 5, wherein the fruit juice to be added is at least one member selected from the group consisting of peach, grape, melon, kiwi fruit, apricot, apple, strawberry, mango, pineapple, pear and mandarine orange.

7. A process according to any of claims 4 to 6, wherein the weight ratio of fruit juice to konjak jelly to be mixed therewith is in the range of 2:1 to 4:1.

8. A process according to any of claims 4 to 7, which additionally includes a step of adding and mixing at least one ingredient selected from the group consisting of edible gelling agents, sweeteners, seasonings, flavors, sour taste imparting agents, dyes and vitamins.

9. A process according to any of claims 4 to 8, wherein the mixture is frozen by holding it at a temperature of from -30 to -5°C for a period of 6-30 hours.

10. A process according to any of claims 4 to 9, wherein the frozen mixture is thawed at a temperature of 15 - 40°C.

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