DESCRIPTION

TITLE OF INVENTION:

KONJAK GEL, METHOD FOR PRODUCING SAME, SHRIMP-LIKE FOOD USING KONJAK GEL, AND METHOD FOR PRODUCING SHRIMP-LIKE, VACUUM-FREEZE DRIED FOOD

TECHNICAL FIELD

[0001]

The present invention relates to a konjak (or konjac) gel with a shrimp-like texture, a shrimp-like food using the konjak (konjac) gel, and a shrimp-like, vacuum-freeze-dried food.

BACKGROUND ART

[0002]

Imitation foods for various foods have conventionally been developed. Examples include imitation crab meat or artificial salmon roe. They have been developed as alternatives for expensive originals. In recent years, however, alternative foods have been developed that are not only for vegetarians, but also health- and environment-conscious foods, such as meat alternatives made from plant proteins.

[0003]

Shrimps are collected and cultivated domestically. In addition, shrimps collected in various countries, or cultivated mainly in Southeast Asia are imported. Due to the recent increase in demand and the spread of disease, the price has been rising. In addition, in recent years, from the viewpoint of vegetarianism, health, and environment, there has been a need for inexpensive alternative foods of shrimp with a more authentic texture.

[0004]

Patent Literatures 1 to 3, for example, disclose the alternative foods of shrimp.

[0005]

Patent Literature 1 discloses a method for producing a shrimp-like or crab-flavored kamaboko (fish cake)-like food for protein intake-restricted patients and with a low-protein shrimp- or crab-like kamaboko texture, the method including: a step (A) of gelatinizing a material, which comprises 1 part by weight of a refined konjac powder, 0.5-4 parts by weight of water-insoluble dietary fibers having fiber lengths of 100 μm or shorter, water and a base,

CLAIMS

[Claim 1]

A konjak gel comprising the following features (A) to (G):

(A) a glucomannan content of 3.5 to 12 wt%;

(B) a moisture content of 70 to 90 wt%;

(C) a gel long side of 7 to 20 mm, wherein the gel long side is the longest length of the konjak gel;

(D) a gel thickness of 0.5 to 1.5 mm, wherein the gel thickness is the shortest length of the konjak gel;

(E) a porosity of 9 to 17% as measured for pores of 100 μm^2 or larger in a gel cross-section, the gel cross-section extending in a direction perpendicular to the gel long side;

(F) a largest pore porosity of 3 to 6% in the gel cross-section, the largest pore porosity being a ratio of an area of a largest pore in the gel cross-section to an area of a cross-section of the konjak gel observed under an electron microscope; and

(G) the gel having undergone freeze denaturation.

[Claim 2]

The konjak gel according to claim 1, further comprising the following feature (H):

(H) a content of modified starch of 4.5 to 18 wt%.

[Claim 3]

A method for producing a konjak gel, comprising:

a dough preparation step of mixing glucomannan in an amount of 2.5 to 4 wt% based on an weight of a dough, an alkaline agent, and water to prepare the dough with a pH of 10 to 11;

a shaping step of shaping the prepared dough;

a steaming step of steaming the shaped dough to prepare a gelatinous material;

a freezing step of freezing the prepared gelatinous material;

a shredding step of shredding the frozen gelatinous material into pieces with a long side of 7 to 20 mm and a thickness of 0.5 to 1.5 mm; and

a porous body formation step of subjecting each shredded gelatinous material to microwave or drying under reduced pressure to make porous the material with a moisture of 70 to 90 wt%, a porosity of 9 to 17% as measured for pores of 100 μm^2 or larger in a gel cross section, and a largest pore porosity of 3 to 6%,

wherein the gel long side is the longest length of the konjak gel, the gel thickness is the shortest length of the konjak gel, the gel cross-section extends in a direction perpendicular to the gel long side, and the largest pore porosity is a ratio of an area of a largest pore in the gel cross-section to an area of a cross-section of the konjak gel observed under an electron microscope.

[Claim 4]

The method for producing a konjak gel according to claim 3, wherein 3.5 to 8 wt% of modified starch based on the weight of the dough is added in the dough preparation step.

[Claim 5]

A method for producing a shrimp-like food containing a konjak gel and a substrate, the method comprising:

a konjak gel preparation step of mixing 2.5 to 4 wt% of glucomannan based on an weight of a dough, an alkaline agent, and water to prepare the dough with a pH of 10 to 11, and then shaping and steaming the dough for gelation, freezing and shredding the gelatinous dough with a long side of 7 to 20 mm and a thickness of 0.5 to 1.5 mm in size, and then subjecting the resulting material to microwave or drying under reduced pressure to prepare a porous konjak gel having a moisture of 70 to 90 wt%, a porosity of 9 to 17% as measured for pores of 100 μm^2 or larger in a gel cross section, and a largest pore porosity of 3 to 6%;

a substrate preparation step of mixing, based on an weight of a substrate, 3 to 4.5 wt% of glucomannan, 1 to 3 wt% of protein material, 8 to 15 wt% of modified starch, an alkali agent, and water to prepare the substrate with a pH of 9.5 to 10.5;

a mixing step of mixing the substrate and the konjak gel at a ratio of 3:7 to 7:3 to prepare a mixture;

a shaping step of shaping the mixture to prepare a shaped material; and

a heating step of steaming the shaped material to be thermally solidified,

wherein the gel long side is the longest length of the konjak gel, the gel thickness is the shortest length of the konjak gel, the gel cross-section extends in a direction perpendicular to the gel long side, and the largest pore porosity is a ratio of an area of a largest pore in the gel cross-section to an area of a cross-section of the konjak gel observed under an electron microscope.

[Claim 6]

The method for producing the shrimp-like food according to claim 5, further comprising, after the heating step, a drying step of drying a surface of the thermally solidified, shaped material.

[Claim 7]

A method for producing a shrimp-like, vacuum-freeze-dried food containing a konjak gel and a substrate containing a pulverized konjak gel material, the method comprising:

a konjak gel preparation step of mixing 2.5 to 4 wt% of glucomannan based on an weight of a dough for the konjak gel, an alkaline agent, and water to prepare the konjak gel dough with a pH of 10 to 11, and then shaping and steaming the konjak gel dough for gelation, freezing and shredding the gelatinous konjak gel dough with a long side of 7 to 20 mm and a thickness of 0.5 to 1.5 mm in size, and then subjecting the resulting material to microwave or drying under reduced pressure to prepare a porous konjak gel having a moisture of 70 to 90 wt%, a porosity of 9 to 17% as measured for pores of 100 μm^2 or larger in a gel cross section, and a largest pore porosity of 3 to 6%;

a pulverized konjak gel material preparation step of mixing, based on an weight of a dough for a pulverized konjak gel material, 2 to 4.5 wt% of glucomannan, 1 to 12 wt% of modified starch, an alkaline, and water to prepare the pulverized konjak gel material dough with a pH of 10 to 11, shaping and steaming the pulverized konjak gel material dough for gelation, and pulverizing the dough to prepare the pulverized konjak gel material;

a substrate preparation step of mixing, based on an weight of a dough for a substrate, 1.5 to 4 wt% of glucomannan, an alkali agent, and water, further mixing the substrate dough prepared at a pH of 10 to 11 and the pulverized konjak gel material, so that the substrate contains 10 to 80 wt% of the pulverized konjak gel material, to prepare the substrate containing the pulverized konjak gel material;

a mixture preparation step of mixing the konjak gel and the substrate at a ratio of 3:7 to 7:3 to prepare a mixture;

a shaping step of shaping the mixture to prepare a shaped material;

a heating step of heating the shaped material shaped in the shaping step to be thermally solidified; and

a vacuum-freeze-drying step of freezing the thermally solidified shaped material to be vacuum-freeze-dried,

wherein the gel long side is the longest length of the konjak gel, the gel thickness is the shortest length of the konjak gel, the gel cross-section extends in a direction perpendicular to the gel long side, and the largest pore porosity is a ratio of an area of a largest pore in the gel cross-section to an area of a cross-section of the konjak gel observed under an electron microscope.

[Claim 8]

A method for producing a shrimp-like, vacuum-freeze-dried food containing a konjak gel and a substrate, the method comprising:

a konjak gel preparation step of mixing 2.5 to 4 wt% of glucomannan based on an weight of a dough for the konjak gel, an alkaline agent, and water to prepare the konjak gel dough with a pH of 10 to 11, and then shaping and steaming the konjak gel dough for gelation, freezing and shredding the gelatinous konjak gel dough with a long side of 7 to 20 mm and a thickness of 0.5 to 1.5 mm in size, and then subjecting the resulting material to microwave or drying under reduced pressure to prepare a porous konjak gel having a moisture of 70 to 90 wt%, a porosity of 9 to 17% as measured for pores of 100 μm^2 or larger in a gel cross section, and a largest pore porosity of 3 to 6%;

a substrate preparation step of mixing, based on an weight of a substrate, 1.5 to 4 wt% of glucomannan, 0.1 to 0.6 wt% of an alkali agent, 1 to 3 wt% of sodium bicarbonate or 1 to 3 wt% of a foaming emulsifier, and water to prepare the substrate;

a mixture preparation step of mixing the konjak gel and the substrate at a ratio of 3:7 to 7:3 to prepare a mixture;

a shaping step of shaping the mixture to prepare a shaped material;

a heating step of heating the shaped material shaped in the shaping step to be thermally solidified; and

a vacuum-freeze-drying step of freezing the thermally solidified shaped material to be vacuum-freeze-dried,

wherein the gel long side is the longest length of the konjak gel, the gel thickness is the shortest length of the konjak gel, the gel cross-section extends in a direction perpendicular to the gel long side, and the largest pore porosity is a ratio of an area of a largest pore in the gel cross-section to an area of a cross-section of the konjak gel observed under an electron microscope.