

TITLE OF THE INVENTION**MANUFACTURING PROCESS FOR DEHYDRATED INSTANT-EDIBLE BIRD'S NEST****FIELD OF THE INVENTION**

5 The present invention relates to a manufacturing process for edible Bird's Nest, and in particular, a manufacturing process for dehydrated instant-edible Bird's Nest.

BACKGROUND OF THE INVENTION

The edible Bird's Nest (*Collocalia Fuciphaga*) is made of solidified saliva of swiftlet. The swiftlet is a small bird of the swift family which is found in South East Asia. Bird's Nest / Bird's Nest soup is a delicacy in Chinese cuisine.

10 The edible bird nests were traditionally harvested from caves called Cave Nest. In recent years, Bird's Nest farming expert has developed a modern technique of swiftlet farming, birdhouses are purpose-built for breeding of Swiftlets. These buildings imitate the environments of cave to attract swiftlets to come and breed in these houses. These swiftlets' houses are normally located in urban areas near the sea or forest in South East Asia countries.

15 Edible Bird's Nests are supposedly rich in nutrients which are traditionally believed to provide health benefits, such as aiding digestion, raising libido, improving the voice, alleviating asthma, improving focus and overall benefits to the body immune system.

Conventional method of preparing Bird's Nest soup is very inconvenient. For instance, first, Bird's Nest has to be soaked in cold water for several hours, 4-8 hours, or overnight. Then,
20 secondly, rinse well and manually remove all impurities, eg feathers, sands, soils, etc on the Bird's Nest. The soaked Bird's Nest together with water will be placed into an inner pot, where a Double-Boiler method is normally used. Then, filling the external pot of the double-boiler with water that reaches about half the height of the internal pot.

Use strong heat or flame at the bottom of the external pot of the double boiler to heat the same
25 till the water boils. After that switched to lower heat or flame, continue to cook the Bird's Nest for an additional 2 to 3 hours. Currently, instant edible Bird's Nest is available either bottled in wet concentrated form or bottled in liquid form.

It is apparent that until the present invention, there is no dehydrated (dry) instant-edible Bird's Nest products available in the market. A solution that replaced the complicated cooking
30 process of edible Bird's Nest soup is thus provided.

SUMMARY OF THE INVENTION

The present invention relates to a manufacturing process for dehydrated (Dry) instant edible Bird's Nest, including brick of Bird's Nest with or without added seasonings, herbs, flavours, and can be served merely by adding hot water or 5 to 15 minutes of boiling it in water.

5 It is an object of the present invention to provide a manufacturing process for dehydrated instant-Bird's Nest product comprising the steps of

(i) moulding a brick of dry Bird's Nest by adding seasonings, herbs, spices, flavours to the Bird's Nest, fixing the Bird's Nest by steaming the dry Bird's Nest with the seasonings, herbs, spices, and flavours;

10 (ii) spraying fine water droplets or mist at a temperature of 30 to 50 degree Celsius to precondition or moisturized the Bird's Nest in step (i);

(iii) spraying hot steam onto the Bird's Nest obtained in step (ii) at a temperature ranging from 100 degree to 120 degree C to fix or cook and sterilize the Bird's Nest together with the seasonings, herbs, spices and flavours;

15 (iv) supplying air or inert gas or a mixture of air and inert gas as primary drying to dry the steamed Bird's Nest obtained in step (iii) at a temperature ranging from 60 deg C to 135 deg C; and

(v) supplying hot gases or hot inert gas or a mixture of hot gases and hot inert gas as a secondary drying to the steamed Bird's Nest to allow a homogenous and quick expansion and
20 drying of the steamed Bird's Nest.

Yet another object of the present invention is to provide a manufacturing process for a dehydrated instant-Bird's Nest product, wherein the Bird's Nest is moulded and is instant-edible Bird's Nest.

A further object of the present invention is to provide a manufacturing process for a dehydrated
25 instant-Bird's Nest product, wherein the spraying of water droplets or mist is carried out using an atomizing water system.

Yet a further object of the present invention is to provide a manufacturing process for a dehydrated instant-Bird's Nest product, wherein the sterilizing of the Bird's Nest is carried out in a sterilizing system.

Still a further object of the present invention is to provide a manufacturing process for a dehydrated instant-Bird's Nest product, wherein the mould Bird's Nest has an opening at the top side and bottom side in the course of moisturizing, steaming and drying step.

5 Another yet a further object of the present invention is to provide a manufacturing process for a dehydrated instant-Bird's Nest product, wherein the temperature for drying the steamed Bird's Nest is ranging from 80-120 degree C, and preferably, ranging from 100-110 degree C.

Yet another object of the present invention is to provide a manufacturing process for a dehydrated instant-Bird's Nest product, wherein a high pressure nozzle is used in the step of supplying hot gases or hot inert gas to the Bird's Nest.

10 A further object of the present invention is to provide a manufacturing process for a dehydrated instant-Bird's Nest, further comprising the step of packing or bottling the Bird's Nest for instant consumption.

The cleaned edible Bird's Nests are placed inside a mould in order to hold the required shape, size and profile during steaming and drying process. The mould can be designed to suite
15 different shapes, sizes and profiles.

Using air atomizing nozzles or fine spray nozzles to create smallest water droplets or mist or fog to moisturize the Bird's Nest. Fine water droplets or mist at a temperature range 30 degree to 50 degree Celsius will enable faster absorption of water droplets deep into the Bird's Nest.

Hot steam is used to fixed/cooked the edible Bird's Nest mixture and at the same time for
20 sterilization. Sterilization using steam destroys all microorganisms, including bacterial, fungus in the edible Bird's Nest, if any. The method of using high pressure nozzles to supply process air or inert gas (eg Nitrogen, Helium, Carbon dioxide) or mixtures from top, blowing towards the steamed Bird's Nest allowing the Bird's Nest to expand and dehydrate rapidly in a very short period.

25 Hot steams are applied to cooked/sterilized the Bird's Nest in a short period of time but not suitable to for drying. Hot gases elevated to a temperatures of 140 degree Celsius is incapable of dehydrating the interior of the steam Bird's Nest, whereas the external surface of the steam Bird's Nest may be dehydrated quickly. The surface of the Bird's Nest will be scorched if this process continues.

30 The present invention employs a drying method which allows heated gases to be applied uniformly not only to the surface of the Bird's Nest but also to the interior of the steamed Bird's

Nest. This process assures high efficiency in achieving rapid drying of the steamed Bird's Nest so that they are expanded and dried within the shortest period of time. Uncontrolled and rapid expansion by using heated gases at high temperature will accelerate the oxidation of flavor, coloring, and vitamins in the Bird's Nest and therefore damaging the characteristic flavor, colour, vitamins and other nutrients in the edible Bird's Nest.

The objectives of this present invention is to provide a process for manufacturing dehydrated instant edible Bird's Nest, using mould to hold/retain the shape, size and profile, using atomized water droplets to moisturize, using steam to cook, sterilize and using hot air , or inert gas, or mixture to dehydrate the steamed Bird's Nest. The process retains the characteristic flavor and color while ensuring against damage of vitamins and other nutrients in the steamed Bird's Nest. Furthermore restoration to the original state can be made promptly by merely boiling it in water for 5 to 15 minutes.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present invention will now be described with reference to the accompanying drawings wherein:--

FIG. 1 is a flowchart showing the process of dehydrating instant edible Bird's Nest in accordance with the present invention.

FIG. 2 is a schematic view showing moisturizing of Bird's Nest by using fine atomize water droplets in accordance with the present invention.

FIG. 3 is a schematic view showing steaming/sterilization process of Bird's Nest in accordance with the present invention.

FIG. 4 is a schematic view showing drying of Bird's Nest in accordance with the present invention.

DETAILED DESCRIPTION OF THE INVENTIONS

The present invention relates to a manufacturing process for dehydrated (Dry) instant edible Bird's Nest, including brick of Bird's Nest with or without added seasonings, herbs, flavours, and can be served merely by adding hot water or 5 to 15 minutes of boiling.

FIG. 1 shows a flowchart of a manufacturing process for dehydrated (Dry) instant edible Bird's Nest in accordance with the present invention. As shown in Fig. 1, in step 1, a cleaned edible Bird's Nest is placed inside a mould in order to hold a required shape, size and profile in the course of steaming and drying process. The mould may be designed to suit different shapes, sizes and profiles of Bird's Nest. In step 90 of FIG. 1, it is the step of atomizing. A plurality of atomizing nozzles (24) or fine spray nozzles (24) (FIG. 2) are used to create smallest water droplets or mist or fog to moisturize the Bird's Nest (20). Then, fine water droplets or mist at a temperature ranging from 30 degree to 50 degree Celsius will enable faster absorption of water droplets deep into the Bird's Nest (20), as shown in FIG.2. In a preferred embodiment, the temperature is ranging from 35 to 45 degree C. FIG. 2 is a schematic view showing moisturizing of Bird's Nest by using fine atomize water droplets in accordance with the present invention.

In the present invention, hot steam (18) is employed in the steaming/sterilization process of Bird's Nest in accordance with the present invention. Hot steam (18) is used to fix/cook the edible Bird's Nest mixture (20) and at the same time to process the Bird's Nest to a sterilization process, as shown in step 92 of FIG. 1. Sterilization process makes use of steam to kill all microorganisms, including bacterial, fungus within the edible Bird's Nest, if any. The method of using high pressure nozzles to supply process air or inert gas (for example, Nitrogen, Helium, Carbon dioxide) or mixtures from top, blowing towards the steamed Bird's Nest allowing the Bird's Nest to expand and dehydrate rapidly in a very short period.

In the present preferred embodiment, a chamber (22) is used to carry out the steps. As shown in FIG. 3, which is a schematic view showing steaming/sterilization process of Bird's Nest in accordance with the present invention. Hot steam is applied to cook/sterilize the Bird's Nest in a short period of time but it is not suitable for drying. Hot gases elevated to a temperatures of 140 degree Celsius is incapable of dehydrating the interior of the steam Bird's Nest, whereas the external surface of the steam Bird's Nest may be dehydrated quickly. The surface of the Bird's Nest will be scorched if this process continues.

In the present invention, the drying method allows heated gases to be applied uniformly not only to the surface of the Bird's Nest but also to the interior of the steamed Bird's Nest. This process provides assured high efficiency in achieving rapid drying of the steamed Bird's Nest so that they are expanded and dried within a shortest period of time. However, uncontrolled and rapid expansion by using heated gases at high temperature will accelerate the oxidation of flavor, coloring, and vitamins in the Bird's Nest and therefore damaging the characteristic flavor, colour, vitamins and other nutrients in the edible Bird's Nest. In the present invention,

there is provided provide a process of manufacturing dehydrated instant edible Bird's Nest, using mould to hold/retain the shape, size and profile, using atomized water droplets to moisturized, using steam to cook, sterilize and using hot air , or inert gas, or mixture to dehydrate the steamed Bird's Nest. The process retains the characteristic flavor and color while ensuring against damage of vitamins and other nutrients in the steamed Bird's Nest. Furthermore restoration to the original state can be made promptly by merely boiling it in water for 5 to 15 minutes.

The present invention provides a process for the manufacturing of dehydrated instant-Bird's Nest using (1) using mould to hold/retain the shape, size and profile, (2) using atomized water droplets to moisturize the Bird's Nest,(3) using hot steam to sterilize/cook the Bird's Nest, and (4) using hot steam to do a secondary drying of the Bird's Nest . In the present invention, drying method enables both the interior and external surface of Bird's Nest against scorching. The Bird's Nest surface is expanded uniformly and dried quickly with heat gases applied at controlled elevated temperatures, thereby producing a dehydrated instant Bird's Nest product that not only has a glossy appearance but retaining its characteristic flavor , color and without damaging the vitamins and other nutrients in the Bird's Nest.

The brick edible Bird's Nest is formed by packing measured portion of Bird's Nest into moulds, with or without adding powder form of seasonings, herbs, spices, flavour. The moulds will hold/retain the shape, size and profile of the Bird's Nest during steaming and drying. The brick edible Bird's Nest are layered having opening on top side and bottom side, in a fixed chambers or net conveyor.

As shown in Fig. 2, there is shown a schematic view indicating the moisturizing of Bird's Nest using fine atomize water droplets. In the figure, fine atomized water droplets, mist or fog are sprayed onto bird's nest (20). This moisturizing process is a pre-conditioning of the Bird's Nest to allow the Bird's Nest pores to opened up and absorb water droplets. Water droplets temperature ranging from 30 degree to 50 degree Celsius and the targeted water content in the Bird's Nest ranging 50 % to 80% saturated. The moisturing process is carried out in a chamber (22) with a plurality of inlets (24). The chamber (20) is mounted with an air release valve 25 for venting.

FIG. 3 is a schematic view showing steaming/sterilization process of Bird's Nest in accordance with the present invention. A similar type of chamber (22) used in the moisturizing process is used. Steam is supplied via the inlets 24 to the chamber 22. The hot steam is supplied at an elevated temperature ranging from 100 degree to 120 degree Celsius for a period of 10 to 20

minutes. Preferably, at 105 to 110 degree C, and a period of 15 minutes. For, preliminary drying of the Bird's Nest, hot gas is supplied at a controlled elevated temperature ranging from 100 degree to 135 degree Celsius with separate high-pressure nozzles from top blowing towards the Bird's Nest.

- 5 FIG. 4 a schematic view showing drying of Bird's Nest in accordance with the present invention. The hot air or inert gas passes through the inlets (24) to the chamber (22). The final drying in the process is the supplying of hot gas at a controlled elevated temperature ranging from 60 degree to 100 degree Celsius with separate high-pressure nozzles from top blowing towards the Bird's Nest.
- 10 The hot gas comprises atmospheric air, or inert gas like nitrogen, Helium, Carbon dioxide, etc or mixtures. The supplying of hot gas is carried out using high-pressure nozzles from the top towards the steam Bird's Nest enable homogenous and uniform expansion and achieve ideal dryness in both the inner and outer surface of the Bird's Nest. The hot gas includes atmospheric air, or inert gas like nitrogen, Helium, Carbon dioxide, etc.
- 15 In accordance with the preferred embodiment of the present invention, there is shown a method of manufacturing a dehydrated instant-edible Bird's Nest product comprising the following steps:
- (i) moulding a brick of dry Bird's Nest by with or without adding seasonings, herbs, spices, flavours to the Bird's Nest, fixing the Bird's Nest by steaming the dry Bird's Nest with the
- 20 seasonings, herbs, spices, and flavours;
- (ii) spraying fine water droplets or mist at a temperature of 30 to 50 degree Celsius to precondition or moisturized the Bird's Nest in step (i);
- (iii) spraying hot steam onto the Bird's Nest obtained in step (ii) at a temperature ranging from 100 degree to 120 degree C to fix or cook and sterilize the Bird's Nest together with the
- 25 seasonings, herbs, spices and flavours;
- (iv) supplying air or inert gas or a mixture of air and inert gas as a primary drying step to dry the steamed Bird's Nest obtained in step (iii) at a temperature ranging from 60 deg C to 135 deg C; and
- (v) supplying hot gases or hot inert gas or a mixture of hot gases and hot inert gas as a
- 30 secondary drying step to the steamed Bird's Nest to allow a homogenous and quick expansion and drying of the steamed Bird's Nest.

In the present preferred embodiment, the herbs that added to the Bird's Nest are selected from the group consisting of traditional Chinese Medicine including Ginseng, Cordyceps, Wolfberries, and Red dates, and the seasonings that added to the Bird's Nest include Rock Sugar, Honey, Soy Sauce, and Pepper.

- 5 Finally, it is to be understood that various alterations, modifications and/or additions may be introduced into the constructions and arrangements of parts previously described without departing from the spirit or ambit of the invention.

We claim:

1. A manufacturing process of a dehydrated instant-Bird's Nest product comprising the steps of
 - (i) moulding a brick of dry Bird's Nest by with or without adding seasonings, herbs, spices, flavours to the Bird's Nest, fixing the Bird's Nest by steaming the dry Bird's Nest with the seasonings, herbs, spices, and flavours;
 - (ii) spraying fine water droplets or mist at a temperature of 30 to 50 degree Celsius to precondition or moisturized the Bird's Nest in step (i);
 - (iii) spraying hot steam onto the Bird's Nest obtained in step (ii) at a temperature ranging from 100 degree to 120 degree C to fix or cook and sterilize the Bird's Nest together with the seasonings, herbs, spices and flavours;
 - (iv) supplying air or inert gas or a mixture of air and inert gas as a primary drying to dry the steamed Bird's Nest obtained in step (iii) at a temperature ranging from 60 deg C to 135 deg C; and
 - (v) supplying hot gases or hot inert gas or a mixture of hot gases and hot inert gas as a secondary drying to the steamed Bird's Nest to allow a homogenous and quick expansion and drying of the steamed Bird's Nest, thereby producing a dehydrated instant Bird's Nest product.
2. The manufacturing process as set forth in Claim 1, wherein the Bird's Nest is packed into moulds and is instant-edible Bird's Nest.
3. The manufacturing process as set forth in Claim 1, wherein the spraying of water droplets or mist is carried out using an atomizing water system.
4. The manufacturing process as set forth in Claim 1, wherein the sterilizing of the Bird's Nest is carried out in a sterilizing system.
5. The manufacturing process as set forth in Claim 1 or Claim 2, wherein the mould Bird's Nest has an opening at the top side and bottom side in the course of moisturizing, steaming and drying step.
6. The manufacturing process as set forth in Claim 1, wherein the temperature for drying the steamed Bird's Nest is ranging from 80-120 degree C, and preferably, ranging from 100-110 degree C.

7. The manufacturing process as set forth in Claim 1, wherein a high pressure nozzle is used in the step of supplying hot gases or hot inert gas to the Bird's Nest.
- 5 8. The manufacturing process of a dehydrated instant-Bird's Nest as set forth in Claim 1, further comprising the step of packing or bottling the Bird's Nest for instant consumption.
9. The manufacturing process as set forth in Claim 1, wherein herbs that added to the Bird's Nest are selected from the group consisting of traditional Chinese Medicine including
10 Ginseng, Cordycep, Wolfberries, and Red dates.
10. The manufacturing process as set forth in Claim 1, wherein seasonings that added to the Bird's Nest are selected from the group consisting of Rock Sugar, Honey, Soy Sauce, and Pepper.
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11. The manufacturing process as set forth in Claim 1, wherein Bird's Nest drink is prepared by adding hot water to the Bird's Nest.
12. The manufacturing process as set forth in Claim 11, wherein Bird's Nest drink is prepared
20 by boiling the Bird's Nest in water for 5 to 15 minutes.