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Description

Ginseng Fresh-Keeping Method

Technical Field

The present invention relates to preservation. More specifically, the invention relates to the method for the preservation of fresh ginseng by refrigerating and succedent defrosting.

Background Art

Ginseng industry is one of China's traditionally preponderant industries and the ginsengs were usually sold as two kind of dried products: red ginsengs and white ginsengs. Fresh ginsengs are only supplied once a year for a very short time around the harvest time. With the development of technology and increasing requirement of health, customers are laying more and more interest on fresh ginsengs. There are huge potential markets for fresh ginsengs both internal and overseas. As known, products always come for demands. And also because of this, ginseng preservation occurred at the end of last century as a whole new industry.

Existing methods for making "preserved ginsengs" and their problems are seen below:

1. Alcohol immersion. Immersing the fresh ginsengs in distilled spirit. By this means, only a little portion of active ingredients that is soluble in alcohol could be used, while the rest is fibrotic and wasted.

2. Smoking. Smoking with sulfur smoke. By this means, ingredients of ginsengs would change and then do harm to consumers' health. So this method is forbidden by the state, though it has long been used as a traditional method.

3. Preservative immersion. Immersing the fresh ginsengs in preservative solution, such as sorbic acid solution. However, lack of preservative would undoubtedly shorten the shelf life of the products while overuse of the preservative is strictly forbidden by the state. Moreover, fresh ginsengs containing preservatives are



prohibited for entry by most advanced countries and areas in the world.

4. Canned ginsengs. Such products had been sold in Hong Kong in 1980's. However, fresh ginsengs were greatly damaged in shape and color by high temperature. Ginseng immersed in sugar solution lost its characteristics completely. Rejected by the customers and markets, the production of canned ginsengs finally had to be put out.

5. Packed and store in low temperature. By this means, products are difficult to be turned into merchandise for the difficulties in long-term storage and transferring.

6. Multiple preservation. Most of the existing methods for making "preserved ginsengs" are multiple application of above methods. For example, smoking with sulfur smoke firstly, and subsequently sterilizing by alcohol immersing and high temperature for several minutes respectively, finally adding proper preservatives before packing.

In order to prevent the industry of ginseng preservation from going wrong, the traditional methods that are backward have to be abandoned with the application of advanced equipments, scientific techniques and modern traffics. In another hand, more advanced new methods with better environmental effect should be wildy used to solve the existing problems such as fluctuation of quality, damage to the ingredients, inadequacy of preservation time and harm for environment and people's health in current ginseng preservation.

Summary of the Invention

The disclosure of the present invention is to provide a method for the preservation of fresh ginsengs by refrigerating and succedent defrosting. By this, the defects of current methods such as fluctuation of quality, damage to the ingredients and harm for environment and people's health could be overcome. Accordingly, the goal of long-term, environmental and healthy preservation could be realized.

See the techniques of the present invention below:

A ginseng fresh-keeping method, including preparation for production and ginseng selection, and also characterized by the fact that the method comprises the processes

of packing, refrigerating, defrosting and sorting in addition.

According to an aspect of the invention, the process of packing comprises the following steps:

- a. Encasing the inner bags made of plastic film into the cartons, wooden boxes or plastic boxes;
- b. Placing the fillers containing proper moisture into said plastic bags wherein the fillers could be sawdust, plant ash, earth and/or fine gravel;
- c. Putting in the fresh ginsengs and fillers in alternating layers, making sure to keep the taproots and tails of the ginsengs 10 to 20 mm away from the inner walls, then stuffing the rest room with fillers, and finally sealing the inner bags and the boxes.

According to another aspect of the invention, the process of refrigerating refers to removing the boxes with ginsengs into a refrigeratory or refrigerating equipment at low temperature ranging from -8°C to -10°C for storage right after packing. Under this condition, the ginsengs could be stored as long as 360 days.

According to another aspect of the invention, the process of defrosting comprises either process I or II: in process I, the boxes with ginsengs are removed from said refrigeratory/refrigerating equipment to a thermostable room at 3°C and kept there for 72 h, and subsequently removed to a thawing room at constant temperature of 8°C and kept there for 144 to 150 h; in process II, the boxes with ginsengs are directly removed into a thawing room at constant temperature of 8°C and kept there for 168 h.

According to still another aspect of the invention, the process of sorting refers to getting rid of the packing materials, separating the ginsengs from the fillers, wiping off the impurities, and picking out the frozen and damaged ginsengs, all in low temperature.

Compared with existing technologies, the present invention has many advantages:

1. By this method, the quality, shape, color and effective ingredients of the ginsengs

are well kept, so that the fresh ginsengs could be preserved as they originally had been.

2. During the whole production, there is neither contamination to the products, nor pollution to the environment.
3. This method is simple and operable under current conditions and could be operated by skilled workers independently. In addition, this method is cheap.
4. The application of fillers makes the method more applicable and greatly increases the adaptability of the products to emergencies such as a sudden increase of temperature or removal.
5. The problem on traffic has been overcome so that the product advantages could be transformed to merchandise advantage. The products could be long-termed preserved so as to ensure the supply.

Brief Description of the Drawings

Fig.1 is a process flow chart of the present invention.

Description of Specific Embodiments

Example

A ginseng fresh-keeping method, as shown in fig.1, comprises the processes of: preparing for production – selecting ginsengs – packing – refrigerating – defrosting – sorting – packing – obtaining the products, in which:

- (1) The process of preparing for production comprises:

First, preparing the packing materials: getting cartons, wooden boxes or plastic boxes ready whose sizes should be 66*33*24mm, and making some airtight inner bags from normal plastic film. Secondly, preparing the fillers. Any material that is thermal insulative, water retainable and air permeable could be used as fillers. For example, clear sawdust, plant ash, earth and/or fine gravel. Among these, the sawdust is preferred for it's light, cheap, obtainable, easy to store and transport and especially thermal insulative. Finally, choosing proper refrigeratory and thawing room. A

thermostable storehouse at -8°C is preferred as refrigeratory and that of 3°C or 8°C is preferred as thawing room. The area of the rooms is determined by the output. Also there should have shelves in the storehouses.

(2) The process of selecting ginsengs including picking out the high-quality ginsengs which are succulent, right in color, and of no rusts, scabs, wounds, sickness, molds or contaminations from the newly harvested fresh ginsengs, subsequently grading them by size and packing them up immediately.

(3) The process of packing comprises encasing the inner bags made of plastic film into the packing boxes and adjusting the water content of the sawdust by 45% (Getting a handful of sawdust, there should be no water leaking out from the the finger of a tight grip and the saw dust should be able to conglobate after the grip loosen. In addition, the conglobated sawdust should be able to disperse when dropped from 2 feet height.); subsequently, putting in the fresh ginsengs and fillers in alternating layers, making sure to keep the taproots and tails of the ginsengs 10mm away from the inner walls; finally, stuffing the rest room with sawdust, sealing the inner bags and packing up the boxes completely.

(4) Refrigerating. Removing the boxes with ginsengs into a refrigeratory at constant temperature of -8°C for refrigeration right after packing. Constancy of the temperature is a must for that the fluctuation of the temperature would disturb the dormancy status of the fresh ginsengs and accordingly reduce the preservation time. In another hand, the temperature of the refrigeratory should not be less than -10°C . The ginsengs would be frozen by a temperature lower than -13°C and could not be recovered. Any condition with low temperature could do good to fresh ginseng preservation to a certain degree. During the refrigeration, the ginsengs could be transferred by refrigerating container at temperature raging from -5°C to -10°C .

(5) Defrosting. Removing the boxes with ginsengs from the refrigeratory to a thawing room at constant temperature of 3°C and keeping the ginsengs there for 72 h, afterwards, removing them into another thawing room at constant temperature of 8°C and keeping there over 144 h. The ginsengs of less size require less time in thawing

than that of the larger ones, and the smaller boxes require less time than larger boxes. Because of the excellent effect on thermal insulation of the sawdust, a step by step thawing is dispensable when using sawdust as fillers. The boxes with ginsengs could be removed directly from the refrigeratory to a thawing room at constant temperature of 8°C and kept there for 168 h.

The packed fresh ginsengs with fillers could be preserved for one year at a circumstance temperature ranging from -8°C to -10°C. The preserved ginsengs were almost the same like the fresh ones in appearance, shape, color, as well as quality, smell and quantity. There is a little loss in effective contents. The total yield of ginsenosides was 4.16% before refrigerating, and 4.11% after 240 day's refrigeration, decreased by 1.2%; and this value was 4.03% after 360 day's refrigeration, decreased by 3.1%. Moreover, the ginsengs refrigerated could be defrosted anytime.

(6) Sorting. This refers to getting rid of the packing materials, separating the ginsengs from the sawdust, wiping off the impurities, and picking out the frozen and damaged ginsengs. All these have to be done under low temperature circumstance. And after that, the ginsengs could be packed for sell.

The present invention proposed a new prospect for the application of preserved ginseng: they could be used as producing materials in many fields such as pharmaceutics, chemical industry and health care to develop new products, so as to make better use of the special effects of ginsengs on skin care, beauty and hair care.

The application of the present method would change the tradition of taking dried products and avoiding boiling and decocting. The preserved ginsengs could be made into tastes favored by people which would both enrich the diets and populize the health care.

At the same time, the present invention would undoubtedly promote the ginseng industry, help to make better use of the resources, and contribute to the realization of a dual target: both to increase the income of the ginseng growers and benefit the

customers. Among these achievements, the largely increased export would be the most outstanding one.

The present method has solved all the technical problems that would probably influence the export so that the gate for making foreign exchanges by export is widely opened. A solid foundation for expensive application of preserved ginsengs is thus laid.

Claims:

1. A method for the preservation of fresh ginseng, including preparation for production and ginseng selection, and also characterized by the fact that the method comprises the processes of packing, refrigerating, defrosting and sorting in addition.
2. A method according to claim 1, wherein the process of packing comprises the following steps:
 - a. Encasing the inner bags made of plastic film into the cartons, wooden boxes or plastic boxes;
 - b. Placing the fillers containing proper moisture into said plastic bags wherein the fillers could be sawdust, plant ash, earth and/or fine gravel;
 - c. Putting in the fresh ginsengs and fillers in alternating layers, making sure to keep the taproots and tails of the ginsengs 10 to 20 mm away from the inner walls, then stuffing the rest room with fillers, and finally sealing the inner bags and the boxes.
3. A method according to claim 1, wherein the process of refrigerating refers to removing the boxes with ginsengs into a refrigeratory or refrigerating equipment at low temperature ranging from -8°C to -10°C for storage right after packing. Under this condition, the ginsengs could be stored as long as 360 days.
4. A method according to claim 1, wherein the process of defrosting comprises either process I or II: in process I, the boxes with ginsengs are removed from said refrigeratory/refrigerating equipment to a thermostable room at 3°C and kept there for 72 h, and subsequently removed to a thawing room at constant temperature of 8°C and kept there for 144 to 150 h; in process II, the boxes with ginsengs are directly removed into a thawing room at constant temperature of 8°C and kept there for 168 h.
5. A method according to claim 1, wherein the process of sorting refers to getting rid of the packing materials, separating the ginsengs from the fillers, wiping off the impurities, and picking out the frozen and damaged ginsengs, all in low temperature.