

CASSAVA SNACKS from the *BRS Jari* variety

Step by step

Culinary consumption of cassava is quite broad, as the roots can be used in cooked, roasted, and fried forms, as well as in the composition of various dishes. The search for ready-to-eat, practical and convenient foods promotes the development of different types of products, such as savoury snacks and breakfast cereals, which supply part of the daily nutritional needs of those who do not have the time to eat full meals. Cassava chips are obtained through the frying of the roots, which greatly increases the lipid content and caloric value of the final product. However, there is a consumer tendency towards option for healthier, less caloric foods. In following this trend, the development of a dehydrated cassava product that is not fried could supply this demand.

Embrapa Mandioca and Fruticultura's cassava genetic improvement program launched the *BRS Jari* variety in 2009; a yellow-flesh hybrid with a high carotenoid content and about nine micrograms of beta-carotene per gram of fresh root. The following describes the process of making the snacks, using the *BRS Jari* variety.

Processing

Reception and selection

The roots received from the field must be kept in a ventilated place. If they have been harvested on the day before processing, they should be kept in chlorinated water tanks (5mL of commercial sanitary water in 10 litres of treated water), for a maximum period of 12 hours. Select the roots based on their shape and size, excluding those with any type of bruising.

Washing and sanitizing

The cassava should be immersed in water and then brushed to remove any adhered organic matter. The washed roots are immersed in chlorinated water (25mL of commercial sanitary water in 10 litres of treated water) for 15 minutes.

Peeling and slicing

The peeling of roots is done manually, with the removal of the skin and the inner skin. To remove adhered residue, the roots are immersed in treated water once again. Slice the roots approximately 0.8 mm thick with a slicer. The cassava slices are immersed in potable water for 5 minutes.

Whitening

Places the slices in boiling solution (100°C) for 2 minutes. For 500 g of cassava slices, prepare 5 L of solution containing 50 mL of vegetable oil (approximately 3 tablespoons), 85 g of salt and 70 g of onion and parsley flavouring. The concentration of the flavouring can vary according to the manufacturer.

Immersion in cold water

Drain the whitened slices with sieves and immerse them in treated cold water for 30 seconds.

Dehydration

Cover the drying trays with a thin cloth, such as *voil*, and distribute the slices on it. The process is done in a tray dryer with forced air circulation at 65°C and a drying air velocity of 1.5 m/s. Every 30 minutes, change the position of trays within the dryer. The final moisture of the product should be between 5 and 8%. In these conditions, the total drying time should be of approximately 3.5 hours.

Determination of the end of the drying process

Considering, for example, the 80% average moisture of the whitened slices of the variety *BRS Jari* and the desired 8% final moisture of the product. Use the following formula:

Final weight = Initial weight of slices on tray x (100 – initial moisture of whitened cassava / 100 – desired final moisture)

Final weight = Initial weight of slices on tray x (100 – 80 / 100 – 8)

Final weight = Initial weight of slices on tray x 0.217

Therefore, if the initial weight of the cassava slices is 500 g, the dehydrator should be turned off when the weight of the tray is at 108 g.

Packaging and storage

After dehydration, keep the product inside of the dryer with the air flow turned on at ambient temperature for 15 minutes. After, package the snacks in packaging that protects from the light and water vapour, such as PETmetPE (metallic polyethylene terephthalate + polyethylene) and BOPP/metallic BOPP (bioerented polypropylene + metallic bioerented polypropylene). These types of packaging tend to have higher costs, but they preserve the quality of the product best during storage.

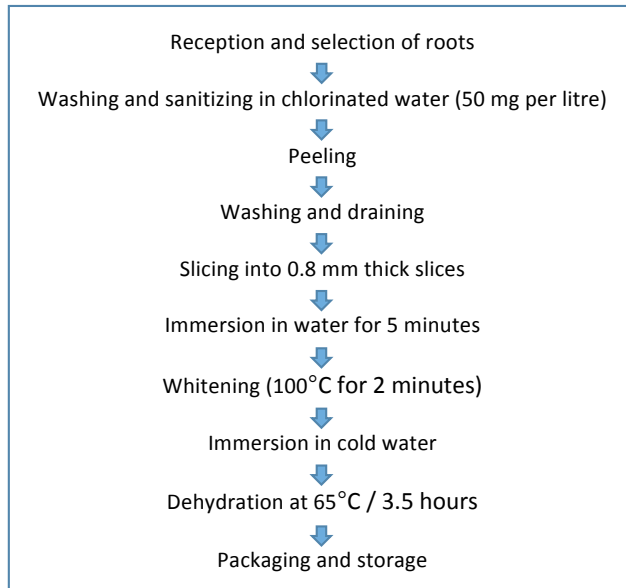
Package the cassava snacks in portions of 50 g and keep at ambient temperature. Label the product according to the legislation.

For evaluated samples, the cassava snacks made with the *BRS Jari* variety presented an average of 2.6 mg of total carotenoids per 100 g of product and high sensory acceptance, reaching 85.3% of global acceptance in a test undertaken with 50 consumers.

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Comment [1]: Undertaken ĩ

Flow chart



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