

## Value Addition of Sweet Potato

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Sweet potatoes are very nutritious and have a variety of tastes, textures, and flesh colours, including white, cream, yellow, orange, and purple. Tropical consumers tend to choose types with higher dry matter content (>25%), white-cream flesh colour, and mealy-firm texture after cooking. In Asia, purple-fleshed sweet potatoes are a specialty kind due to their eye-catching colour and high anthocyanin content. The most commercially popular variety of sweet potato in the US is the orange-fleshed variety, which has a high  $\beta$ -carotene concentration, low dry matter percentage (18–25%), and a sweet, moist feel after cooking. Sweet potatoes have significant concentrations of  $\beta$ -carotene, anthocyanins, phenolics, dietary fiber, vitamins, minerals, and other beneficial substances, depending on the colour of the flesh. Orange-fleshed sweet potatoes contain  $\beta$ -carotene, which may be a significant long-term food-based approach to fight global vitamin A insufficiency. Research conducted in Africa revealed that the vitamin A status of children, pregnant women, and nursing mothers was enhanced by increasing their intake of orange-fleshed sweet potatoes.

Sweet potato roots and other plant components are utilized in the food processing, animal feed, and human diet. Several methods of processing turn sweet potatoes into food, commercial goods, and useful materials. Starch, sugars, and natural colorants are the main intermediate products for industrial processing that are applicable to the food and nonfood processing industries. Sweet potato varieties with high dry matter (35–41%), total starch (25–27%), and extractable starch (20–23%) concentrations are utilized for starch processing. In addition to being utilized as thickening agents, sweet potato starch is also used to make vermicelli, traditional noodles, and sugar syrups, which are used in several processed foods. Other compounds such as lactic acid, citric acid, microbial enzymes, fuel alcohol, and monosodium glutamate are also produced from the starch and sugars found in sweet potatoes.



### Canned sweet potato

Sweet potatoes may be canned in syrup or water, whole, half, or chunked. In addition, sweet potatoes may be pureed and canned in a solid state. Sweet potato roots are canned using a series of unit procedures that include peeling, chopping, sizing, blanching, filling, syruping, exhausting, and retorting. To release gases, keep the can vacuum sealed, and raise the cans' starting temperature, blanch them in water at 77°C for one to three minutes. The material is packed in cans and coated with syrup at 95°C right away after blanching in order to avoid discoloration. Water or sugar (20–40%) is used, depending on what the customer wants. Can must be emptied for a sufficient amount of time to allow the interior temperature to rise to 77°C in order to guarantee a strong vacuum in the last cans.

### Sweet potato puree

Cut the sweet potatoes into ½-inch-thick cubes after peeling. Strive to keep the size constant for uniform cooking. Add a pot with two inches of water and a steamer that has been basked. After adding the sweet potato, turn up the heat to a simmer while covering the saucepan. When steam appears, cook the potatoes for ten to fifteen minutes, or until a fork easily pierces them. Using a spoon, place the potatoes in a food processor or grinder. Process the potatoes in a blender until they reach a smooth puree, stopping to scrape down the sides as needed, and until they are completely chopped. The purée is now prepared for usage. There are several applications for the puree. To prepare a tasty side dish, for instance, season it with butter, salt, pepper, and optional herbs. Additionally, it may be used in lieu of pumpkin puree in quick bread, muffins, and pancakes. Ketchup and jam made from sweet potato purée are also sold commercially. For later usage, we may often keep the puree in the refrigerator for three to four days.

### Dehydrated sweet potato

Dehydrated sweet potato roots are processed into dried chips, cubes, granules, flakes, and flour that may be stored and used in a variety of culinary preparations, such as extruded snack foods, vermicelli, noodles, soups, bakery products, noodles and crepes. Sweet potato roots are sliced into 2-3 mm

thick pieces and may be blanched for a few minutes in hot water. To avoid browning, the slices might be treated with metabisulfite either before or during blanching. After blanching or not, the slices are sun-dried until they have a moisture content of around 6–10%. The drying process may take anywhere from four hours to five days, depending upon the weather. Once dry, the slices are milled into flour. Sweet potatoes that have been dehydrated may be used to soups, stews, burrito bowls, spaghetti, curries, snacks, and any other dish that will be partially cooked in liquid.

### Sweet potato chips

In many nations, sweet potato chips are a popular snack. A number of American food firms have been processing sweet potatoes with high beta-carotene content from orange-fleshed sweet potatoes in recent years in an attempt to meet the rising consumer demand for healthier meals. Regardless of the length of root storage, the product must be consistently high-quality for commercial success. Peeled or unpeeled roots are cut into thin chips (0.8–2.0 mm) and blanched for 2 minutes at 93°C. After that, they are drained and partly dried at 119°C using hot forced air. Because it influences the amount of time the chip cooks and the quality of the final product, chip thickness is significant. The final product's flavour, texture, and appearance are all significantly impacted by partial drying. The chips are fried, then drained and salted or sugared. The chips will be packed right away to keep air and water out when they have cooled. Sweet potato types, postharvest processing, and storage conditions all have an impact on the quality of fried chips. The colour of this product type is influenced by variations in reducing sugars, amino acids, and other chemicals involved in the



discolouration of sweet potatoes. Dry matter and starch content have an impact on the fried foods' textural characteristics and oil content.

### Fermented products of sweet potato

Sweet potatoes are used to make a variety of fermented items because of their high starch, sugar, and nutritional content. Shochu is a traditional distilled beverage made from sweet potatoes or barley, rice, maize. The method includes inoculating steamed sweet potato slurry with a starting Koji comprising *Aspergillus niger* or *A. kawachii* as an enzyme source for the conversion of starch to sugars. *Saccharomyces cerevisiae* ferments the sugars to alcohol. The whole procedure typically takes 12–14 days to generate a broth with 13–15% alcohol. After that, the soup is combined and distilled to create shochu, which has 20–40% alcohol. American firms have begun to create and market 40% alcohol-by-weight sweet potato vodka. The more modern alcoholic drinks made from orange and purple flesh sweet potatoes are wine and beer. Purple-fleshed sweet potatoes were used to create red vinegar, which has a high antioxidant activity and an antihyperglycemic impact. Additionally, sweet potatoes are used as fermentation substrates for soy sauce.

### Conclusion

Sweet potato is an important tuber crop with high economic value. All around the globe, sweet potatoes are used for food, animal feed, and traditional medicine. This includes the roots, vines, and young leaves of the plant. Carbohydrates, including sugars and starches, make up the majority of the dry matter in sweet potatoes. Pectins, cellulose, and hemicellulose are present in smaller amounts. Purées, juices, cans, frozen foods, dried goods, and snack foods are all made from sweet potatoes. Enhancements in processing techniques for the creation of food items and useful components from sweet potatoes would satisfy consumer needs for wholesome meals and ultimately lead to a rise in the amount of this nutrient-dense vegetable in the diet.

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