Sweet Potato Chips Making

I. A Brief Overview of Sweet Potato

Sweet Potato

Sweet potato, also called lpomoea batatas, is a dicotyledonous plant. Its large, starch, sweet-lasting, tuberous roots are a root vegetable. The young leaves and shoots are sometimes eaten as greens. Sweet potatoes do not simply contain starches. Raw sweet potatoes are rich in complex carbohydrates, dietary fiber and beta-carotene, while having moderate contents of other micronutrients. Compared to other foods, sweet potatoes rank highest in nutritional value.

Culinary Use

Although the leaves and shoots of sweet potatoes are also edible, the starchy tuberous roots are by far the most important product. In some tropical areas, they are a staple food crop.

In Africa, sweet potatoes are an important food for people. It is mainly served for breakfast, eaten with peanut sauce. The baked root is eaten as a snack anytime and is mostly served with tea or with peanut sauce. South Sudan also eat sweet potatoes in the similar way.

In Asia, there are different ways of cooking sweet potatoes. In China, sweet potatoes are baked in a large iron drum, and sold as street food during winter, or boiled in water to make soup. In Korea, sweet potatoes are baked in foil or in open fire. In India, sweet potatoes is one of the prime sources of sustenance. It is also a popular variety of preparation which is roasted slow over kitchen coals and eaten with some dressing--primarily salt, yogurt.

In North America, sweet potatoes are a side dish which contains sweet potatoes, sugar, marshmallows, maplw syrup, molasses, orange juice, marron glace, or other sweet ingredients. Sweet potato fries or chips are common preparation, and are made by julienning and deep frying sweet potatoes.

Nonculinary Uses

With a red color, the juice of red sweet potatoes is combined with lime juice to make a dye for cloth. By varying the proportions of the juices, every shade from pink to black can be got. As to other uses, all parts of the plant are used for animal fodder. People also use sweet potatoes in Moche ceramics.

II. How to Make Sweet Potato Chips?

Sweet potato chips are made from fresh sweet potatoes, with high nutritious value. When fresh sweet potatoes are cooked by baking, small variable changes in micronutrient content occur to include a higher content of vitamin C at 24% of the Daily Value per 100 g serving, as well as an increase in polyphenol levels. Sweet potato chips are good for people's health and popular around the world with special sweet, luster, crispy and beautiful color. There are two kinds of sweet potato chips, baked potato chips and fried potato chips.

There are two kinds of sweet potato chips, baked sweet potato chips and fried potato chips. Here are the ways of making sweet potato chips.

1. Baked Sweet Potato Chips Making Process

Material: fresh sweet potatoes, corn starch, flour, peanut oil, shortening, citric acid, salt, raising agent, savory flavoring

Technological Process

Sweet potatoes→cleaning→peeling→rinsing→slicing→color protection→color protection→stewing→dehydration→blending→molding→baking→packing

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Fresh Sweet Potatoes Sweet Potato Slices Stewing Blending

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Baking Packing

Cleaning: pick out the fragile, large sweet potatoes without decaying, plant diseases and insect pests. Put them into water. If the production is big, use potato washing and peeling machine to clean and peel which can save labor and time and cost.

Peeling and Rinsing: use peeling machine or hot water to skin. Then the peeled sweet potatoes should be immersed into water to rinse, in order to prevent browning in the

air, and wash away the free starch on the surface.

Slicing and Color Protection: weed out the unqualified. Then use the potato chips machine to slice sweet potatoes into 1.5~2mm thickness in order to stew slices evenly. Put the slices into 1.5% NaCl solution and 0.1% citric acid solution.

Stewing: drain the slices and stew them for 15~20min. Take the translucent and faintly visible piece of the sweet potato fiber as a sign of fully gelatinization.

Dehydration: use 60℃ hot wind to dry the slices until the water content reduce to 35%. The water content affects the blending process and the quality of the product.

Blending: mash the slices into mud. According to different flavor and the relevant formula, blend auxiliary material(corn starch, flour, shortening, citric acid, salt, raising agent, savory flavoring) and the sweet potato mud.

Molding: put potato mud on the noodle press to make 1~3mm thickness chips. Take out the unqualified with a standard that sweet potato chips whether glue roller, the surface is smooth and level off, without shrinkage deformation.

Baking: according to the water content of the product, the baking temperature is determined to 140~160℃. The baking temperature is important in production line. If the temperature is too high, the water will volatilize quickly and the chips are easy to curly and deform and become brown. If it is too low, water will volatilize too slow which extends the baking time and make the chips color white, poor crisp, and affect the flavor and appearance of the product. Master the baking temperature can make high quality chips.

Packing: use Nitrogen & Vacuum potato chips packing machine which can prevent the oxidation reaction and extent the sweet potato chips shelf life.

2. Fried Sweet Potato Chips Making Process

Material: sweet potatoes, vegetable oil

Technological Process:

Selecting: pick out the fresh sweet potatoes with suitable size. Get rid of the ones with decaying, decaying, plant diseases and insect pests.

Washing and peeling: use the potato washing and peeling machine. Wash away the sediment and dirt on the surface of the sweet potatoes and peel them. When peeling, cut off the parts with black patches.

Slicing: use the potato chips machine. Adjust the machine to make the thickness 2.0mm~4.0mm. Use the potato chips machine can get the chips of similar size, uniform, and thickness.

Blanching: put the slices into the 1.0%~3.0%NaCl solution to blanch for 0.5~2.0 min until the sweet potato slices turn into transparent.

Cooling and dehydration: use the flowing water to cool the slices or use the 7℃ circulating water to cool the slices to 15℃. Then use the potato chips dehydration machine to remove the water on the surface of the cooling slices.

Freezing: use the French fries freezing machine to freeze the sweet potato chips until the chips temperature is -18℃. Freeze the sweet potato chips can volatilize quickly in frying process and produce a large number of mesh structure to make product crispy and the surface smooth.

Frying: heat the oil to 110℃, and set the compensation temperature as 75℃. Then fry

the sweet potato chips for 2min, and keep the oil temperature is above 78℃ with the compensation heating until frying is done.The technology of vacuum low temperature frying can retain the nutrition of the sweet potatoes without damage. Under the condition of vacuum low temperature, the oil will not go bad so that it does not contain cancerogenic substance.

De-oiling: use the potato chips de-oiling machine to remove the oil on the surface of the sweet potato chips. Put the slices in the machine and rotate for 6min. The oil content is a key of the high quality chips.

Packing: use Nitrogen & Vacuum potato chips packing machine which can prevent the oxidation reaction and extent the sweet potato chips shelf life.