

02

Processing Technology of Sweet Potato Starch and its Products



➤ Processing technology of sweet potato starch

Starch is the main component of sweet potato roots, accounting for 50%-80% of the dry basis. At present, there are mainly two methods for production of sweet potato starch, which are **sour liquid processing** and **centrifugation**.

Sour liquid processing

- Sour liquid processing is a method which makes the starch precipitate rapidly by adding fermented acid pulp (mainly *Lactobacillus*).

Centrifugation

- Centrifugation is a new and efficient technology of starch separation which developed rapidly in recent years.



Sweet potato starch prepared by sour liquid processing



Sweet potato



Washing



Crushing into starch slurry and removing residues



Sieving starch slurry to further remove impurities



Adding sour liquid (~2%, v/v, slurry basis) and setting aside for 8-10 h



Removing the supernatant



Collecting precipitate and washing with water (precipitate : water, 1:4, v/v) for 1-2 times



Airflow drying



Smashing and packaging



Sweet potato starch



Sweet potato starch prepared by centrifugation



Sweet potato



Washing



Crushing



Deslagging by centrifugal screen



Desanding



Separation starch by centrifugation



Airflow drying



Dehydration



Smashing and packaging



Sweet potato starch

Workshops



Pure manual processing combine with simple machines.

Daily production of starch: **0.5-2t**

Extraction rate of starch: **~50%**

Small-scale enterprises



Small mechanized or semi-automatic production line.

Daily production of starch: **5-50t**

Extraction rate of starch: **~85%**

Large- and medium scale enterprises



Fully mechanized starch production line with advanced technology.

Daily production of starch: **60-80t**

Extraction rate of starch: **~95%**



➤ Processing technology of sweet potato starch noodles

Processing technology of sweet potato starch noodles include: **dropping method, extrusion method, and coating method**. According to whether drying is required during processing, it can be further divided into **dry starch noodles (moisture content < 15%)** and **wet starch noodles (moisture content \geq 50%)**.



Dropping method



Sweet potato starch



Mixing with water (starch : water, 1:20, w/w) and heating at 100 °C to get gelatinized starch



Adding starch (gelatinized starch : raw starch, 1:1.5, w/w) and making dough



Dropping with mechanical vibration of equipment



Cooking with hot water for 2-3 min



Starch noodles



Drying



Freezing



Cutting off and hanging on



Cooling with cold water



Extrusion method



Sweet potato starch



Mixing with water (starch : water, 1:6.5, w/w) and heating at 100 °C to get gelatinized starch



Adding starch (gelatinized starch : raw starch, 1:1.2, w/w) and making dough



Extrusion with screw extruder (extrusion temperature: ~110 °C)



Cooking with hot water for 2-3 min



Starch noodles



Drying



Freezing



Cutting off and hanging on



Cooling with cold water



Coating method



Sweet potato starch



Mixing with water (starch : water, 1:9, w/w) and heating at 100 °C to get gelatinized starch



Mixing with starch and water (gelatinized starch : raw starch : water, 1:1.5:0.6, w/w) to get starch paste



Coating



Cooking and molding with steaming (pressure: 0.6 Mpa)



Starch noodles



Transverse cutting



Drying



Vertical cutting



Freezing



Cooling and separation