



Cassava processing: cassava wet flour

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Summary

Cassava (*Manihot Esculenta Crantz*) is the third most important source of calories in the tropics, after rice and maize. Millions of people depend on cassava in Africa, Asia and Latin America. It is grown by poor farmers, many of them women, often on marginal land. For those people and their families, cassava is vital for both food security and income generation. Cassava is a raw material base for an array of processed products that could effectively increase demand for cassava and contribute to agricultural transformation and economic growth in developing countries. The following technology describes how to obtain cassava flour from cassava tubers.

Description

1. Cassava processing

The raw material for baked products is the flour scooped up from sedimentation tanks or tables after the supernatant, or excess water, has been drained and the “yellow” flour scraped off. Clearly the use of moist starch, an intermediate stage in the processing of the Dour, is economically advantageous. Only very white first-quality flour can be used in the manufacture. To obtain this, sulfurous acid is often added in the first sedimentation. This chemical should,

however, be washed out as completely as possible by a second sedimentation in clean water. Any traces of the acid left in the flour tend to spoil the quality of the end product. It is strongly advised not to use active chlorine preparations in this case, as they influence the agglomeration of the starch into pearls and other forms in an unfavourable way.

The cake of moist flour, containing about 45 percent water, is broken up by a small mill, spades or pressing it through frames strung with steel wire spaced about 10 to 20 cm apart, after which the lumps are rubbed through a screen of about 20 mesh per inch to produce a coarse-grained moist flour. At this stage the flour is ready only for gelatinization and the production of flakes. To prepare pearls and seeds, the small aggregates of moist starch should be subjected to a process of building up and consolidation which gives them the size and cohesive strength desired for the further treatment. The operation is known by the Indonesian name as the gangsor method. A portion of the moist starch is put into a long cylindrical bag of twill cloth which is held at each end by one person. Together with rhythmical

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strong jerking movement, they throw the mass of starch lumps from one end of the bag to the other. After few minutes of this treatment, the irregular lumps have grown into beads of varying size and have gained firmness. Another portion of the moist flour is added and the gangsoring is continued. The operation is repeated until the beads have grown more or less to its desired size. Depending on the skill of the worker, the size of the starch balls is fairly uniform. Curiously enough, the knack of gangsoring is achieved only by a fraction of all workers, so the operation should be classified as skilled labour.

Figure 1. Cassava flour



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In Malaysia the flour is fed into open, cylindrical rotating pans about 0.9 m in diameter and 1.2 m deep. During rotation the starch grains are forced to adhere together in the form of small particles or beads. The resulting product depends on the speed and the length of time of rotation. After gangsoring, beads of the right size are sorted out by screening between plates with

circular holes corresponding to the required dimensions.

2. Agro-ecological zones

- Tropics, warm

3. Related/associated technologies

- Make bitter Cassava safe for consumption, Uganda: 4372.
- Storage and preservation of wet cassava: 4520.
- Production of high quality cassava flour, Ghana: 4574.
- Sustainable livelihoods: New market opportunities for cassava: 4575.
- Production of glucose syrup from high quality cassava flour: 4576.

4. Objectives fulfilled by the project

4.1 Women-friendly

The technology is easy to use and accessible to all.

4.2 Resource use efficiency

Since cassava is an important calorie source in the tropics, this practice allows for it to be transformed and stored in a more long term manner.

4.3 Pro-poor technology

The practice, through the transformation of cassava into flour, provides food security and income generation for poor households.