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Development of a Sustainable System for Cassava Starch Extraction

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Abstract

Cassava production in Africa received a major boost due to the joint efforts of African leaders through the New Partnership for Africa's Development (NEPAD). One of the challenges identified by NEPAD is the need to develop technologies for processing cassava in order to reduce post-harvest losses. One major problem associated with cassava processing is low level of mechanisation. In recent times, renewed efforts at improving cassava processing technologies are being made by design engineers especially in Nigeria, Brazil and China. One of the major industrial products from cassava requiring mechanisation is starch. The demand for starch, which is used as raw material in many agro and agro-allied industries, in Africa and Asia is enormous, making adequate investment in the starch industry a necessity. In many developing countries, starch production has been dominated mainly by cottage industries. However, starch extraction by cottage industries is largely done using manual methods. There is a need to develop equipment for small to medium scale starch industries in developing countries. In this study, equipment for starch extraction in one pass of fresh cassava tubers is proposed. The machine consists of a specialised serrated auger, tuber inlet, water delivery system, perforated cage, and an arrangement of sieves, starch delivery outlet, fiber delivery outlet and the power source. The machine is conceived as a low cost equipment to enhance productivity at the small to medium scale levels in developing countries. The major advantages of small to medium scale starch industries is the closeness to the source of raw materials which is cost saving particularly for cassava with about 60 to 70 % moisture content. The highest stakeholders in starch processing are also in this category. It is believed that the equipment would enhance sustainable starch production, reduce human drudgery and promote timeliness of the production process.

Keywords: Cassava, production and processing, sustainable approach

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