



Tropentag, October 9-11, 2007, Witzenhausen

“Utilisation of diversity in land use systems:
Sustainable and organic approaches to meet human needs”

Development of a System for Fresh Fruit Juice Extraction and Dispensary

OLAWALE JOHN OLUKUNLE

Federal University of Technology, Department of Agricultural Engineering, Nigeria

Abstract

In Nigeria and many other African countries fruit juice is almost becoming a luxury found only on the table of the rich. Processing of raw fruits or juice concentrate into juice is done by large-scale industries resulting in high and unaffordable prices for the low income earners in developing countries. However the need for fruit juice in human diet cannot be over-emphasised. Although, the poor can eat raw fruits, the perishable nature of these fruits underscores the need for processing in order to make fruits available the year round. Locally available fruits that are widely grown in Nigeria include cashew, mangoes, watermelon, guava, pineapples, paw paws, oranges, tomatoes, tangerines, and many other indigenous fruits. Production of fruits in Nigeria can be estimated at hundreds of thousands of metric tones per year. Unfortunately, over 50 % are lost due to perishable nature of fruits occasioned by high moisture content and poor post harvest handling and marketing strategies.

In this study, a system for handling, processing and preservation of fruits was developed and tested. The system consists of the washing unit, the juice extraction unit, juice filtration, conditioning unit and dispensary unit. The system was packaged in a way to make juice available in the fresh form for consumption. Fruits such as orange, mango and pineapple could be processed to obtain 100 % juice. A combination of one or more fruits is feasible to obtain mixed fruits. The systems provides for quick processing and dispensary of fresh fruits at affordable prices. The system has been introduced to some schools, villages, establishments and corporate organisations in Nigeria. Results show that majority accepted the product readily because of its positive health implications of fresh fruit without additives/preservatives. The equipment used is affordable to small-scale industrialists. Thus, the system offers a sustainable approach for processing and consumption of fresh-fruit juice in developing countries. It is believed that the adoption of this system would enhance healthy living among the rural poor, provide employment, promote industrialisation and food security. The initial cost of the system was estimated at 1,500 US dollars

Keywords: Fresh-fruits, juice extraction, pineapple, mango