

**CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE
MYSORE**

**LIQUID FRUITS (CLARIFIED FRUITS JUICE - GUAVA, BANANA, GRAPES,
APPLE)**

(Process Code – CBP 380)

INTRODUCTION

About 50 million tonne of fruits are produced in India. Pulpy and juicy fruits like orange, guava, banana, grape, mango, papaya, pears, apples and jackfruit can be converted into fruit products like squashes, juices, cordials and ready-to-serve (RTS) fruit beverages. These RTS fruit beverages are both refreshing and thirst quenching and have become very popular in the country. Liquid fruits provide a natural alternative to synthetics and can be used by proper dilution and carbonation as effective soft beverages. Removal of pulpy material from the juice makes it easier to preserve by pasteurization and amenable to carbonation. In order to convert these fruits into RTS beverages and concentrate, CFTRI, Mysore has standardized a process for the production of clarified fruit juices from pulpy fruits like banana, guava, grapes, cashew etc., by enzymatic hydrolysis.

INSTALLED CAPACITY

The suggested installed capacity of the unit is to produce 5200 bottles (200 ml/each) of clarified juices/shift/day. The total number of working days is 300 per annum or an annual production of 307 tonnes of clarified juices.

AVAILABILITY OF RAW MATERIAL - Sources

The basic raw material i.e., fruits should be of good matured quality. It should be juicy and pulpy. This can be procured from the local wholesale market or directly from the nearby farmers. Preservatives, additives and colouring material are readily available in local markets.

The pulpy fruits that are utilized for clarified juices are banana, guava, cashew apple, grapes.

TECHNOLOGY/MANUFACTURING PROCESS - Availability

The process consists of washing and pulping of fruits (after peeling) and then warming the pulp in a jacketed kettle up to a desired temperature and time. This process inactivates the innate enzymes and prevents from microbiological spoilage. After cooling, a fixed amount of pectic enzyme is added to the pulp and thoroughly mixed so as to ensure homogenous distribution of the enzyme. The enzyme reaction is allowed to progress at an ambient temperature for sometime. The juice is then separated from the pulp by passing through cheesecloth in a basket press or by a hydraulic press or by passing through a plate and frame filter press. The juice thus obtained is racked at low temperature for few days. During this period all the remaining fine suspended particles settle down. For further clarity using filter aids then filters the supernatant liquid. The crystal clear juice then pasteurized, bottled, crown corked, air cooled, labelled and stored at ambient temperature.

The manufacturers have to take a licence under FPO (Government of India).

PLANTS AND MACHINERY

Principal equipments

Pulping machine, Fruit mill, Steam jacketed kettles, Filter press, Bottle washing machine, Bottle filling machine, Storage tanks, Boiler, Cap sealing machine, Pasteurization tank, Weighing scales etc

All are standard equipments available indigenously.

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| a) | Land & land development (330 m ²) | |
| b) | Building & civil construction (233 m ²) | |
| c) | Plant and machinery | Rs.10,00,000 |

ANY OTHER SPECIAL FEATURE

- a) Pulpy fruits like guava, banana etc., can be successfully processed to manufacture clarified liquid fruits by using pectic enzymes. This clarified juice can be diluted further suitably for the manufacture of carbonated beverages packed in 200-250 ml bottles
- b) The cost of production can be brought down considerably, if this process is undertaken in an existing fruit processing unit, where most of the equipments are readily available.
- c) The solid waste generated as by-product can be directly utilized as cattle feed or after drying or fermentation may be charged into a digester for the production of biogas. The spent residue from the digester can be used as manure.

For technology & technical assistance please contact

THE HEAD
Technology Transfer & Business Development Department
CFTRI, Mysore - 570 020
Phone: 0821 – 2514534, 2515101; Fax: 0821 - 2515453;
E-Mail: HYPERLINK "mailto:ttbd@cftri.res.in"
ttbd@cftri.res.in; Webpage: HYPERLINK
"http://www.cftri.com/" www.cftri.com