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"To Study on Preservation of Ice Apple with Blanching or Without Blanching"

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Abstarct: *Ice apple is a less known tropical fruit of the palmyra palm tree. It is widely available in the hot sizzling summer season. It is scientifically known as Borassus Flabellifer and belongs to the family Aceraceae. The Palmyra tree generally grows in tropical countries such as India, Thailand, Sri Lanka, Cambodia, Malaysia, Myanmar and Indonesia. the pulp of mature ice apple is eaten directly from the wiry fibre of peeled fruits. The fleshy ice apples are packed with translucent, juicy liquid and may have exceptional cooling properties. Ice apple is a low- calorie fruit providing 43 calories/100 grams 11 grams of carbohydrates and rich in calcium and phytonutrients. It also contains a minimal amount of fibre, protein, vitamin –C, A, E, K, B7and iron. Ice apple is a seasonal fruit. to make availability of ice apple it is made into preserves with the help of different types of blanching techniques like – salt solution blanching, hot water blanching, sugar solution blanching and without blanching. Blanching is followed by solar drying to obtain preserves. In these different techniques of blanching, the desired preserves are obtained in the sugar solution blanching. The nutritive value of sugar solution blanched ice apple preserves is carbohydrates and total sugars are 7grams and 15.75 grams respectively fat and protein content are 0grams. The moisture content is 30%, caloric value is 30.1K. Cal/gm.*

Key Words: *Palmyra tree, Ice apple, Seasonal, translucent, phytonutrients, etc.,*

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I. OBJECTIVES OF THE STUDY: -

The main objective of the research is to bring the availability of fruit during unseasonal.
To preserve the ice apple using different techniques like sugar water blanching, salt water blanching, and hot water blanching, without blanching.
And to evaluate the nutrients that are present in ice apple which is preserved.

II. REVIEW OF LITERATURE:

Vengaiah pc (DR. ysr horticultural university) Jan 2015.
(Referred from Physico-chemical properties of palmy rah fruit pulp)
The researcher took ripened palmy rah fruit and stored at cooled room temperature (4 c) some of the pulp was direct at (6c) for 24 to 48 hrs the dried at(6c) for 24 to 48 hrs the dried pulp was finally milled using pulveriser to pass through a 250 um seave. The samples were then packaged in polyethylene bag (150) and kept in a refrigerator (4c) until needed for use.
From the freshly collected pulp powder researcher concluded that the moisture content is 74.5% the ash & fat content were 1.2% &0.8%. The protein content & carbohydrate content were 1.25%& 22.5%. The calorie value 102.83 k.cal/100gm was obtained. These significant values which can utilize direct or combined with other pulps.
NutsudaSumonsiri, Pornthip, phalaithong, AmornratMukprosirtRattakornJumnogpon
The researcher has taken the ripedpalmyrah palm fruits the fruits were cleaned under tap water the exocarp was peeled and seeds were taken out, the extracted mesocarp was manually extracted into water after that extract was sieved to remove insoluble pulp and obtain palmyra palm fruit juice was pasteurized at 65 c for 5 min and stored at -18 c until used.
By using ripe Palmyra fruit, the researcher concluded that the ripe Palmyra fruit pulp can be used to produce gummy jelly with significant effect on the textural and colour characteristics of the product, as well as a slight increase in moisture and protein content but a decrease in carbohydrates and energy content. Furthermore, the addition of fruit juice could also reduce the undesired adhesives of the final product.

III. MATERIAL AND METHODOLOGY:

3.1 PROCUREMENT:

Ice apple are available in summer season. Temperature in the summer season generally exists between 35-45 C. The percentage of humidity is 40-50 %. The sample is bought during the time between 10:00-12:00.

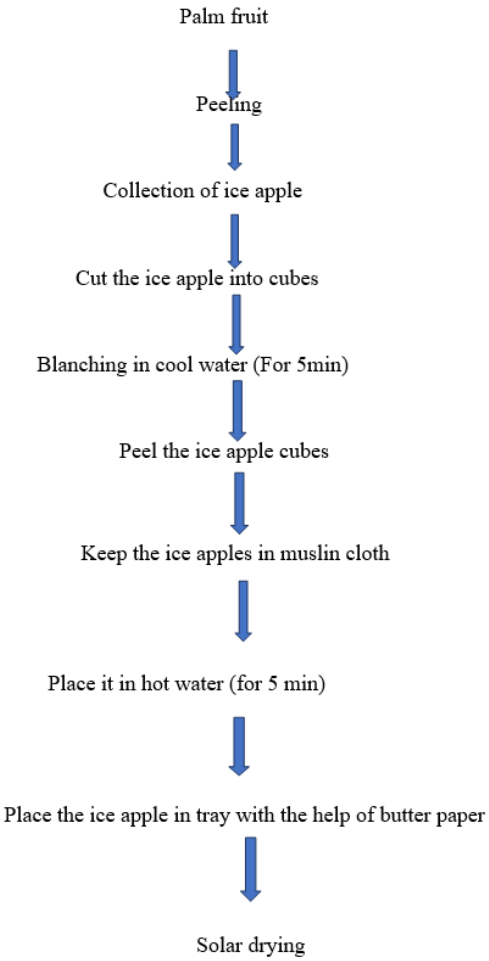
3.2 RAW MATERIAL: Ice apple, sugar, cold water, and hot water, salt.

3.3 APPARATUS:

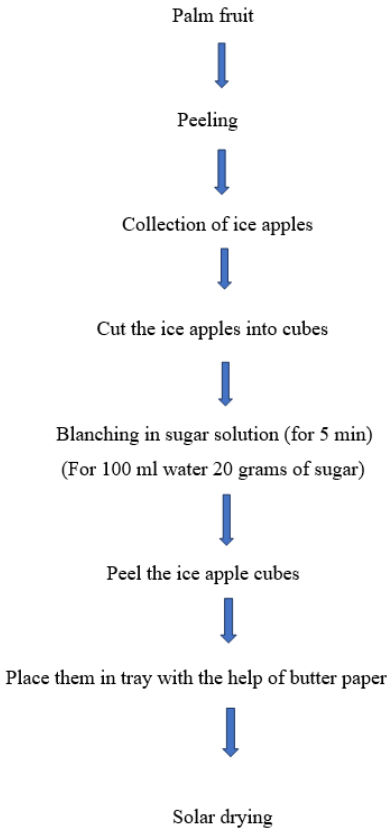
Beaker, stove, laboratory thermometer, knife, solar dryer, hot air oven, muffle furnace etc.

PROCESSING:

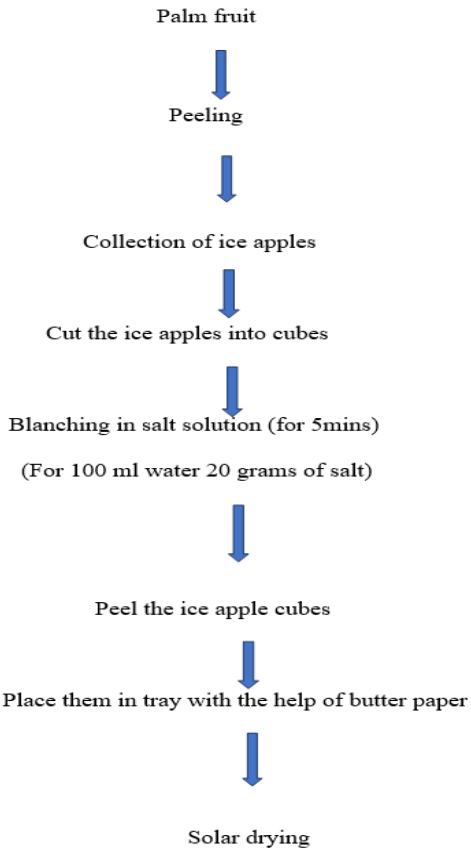
3.3.1 Hot water blanching



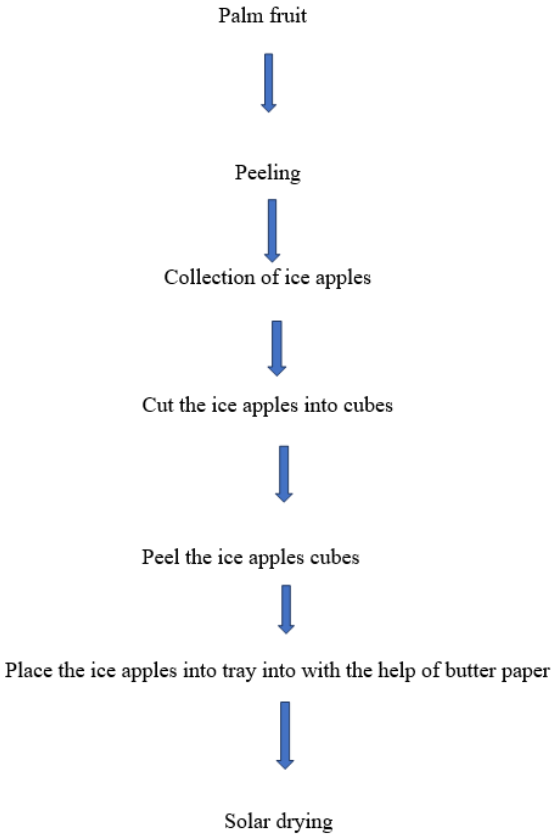
3.3.2. SUGAR SOLUTION BLANCHING



3.3.3. SALT SOLUTION DRYING



3.3. 4.WITH OUT BLANCHING



3.4 ANALYSIS
PROXIMATE ANALYSIS
3.4.2.1 MOISTURE CONTENT (Refer annexure)
Moisture (% wet basis) = (M1-M2) *100/M1
Moisture provides a measure of the water content of pulp and for that matter its solid content. it is also an index of storage stability of the pulp.
Moisture content of hot water blanched ice apple= 68.8%
Moisture content of sugar solution blanched ice apple =30%
Moisture content of salt solution blanched =82%
Moisture content Ice apples without blanching=59.2%

3.4.2.2 CARBOHYDRATE
=100-(M.C%+FAT%+PROTEIN%+ASH %)
The major component of the pulp was carbohydrate.
Carbohydrate content of hot water blanched ice apple =3.12 grams
Carbohydrate content of sugar solution blanched ice apple =7 grams
Carbohydrate content of salt solution blanched ice apple =1.8 grams
Carbohydrate content of ice apple without blanching =4.08grams

3.4.2.3 DIETARY FIBER
Dietary fibre content of hot water blanched ice apple = 3.12grams
Dietary fibre content of sugar solution blanched ice apple=7grams
Dietary fibre content of salt solution blanched ice apple =1.8 grams
Dietary fibre content of ice apple without blanching =4.08grams

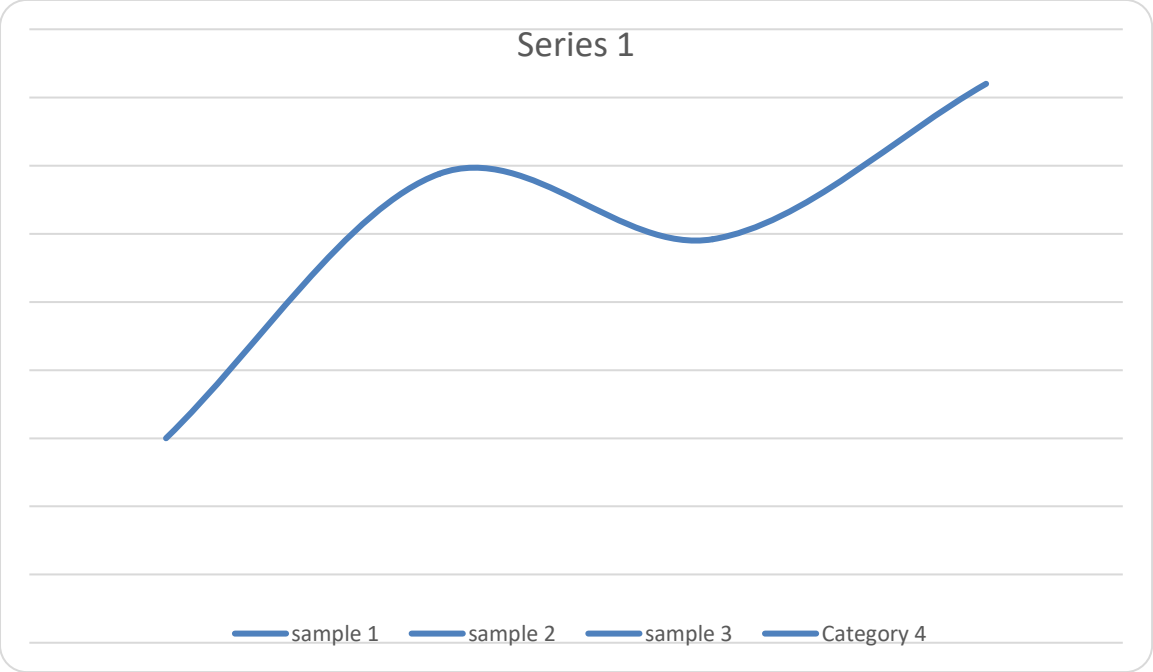
3.4.2.4 TOTAL SUGAR
Total sugar content of hot water blanched ice apple=7.02grams
Total sugar content of sugar solution blanched ice apple=15.75grams
Total sugar content of salt solution blanched ice apple=4.05grams
Total sugar content of ice apple without blanching=9.18grams

3.4.2.5 VITAMIN C
Vitamin C present in hot water blanched ice apple=15.6 mg
Vitamin C present in sugar solution blanched ice apple=35mg
Vitamin C present in salt solution blanched ice apple=9mg
Vitamin C present in ice apple without blanching=20.4mg

3.4.2.6 CALCIUM
Ice apple is the rich source of calcium.
Calcium present in hot water blanched ice apple=84.24 mg
Calcium present in sugar solution blanched ice apple=189 mg
Calcium present in salt solution blanched ice apple=48.6 mg
Calcium present in ice apple without blanching=110.16 mg

3.4.2.7 IRON
Iron present in hot water blanched ice apple=3.12 mg
Iron present in sugar solution blanched ice apple=7 mg
Iron present in salt solution blanched ice apple=1.8 mg
Iron present in ice apple without blanching=4.08 mg

3.4.2.8:



MOISTURE CONTENT GRAPH

IV. CONCLUSION: -

The sugar blanched ice apple is preferred than other blanched ice apple because sugar blanched ice apple is without loss of textural properties. It has same taste as raw ice apple.so sugar blanched ice apple is selected.
The sugar blanched ice apple contains carbohydrates-7gm, protein-0gm, fat-0gm, total sugars-15.75gm, dietary fiber-7gm, vitamin-c -35gm, calcium and fibre -189 mg and 7 mg, energy -30.1 k.cal/gm.