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# Alternative To White Sugar Using Natural Sugars in Pineapple

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**ABSTRACT:** There is global rise in the consumption of refined white sugar which has specifically been responsible for much adverse health effects. This experimental study is aimed to bring **alternative to white sugar** by concentration of fresh juice from pineapple. Sensory analysis for juice were performed by hedonic testing with thirty panelists in evaluation. The sensory analysis results for fresh fruits juices made by pineapple and papaya, pineapple showed good acceptance by adolescent group. The sensory evaluation data has been analyzed to identify the preferences of fruit juice. This analysis supported the conclusion that fresh juice can provide their sweetness in formulations with good acceptability while keeping the advantages conferred by consumption of processed white sugar.

**KEYWORDS:** Refined Sugar; Fresh juice; concentrated juice; Pineapple; Jamaican berry extract; papaya

## I. INTRODUCTION

White sugar merely generates high calories causing obesity that brings into many metabolic issues, increasing 20% higher risk of heart diseases, pancreatic cancer type 2 diabetes, etc. A population, based study has prevailed that among the adolescents the type 2 diabetes was 30.4% (1992 -1995) been increased to 49.1% (2001-2009). Thus, the prevalence of diabetes has been expected to be increased to 4.4% in 2030, constituting 366 million of people worldwide. Papaya and pineapple are good source of natural sugars, also a better option to control diabetes. jamaican cherry which is not an abundant resource in nature, but has a good a nutritional properties that almost help with every health related problems. The both PAPAYA and PINE extracted juices are concentrated and almost diluted with the jamaican cherry extract for the betterment of diabetes and helps in digestion[1]. Pineapple (Smooth cayenne) which is commonly known as the king of fruits has an attractive flavor, and good nutritional value and is used as a source of vitamin C. Pineapple is produced for both fresh consumption and processing. It ranks third in tropical fruit production, following bananas and citrus fruits (Ali et al., [Citation2020](#)). Globally in 2019, around 26 million tons of pineapples were produced.[2]

## II. MATERIALS AND METHODS

Concentrated pineapple juice-The pineapple are infused into a liquid by adding in blender.

Concentrated papaya juice- The papayas are sliced and infusing into a liquid and concentrated by boiling method.

Jamaican berry extract- Jamaican berry extract involves infusing berries in a liquid, to extract their flavours.

- Preparation of concentrated pineapple juice
- Preparation of concentrated papaya juice
- Mixing of berry extract in both pineapple and papaya
- Hedonic testing of both the concentrated juices.



### III. PREPARATION OF PINE SUGAR

1. Selection and preparation of pineapples: choose ripe pineapples with a sweet aroma and firm texture. Wash the pineapples thoroughly to remove any dirt or contaminants.
2. Extraction of juice: Cut the pineapple into chunks or slices, then process them in a juicer or blender to extract the juice. Strain the juice to remove any pulp or solids.
3. Clarification: The extracted juice can be clarified to remove impurities and cloudiness. This can be achieved through processes such as filtration.
4. Concentration of sugar: The extracted pineapple juice is then heated gently to evaporate a portion of the water content concentrating the natural sugars.
5. Crystallization: Depending on the desired final product, the concentrated pineapple juice may be further processed to crystallize the natural sugars by refrigerating. The resulting crystallized pineapple sugar can be dried and ground into a powder or used in its crystalline form.
6. Packaging and storage: Once the pineapple sugar has been processed to the desired consistency, it is packed in airtight containers to preserve its flavour and quality.

### IV. TRIAL RUNS

INGREDIENTS	TRIAL 1	TRIAL 2	TRIAL 3
Concentrated pineapple juice + Jamaican berry extract	9.8%	9.0%	9.8%
Concentrated papaya juice + Jamaican berry extract	6.7%	7.2%	7.9%

### V. HEDONIC TESTING FOR PAPAYA CONCENTRATED JUICE

Pineapple characteristics	Average score		Percentage(%)	
	Sample M	Sample S	Sample M	Sample S
Sweetness	2.5	3.1	50.0	62.0
Tartness	4.1	2.9	82.0	58.0
Colour	4.5	4.2	90.0	84.0
Odour	2.6	2.5	86.7	83.3
Overall acceptability	2.8	3.3	56.0	66.0

**Sample M:** Fresh pineapple juice

**Sample S:** Processed pineapple juice mixed with Jamaican berry extract.



**VI. HEDONIC TESTING FOR PAPAYA JUICE**

Hedonic scale	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
<b>Taste</b>	No	Slightly sweet	Sweet	Sweet with bitter	Uneven flavour
<b>Flavour</b>	Sweetness/bitter	Slightly strong	Strong	Very strong	Excellent strong
<b>Colour</b>	Excellent green	Slightly green and yellow	Mostly yellow	Very yellow	Orange most & yellow
<b>Texture</b>	Very hard	Slightly soft	soft	Very smooth	Over soft
<b>Overall Acceptability</b>	Dislike	Moderate	Good	moderate	Dislike

- Sample 1: unripened papaya juice with JB
- Sample 2: partially ripened papaya juice with JB
- Sample 3: moderately ripened papaya juice with JB.
- Sample 4: Fully ripened papaya juice with JB
- Sample 5: over ripened papaya juice with JB.

**VII. CONCLUSION AND FUTURE WORK**

In conclusion, pineapple sugar offers a unique and flavourful alternative to traditional sweetness while not as common as other types of sugars. Pineapple sugar can be prepared by infusing pineapple juice or puree without any additives. This sweetener can be used in a variety of culinary applications. Including beverages, baking, sauces and candies.

**REFERENCES**

1. Arun, Kanchana Arun, S. Vijayalakshmi. Substitutes for White Sugar in Fresh Fruit Juice - Sensory Characteristics of Adolescents. Research J. Pharm. and Tech 2017; 10(11): 3736-3740. DOI: 10.5958/0974-360X.2017.00678.3
2. Teklu Chalchisaa Department of Food Process Engineering, Wolkite University, Wolkite, Ethiopia View further author information.
3. A. Arun, Kanchana Arun, S. Vijayalakshmi, DOI: 10.5958/0974-360X.2017.00678.3 School of Hotel and Catering Management, Vels University, P. V. Vaithiyalingam Salai, Velan Nagar, Chennai, India.





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