



STUDIES ON PREPARATION OF SQUASH FROM COCONUT SPROUT

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Abstract: Squash is a non-alcoholic beverage which has 7g of fiber, 89% saturated fat, and 150 ml of coconut sprout extract and 150 ml of tender coconut water and it also includes two ml of ginger, 2ml of lemon, and 0.1 ml of sodium benzoate. Before serving, it is diluted. Coconut sprout squash is indeed a naturally high energy drink that is quite nutritious. Coconut are still one of the world's most significant crops, they are grown in tropical countries like India. Tender coconut is a plentiful and naturally occurring resource that is utilized as a meal and beverage. The goal of this study was to construct a squash with coconut sprout extract, tender coconut water, lemon juice, and ginger juice. To determine the most appropriate boiling methodology for generating coconut sprout squash and to assess the overall acceptability of squash in prepared sample A. In comparison to sweet orange squash, sample A had the highest squash score. Sample A had the greatest protein and carbohydrate score. The sample A had the highest overall acceptance. The prepared sample is placed in a glass bottle and air cooled separately on wooden planks. In physiochemical and sensory evaluation, sample A was preferable. The samples are tested for proximity and microbiological contamination. The formulated coconut sprout squash contains a significant level of Omega 3 fatty acid, making it an ideal for people with colorectal cancer and high blood pressure.

Keywords: coconut, lemon, ginger, beverage, energy drink, formulation, squash, sensory evaluation.

I. INTRODUCTION

Coconut is the fruit of the coconut palm (*Cocos nucifera*) and it's used for its water, milk, oil, and tasty meat. Coconut is one of the most widely available and widely used fruit all over the world; the coconut has many nutrient contents which should be intake for our daily life. It contains several important minerals, such as manganese and copper. Manganese controls enzyme activity and fat metabolism, while copper is beneficial for bone bridging and heart health. (*et al* Sreelekshmi, 2018.) Coconut is a unique fruit due to its high-fat content. Almost 89 percent of the fat in its meat comes from coconuts. The fat it contains is saturated. Just one cup (80 grams) of coconut shredded provides 7 grams of fiber, which accounts for over 20% of your daily value. Since coconut fiber is insoluble, it does not break down and instead works to move food through your intestinal tract and keep you regular. Moreover, it contains calories, protein, carbohydrates, fats, sugars, fiber, manganese, selenium, copper, phosphorus, potassium, iron, and zinc. (*et al* Ramkesh Meena). Coconut may be subdivided into subparts like coconut meat, coconut water, coconut sprouts, coconut shells, etc. the present study is about developing a squash with coconut sprout.

Coconut sprouts are grown from mature coconut fruits when they sprout and reach their maximum size in 20-24 weeks after germination. Coconut sprouts provide many health benefits such as high nutritional value, low calories, and high metabolic activity. (*et al* Sorokina 2021) Sprout helps clear constipation and diarrhoea. They are also beneficial in preventing colorectal cancer. They are a great source of omega-3 fatty acids. The potassium in sprouts also helps to reduce blood pressure. Coconut sprouts are enriched with many antioxidants such as vitamin C and vitamin A. It also has phytoconstituents that possess strong antibacterial, anti-inflammatory, and antioxidant activities. Seeing that coconut sprouts are not widely used; we developed a squash with coconut sprout squash is a non-alcoholic beverage. Coconut sprout has a limited shelf life. Since squash has a high concentration, the nutrient content in coconut sprouts will remain the same. It is a non-alcoholic beverage, having a long shelf life, so the nutrient content of coconut sprouts can be sustained for longer. Hence, the present study aims to produce and evaluate squash from coconut sprouts.

II MATERIALS AND METHODS

2.1 Sample collection

The fresh sprouts of *Cocos nucifera* L. and tender coconut water were purchased from a local farm in Coimbatore, Tamil Nadu.

2.2 Juice extraction

The sprout was cut into small pieces and ground to a paste. The sprout juice was strained through a thick muslin cloth or a strainer to remove the coarse portion of the sprout.

Table-1: Formulated Ingredients of coconut sprout squash

Sr.No	Ingredients	Quantities(ml)
1.	Coconut sprout extract	150
2.	Tender coconut water	150
3.	Sugar	300
4.	Lemon juice	2
5.	Ginger juice	2
6.	Citric acid	1
7.	Sodium benzoate	0.1



Fig: 1- Whole germinated coconut



Fig: 2-Sprouted coconut



Fig: 3-Final product

2.3 Preparation of squash

The juice of the sprout is mixed with tender coconut water and sugar in a ratio of 1:1:2 and heated to 95°C for 10 minutes in double boiling mode. Finally, few drops of lemon and ginger juice were added and heat the mixture for another 1min, and set aside to cool.

2.4 Storage

The prepared sample was poured into a sterilized bottle, placed in an autoclave at a temperature of 121°C and the glass bottles were placed separately on wooden planks and air-cooled. This helps to increase the shelf life of the sample. After cooling, bottles are placed in a cool and dry place

2.5 Sensory evaluation of coconut sprout squash

The sensory evaluation of coconut sprout squash was carried out by various people in our surrounding using 5 point Hedonic scale score.

Table-2: 5- point hedonic scale

S.no	Attributes
5	Excellent
4	Good
3	Regular
2	Bad
1	Very Bad

There was a great response from the panelists that the product had good taste and aroma and after 10 days, the colour of the product started to fade. Overall product acceptance is consumer-friendly

2.6 Microbial quality of coconut sprout squash

The total plate count and yeast and mould of coconut sprout squash were carried as per the standard procedure (IS 5401(Part-1):2021, IS 5403:1999)

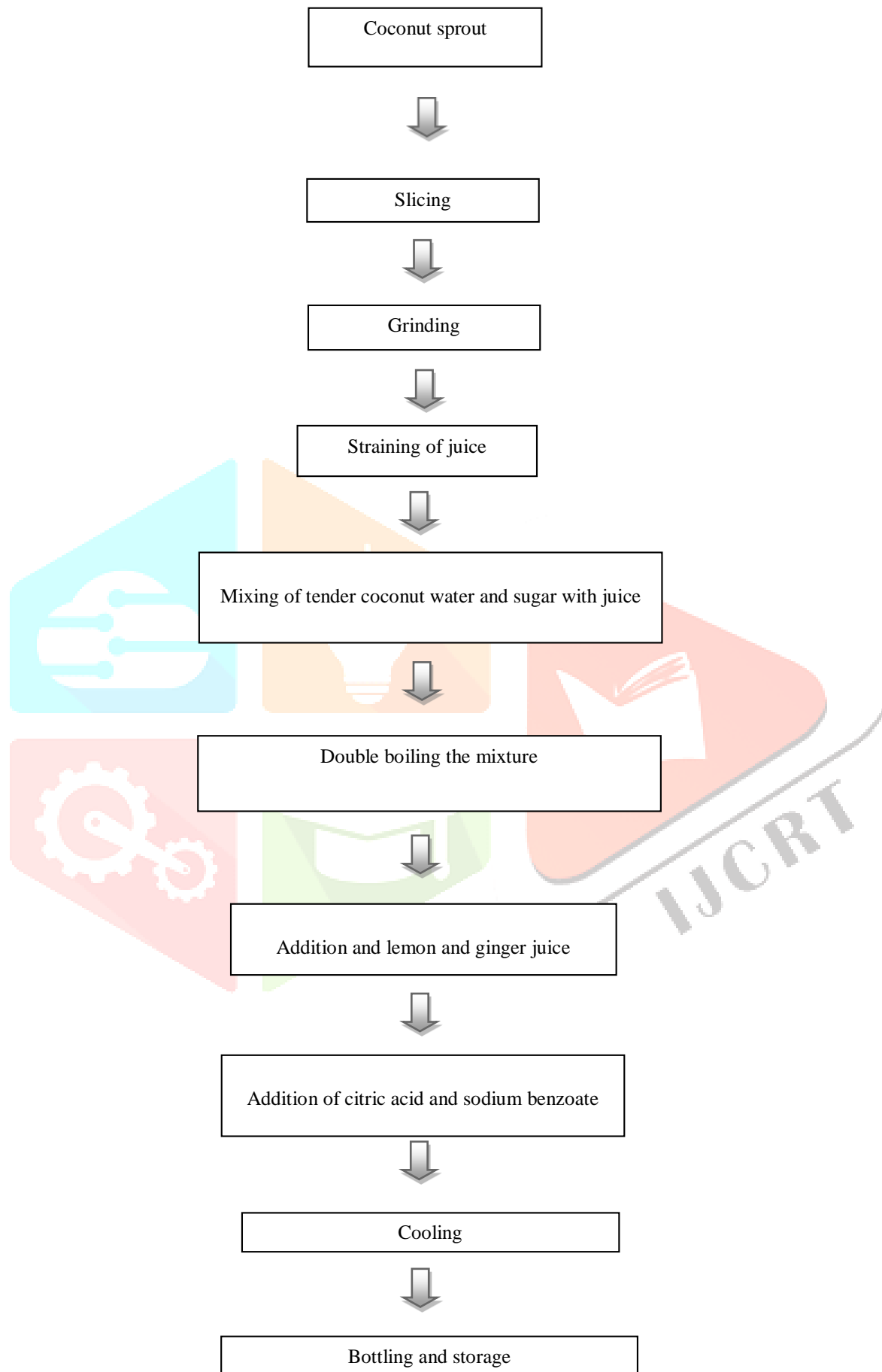


Fig.4 Process flow chart for the preparation of coconut sprout squash

III RESULT AND DISCUSSION

The present study includes the development of squash by using coconut sprout. The result of the study are tabulated and discussed. The physio-chemical characteristics of coconut sprout squash were

Table -3: The physio-chemical characteristics of coconut sprout squash

found pH (6.5), acidity (<0.1%), moisture (41.35%), protein (0.35%), fat (0.92%), carbohydrate (56.95%), vitamin-C (49.33%) and ash

SNO	PARAMETERS	VALUE
1	Carbohydrates (%)	56.95
2	Ash (%)	0.43
3	Vitamin –C (%)	49.33
4	p ^H	6.35
5	Moisture (%)	41.35
6	Acidity (%)	<0.1
7	Energy Kcal/100g	237.48
9	Fat (%)	0.92

(0.43%),energy(237.48 kcal/100g) (Table 3).

Table - 4: Comparative table between sweet orange squash and coconut sprout squash

The comparison between sweet orange squash and coconut sprout squash were

S.NO	PARAMETERS	SWEET ORANGE SQUASH	COCONUT SPROUT SQUASH
1	Carbohydrates (%)	10.5	56.95
2	Ash (%)	0.3	0.43
3	Protein (%)	0.6	0.35
4	p ^H	3.7	6.35
5	Moisture (%)	88.4	41.35
6	Acidity (%)	0.41	<0.1
7	Fat (%)	0.05	0.92

The carbohydrates level of coconut sprout squash (56.95%) is comparatively higher than the sweet orange squash (10.5%). (*et al* Syed HM 2012)And also the moisture content of coconut sprout squash (41.35%) is higher than sweet orange squash(88.4%).The acidity level of coconut sprout squash (<0.1%) is lesser as compared to sweet orange squash(0.41%) due to lower citric content in the sprout. Fat content (0.95%) is higher in coconut sprout squash as compared to sweet orange squash (0.05%).Vitamin-C level was compared with sugarcane squash (10.5mg) and coconut sprout squash (49.3%).

IV CONCLUSION

According to the findings of this study, squash can be made from coconut sprout extract and tender coconut water and has a pleasant aroma and flavour. It can therefore be concluded that good quality squash can be made from coconut sprout extract and tender coconut water. The coconut sprout squash had a rise in carbs, ash, protein, fat, acidity, and moisture content after being made with lemon and ginger juice. (*et al* NagarajuJall,2016) . Without any coloring agents or additional flavour , the coconut sprout squash has a high acceptability and good quality. The instance the most palatable squash in the prepared tests was made using 150 mL coconut sprout extract, 150 mL tender coconut water, 300 g sugar, 2 mL lemon juice, 3 mL ginger, 1 mL citric acid, and 0.1 mL sodium benzoate (most acceptable preservative in squash preparation), people with colorectal cancer and high blood pressure can use the coconut sprout.

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