

## PHYSICOCHEMICAL AND SENSORY EVALUATION OF COCONUT MILK INCORPORATED MILLET NUTRIBAR

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### Abstract—

Coconut milk know for its high protein and nutrient content, it is an alternative to dairy milk in production of nutrient bar, coconut milk is dairy free, making it a great alternative for those which lactose intolerance or dairy allergies. Additionally its antimicrobial properties may support immune function and gut health. This study explores the formulation and sensory evaluation of coconut milk, sugar, ghee. It's also good source of healthy fats, particularly medium chain triglycerides, which can boost energy and promote weight loss.. Nutritionally, coconut milk is rich in protein, calcium, and vitamins, making it a healthy option, it's low in saturated fats and cholesterol free which contribute to heart, Additionally coconut milk is a good source of phyto nutrients such as isoflavones, which may have various health, benefits, including reduce the risk of certain cancers and improving the bone health. 3 samples are formulated with the ratio of coconut milk: (1:3),(1:1),(3:1). The development and finalized product will be evaluated for physico-chemical, textural, functional, and sensory attributes.

### INTRODUCTION:

Nowadays, there are many varieties of commercial coconut milk produced by different tempering processes such as pasteurisation, UHT, sterilization and a spray dried method. The tempering process has an effect on the coconut milk qualities and prolongs shelf life when compared with unheated coconut milk samples (Seow and Gwee, 1997). Coconut milk emulsion stability is generally governed by some proteins in the aqueous phase (Peamprasart & Chiewchan, 2006).

The difference in the water: coconut meat ratio, ranging from 1:1 to 20:1 has no effect on oil and protein extraction into coconut milk (Dendy & Timmins, 1973). Not only does the tempering process influence the coconut milk qualities, it also affects the physicochemical properties, sensory properties, aromatics properties, and

consumer acceptance. Many researchers have focused on many properties of coconut products, for example, emulsion stability (Tangsuphoom & Coupland, 2008). Finger millet is originated from Ugandan region of Africa and was transported to India in the pre-Aryan period (1500 BC). Even today, in Uganda, numerous tribal rural and religious, ceremonies are associated with finger millet. Finger millet (Eleusine coracana), one of the oldest crops in India is referred as "nrtta-kondka" in the ancient Indian Sanskrit literature, which means "dancing grain", was also addressed as "rajika" or markataka" (Achaya, 2009).

The nutritional status of a community has been recognized as an important indicator of national developments. Therefore, agricultural products must be introduced to people as nutritional food which are underutilized and ignored by us. Cultivation of millets

and promotion for its utilization will be one of the successful potential approaches for improving the nutritional status and human health specifically in financially weaker population. Dietary quality should be taken into consideration for solving the problems related to deep rooted malnutrition and heal robe (Singh&Raghuvanshi,2012.

Milletts have been found to have high nutritive values and are comparable to other major cereals like wheat and rice. It is reported that major consumption of cereals provide 70-80% of total energy in majority of

**Flow chart of nutribar:**

Take fresh coconuts chop into small pieces



And grind the coconut pieces in a blender



Strain the milk which is obtained



Take finger millets powder in vessels



Roast the finger millet powder for 2 minutes



Slowly mix the coconut milk and sugar into it and boil for some times



Place it into a moulds and make it into a shapes



Finally Garnish with dry fruits.



**Figure: 1**

Indian diets and millets contribute to only about 2% of total calorie (Radhika,et.al.,2011). Because millets are commonly used as animal feed. Millets can be used as nutraceutical and to produce healthier food. Millets are classified into two as major millets and minor millets. It is reported by Yang et al. (2012)

**Materials and methodology:**

The materials needed for the preparation of millet nutribar are finger millet powder, Coconut milk, sugar, ghee ,dry fruits and cardamom powder.

**Nutribar Table.1**

INGREDIENTS	TRAIL -1	TRAIL-2	TRAIL-3
COCONUT MILK	250ml	500ml	700ml
COW MILK	700ml	500ml	2500ml
SUGAR Prepared with three different composition with finger millet powder,	500gms	500gms	500gms
GHEE	20gms	20gms	20gms
CARDAMOM POWDER	4gms	4gms	4gms
FINGER MILLET POWDER	100ml	100ml	100ml

## RESULTS AND DISCUSSION:

**Table-2:** The sensory evaluation helps to characterize the sensory attributes of nutriobar i.e, senses like colour, taste, appearance, odor, flavor, and overall acceptability.

Sensory attributes	Control	Trail-1	Trail-2	Trail-3
Colour	8	7	7	8
Taste	8	7	7	9
Appearance	8	7	7	8
Odor	7	8	8	8
Flavour	7	8	7	9
Texture	8	7	7	9
Overall acceptability	8	7	7	9

**Fat Content :** Determines the total fat content using methods such as Soxhlet extraction or acid hydrolysis.

**Ash Content:** Quantifies the total mineral content left after the Nutriobar is burned at high temperatures, indicating the inorganic residue.

### 2. Nutrient Analysis:

**Carbohydrate Content:** Measures the total carbohydrates including sugars, starches, and dietary fibers.

**Vitamin Content:** Analyzes the presence and quantity of various vitamins such as A, B complex vitamins, C, D, E, and K.

## CONCLUSION:

In the trend of nutrition and health, and active interest of people, coconut milk and coconut oil have attracted immense as these are highly nutritious, functional, and economical food ingredients. Coconut milk contains large amount of proteins, vitamins, calcium isoflavonoids, micro-macroelements.

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## Sensory Evaluation:

Among the three samples, sample 3 was selected for further analysis. The analysis include

Nutriobar, like many food products, can undergo various chemical tests to assess their nutritional content, safety, and quality.

### 1. Proximate Analysis:

**Moisture content:** Determines the amount of water present in the Nutriobar, which affects its stability and shelf life.

**Portion Content:** Measures the total protein content using methods like Kjeldahl or Dumas method.

These tests ensure that Nutriobars meet regulatory standards, provide accurate nutritional information to consumers, and are safe for consumption. Testing protocols may vary depending on regulatory requirements and specific product formulations

NUTRITION	CONTROL	SAMPLE
Moisture	37%	40%
Ash	4.6%	4%
Fat	2%	15%
Protein	32%	33%
Carbohydrates	20%	14%

**Table 3:** Nutritional composition of nutriobar in table 3

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