
Enhancement of Snacky food Jackfruit (*Artocarpus Heterophyllus*) for School Children

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*Snacking is important for children because they have smaller stomach than adults and cannot necessarily eat enough to stay full in one meal. They should be able to snack every three to four hours over the course of the day. Kids need snacks to maintain energy levels throughout the day. The raw Jackfruits (*Artocarpus Heterophyllus*) were selected for the study because this fruit is locally available, seasonal and low cost. The unripe Jackfruit has many nutrients and provides many health benefits for children. It is rich in carbohydrate, calories, vitamin C, antioxidant and fight against free radicals. The sensory evaluation was carried out in order to get consumer response for overall acceptability of the raw Jackfruit Vada compared to the standard (lentil)Vada using a 9-point hedonic rating scale. The physical characteristic of a single raw jack fruit weight about 26.7gm. I have prepared both lentil Vada (standard) and fresh raw jack fruit flesh mixed Vada. When finding the sensory value of the fresh raw jack fruit Vada scored high acceptance level than the standard lentil Vada. Snacks should be healthy and curb kids hunger and it is essential for children optimal growth and development. The prepared raw Jackfruit Vada was good for children because it is highly nutritious. Hence the present study concluded that raw jack fruit was successfully used for the development of Vada.*

Keywords: *Artocarpus Heterophyllus, Sensory, Evaluation and Nutrition.*

Introduction

Jackfruit is a dicotyledonous compound fruit of the jack tree (*Artocarpusheterophyllus* L.) which belongs to the family moraceae grow in many of the tropical countries of southeast Asia but is particularly abundant in India and Bangladesh. Jack fruit is recognized as the National Fruit of Banglade M.Hassanullah.(2013). Jackfruit is rich in dietary fiber, which makes it a good bulk laxative. The fiber content helps to protect the colon mucous membrane by decreasing exposure time and as well as binding to the world's largest fruit has many names – kathal, panasa, jaca, nangka, kanoon, mit or *Artocarpus heterophyllus*, its scientific name. India is the motherland of Jackfruit. 'Chakka', its Malayalam name, according to some, has given birth to

the English name Jackfruit. India is probably the biggest producer of the fruit in the whole world. (Siyanna 2017)

The word 'Jackfruit' comes from Portuguese Jaca, which is derived from the Malayalam language term, Chakka. Traditional medicines are plant derived medicines. According to WHO more than 80% of developing country's population depends on plant-based medicines for their health care needs. From the time immemorial, the whole Jackfruit tree is used as a traditional medicine. *Arthocarpus Heterophyllus* is used in medicine and also as source of food, influencing agriculture industry. It contains secondary metabolites, which have biological activity, kindling scientific interest. In addition, the wood of Jackfruit is used in making musical instruments, furniture and even in-house construction. (Sidhu 2015) Flavanoid pigment such as carotene B, xanthin, lutein and cryptoxanthin B, Together, these compounds play vital roles in antioxidant and vision functions. (SCUC, 2006)

The fruit is perishable and cannot be stored for long time because of its inherent compositional and textural characteristics. In every year, a considerable amount Jackfruit, specially obtained harvesting, transporting and storing both in quality and quantity. In addition, many parts of the plant, including the bark, roots, leaves and fruits have medicinal properties. (Om Prakash, 2017) Mature Jackfruit is the best natural remedy for diabetes, rich in potassium-lowering blood pressure, high dietary fibre and gluten free nature to provide immunity to life disease, Apt source of vitamin c antioxidant phytonutrients and flavanoids protect the body and support immunity. Unripe Jackfruit could also help to control diabetes. Indeed, it has a higher hypoglycemic effect than some anti-diabetic drugs. So much so that diabetic patients who make use of reasonably good quality unripe Jackfruit can cut down their insulin intake by 50 per cent (Siyanna, 2017).

Snacks are part of a healthy diet for children. Creating a meal and snack pattern can help to provide children nutritious food throughout the day. Because younger children do not always eat enough at a meal, providing one to two snacks per day can help them get the nutrients they need. Snacks should not take the place of meals (Academy of Nutrition and Dietetics, 2014). The objective of the study is to formulate snack food, to enhance the nutrient by adding fresh raw Jackfruit and to evaluate the sensory parameters of the developed Vada.

Materials and methods

The raw Jackfruits (*Arthocarpus Heterophyllus*) were selected for the study because this fruit is locally available, seasonal and low cost. So that the low-income group people can take this fruit and get benefits and it is good for all age groups. The fresh unripe and fruit of (*Arthocarpus Heterophyllus*) are also used for preparing lot of dishes. The unripe Jackfruit has many nutrients and also it prevents many diseases. It provides many health benefits for children. It is rich in carbohydrate and calories and also it belongs to slowly available glucose. It also contains high vitamin C that act as a natural antioxidant that help the children and fight against free radicals. It also helps to improve the vision, calcium and potassium is present which is helpful for healthy development of bone. The fresh *Arthocarpus Heterophyllus* is bought from near Thuckalay area where this fruit is kept for sale in seasonal time. The present study was carried out in the Department of Nutrition and Dietetics, Muslim Arts College, Thiruvithancode.

Physical characteristic of Jackfruit

The physical characteristic that is weight of a single fresh raw jack fruit whole (with seed) and weight of a single fresh raw jack fruit raw (after removing the seed) was measured.

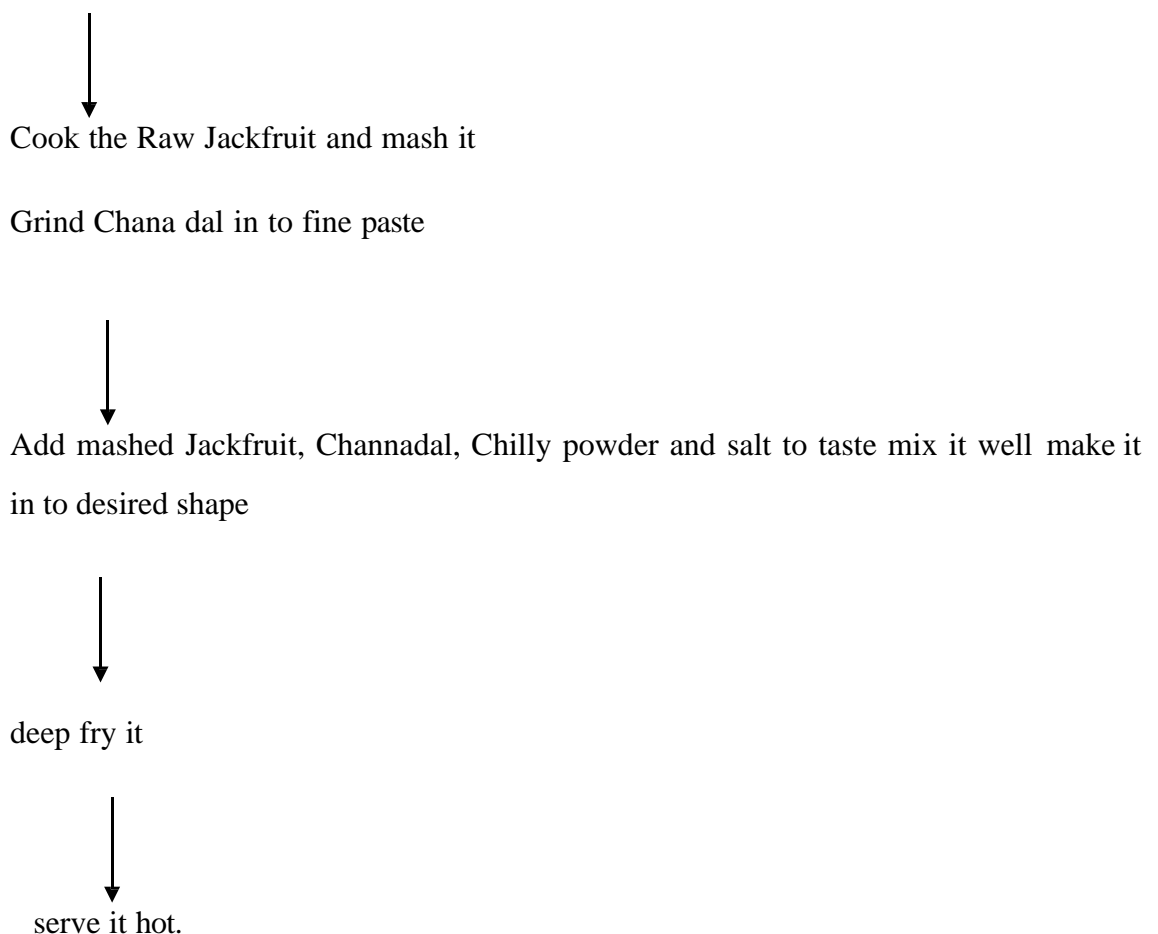
Formulation of recipe

Snacking is important for children because they have smaller stomach than adults and cannot necessarily eat enough to stay full in one meal. They should be able to snack every three to four hours over the course of the day. Kids need snacks to maintain energy levels throughout the day. So, I preferred to make cutlet for children. The snack food (Vada) is selected for the incorporation and enrichment of nutrients as well as taste.

Formulation of Raw Jackfruit mixed Vada

The jack fruit (raw) mixed Vada is formulated using Raw jack fruit(70g), Chana dal(20g), Onion(10g), Chilly powder (5tsp), Green chilly (a few amounts finely chopped), Curry leaves (4-5 finally chopped), Oil (for deep frying), Salt (to taste).

Figure – 1: Flowchart for the Preparation of Raw Jackfruit mixed Vada



Sensory Evaluation

The sensory evaluation was carried out in order to get consumer response for overall acceptability of the raw Jackfruit Vada compared to the standard (lentil) Vada. Product were evaluated by a panel of 20 semi-trained judges for different sensory attributes like appearance, flavor, taste, texture and over acceptability using a 9-point hedonic rating (1-like and 9-dislike extremely) (Murry *et al*, .2001). A 9-point hedonic scale ranging from 1to 9, where 1=like and 9=extremely dislike was used to evaluate acceptability of sample.

Findings

The raw jack fruit is selected for the study. The physical characteristic of a single raw jack fruit weight about 26.5gm. The weight of the single raw jack fruit fresh flesh after removing the seed seems 13gm respectively. I have prepared both lentil Vada (standard) and fresh raw jack fruit flesh mixed Vada.

Sensory Evaluation of the Developed Cutlet

When finding the sensory value, the fresh raw jack fruit Vada scored high acceptance level than the standard lentil Vada. Snacks should be healthy and curb kids hunger and it is essential for children optimal growth and development. The prepared raw Jackfruit cutlet was good for children because it is highly nutritious.

Sensory Parameter and nutrient content of the formulated Vada

Enhancement of Snacky food Jackfruit

1.) Sensory Parameter of the Formulated Vada

Table- 1 shows the sensory parameter of the formulated Vada

Table-1

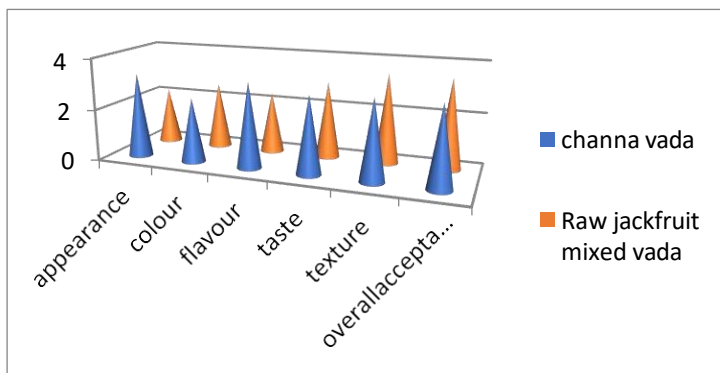
Sensory Parameter of the Formulated Vada

Sensory Parameters	(JFS1)	(JFP1)
Appearance	3.3 ± 0.1	2.2 ± 0.7
Colour	2.5 ± 0.6	2.6 ± 0.7
Flavour	3.3 ± 1.1	2.4 ± 0.6
Taste	3.0 ± 0.7	3.0 ± 0.7
Texture	3.1 ± 0.6	3.5 ± 0.03
Overall acceptability	3.1 ± 0.6	3.5 ± 0.03

The Sensory parameter such as Appearance, Flavour, Texture and Overall acceptability of the Jack fruit raw Vada (JFP1) shows the best compare to the lentil Vada (JFS1)

Figure – 2

Sensory parameter for the formulated Vada



2) Nutrient Content of The Formulated Vada

The nutrient content of the formulated Vadawas shown in the table-2

Table-2

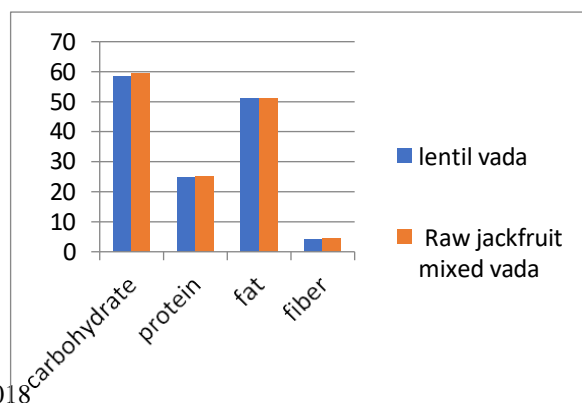
Nutrient Content of the Formulated Vada

Nutrient	Standard (JFS1)	(JFP1)
Carbohydrate	58.525	59.465
Protein	24.75	25.007
Fat	51.34	51.37
Fiber	4.35	4.63

Table- shows that the nutrient content of Raw Jackfruit mixed Vada (JFP1) shows the best compare to the lentil Vada. (JFS1)

Figure- 3

Nutrient content of the formulated Vada



Conclusion

It is concluded that raw jack fruit was successfully used for the development of Vada. The overall acceptable of the raw jack fruit Vada shows the best compared to the standard and also this Vada is greatly preferred by school children because of the enrichment of nutrient as well as taste.

Reference

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Om Prakash, April 18, 2017.