

Fruit Posha Based on Egg Fruit

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Abstract— “FRUIT POSHA” is a novelty developed multi-nutritional product produced by fruits and indigenous yams. Fruit Posha is a novel developed multi-nutritional product by using indigenous yams, egg fruits, mango, and papaya like fruits. There is no high demand for indigenous yams and egg fruits in the local and foreign markets. Mango is a seasonal fruit. Therefore most of the surplus is wasted and also a surplus of papaya is also wasted. As a solution for that, multi-nutritional ‘Fruit Posha’ was introduced through this research.

Keywords— Fruit posha ,multi nutritional, egg fruit, tutti-fruity.

I. INTRODUCTION

“FRUIT POSHA” is a novelty developed multi-nutritional product produced by fruits and indigenous yams. This is a complete ready to eat product enhanced by its convenient preparation and nutritional value. This product perfect as a supplementary for today's busy lives and anyone can easily prepare this.

"FRUIT POSHA" is made from egg fruit flour (*Pouteriacampechiana*), Kiri Ala flour (*Colocasia esculenta*), with dehydrated mango (*Mangifera indica*) and papaya (*Carica papaya*). This is a quality processed food prepared using extrusion technology. Food items like Aggala, fruit toffee, and other sweetmeats can easily be prepared by requiring only milk or water. This “FRUIT POSHA ” is promoted for all above one-year-old, especially young children to readily eat a nutritious breakfast to start the day. Egg fruit is a good source of carotene (pro-vitamin A) among other fruits and rich in carbohydrate, fat, niacin, calcium and ascorbic acid [1].

Egg fruit contain many carbohydrates and moreover as the carbohydrates source, Kiri Ala (*Colocasia esculenta*) is also using which provide sufficient carbohydrate amount for diet as well as good source of dietary fiber, vitamins B, C and K, iron, calcium, phosphorus, potassium, magnesium, thiamine, riboflavin and folate[2][3]. The special aim of using Kiri Ala (*Colocasia esculenta*), is rich in good nutritional components but still, there is no high market demand for this.

To impart a sweet taste for the product tutti-frutti granules made from papaya and mango are used and provide nice texture for the product. In Sri Lanka, an excess amount of papaya and mango have not yet been successfully used in production. Considering this situation the aim of using papaya and mango tutti-frutti is reducing waste and increasing the market value.

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Benefits:

- Rich in beta carotene and vitamin A – there is approximately 32mg of beta carotene or carotenoid are converted into vitamin A in the body and this micronutrient conversion is important as a nutrient for the eyes and the hair.
- Strengthen muscles – egg fruit contain generous amount of minerals. It can full fill iron needs. Iron is necessary for the flow oxygen in our blood and is vital for cellular function, and essential for muscle electricity and tone. Lack or reduced iron in the body may lead to low strength and stamina. Therefore consuming this product help in enhancing energy levels.
- Bountiful and antioxidants – egg fruit carries rich amount of antioxidants, particularly polyphenols. It prevent chronic and fatal disease such as cancer, heart disease and obesity.
- Lower the risk of diabetes – this product contain niacin. It has ability to control the blood sugar level.
- Improve health of joints and cartilage – niacin have ability to increase joints flexibility and improve their function in movement[4].

II. PLANT LOCATION

When selecting a plant location for a new product there are so many factors to be considered. Availability of raw material, transportation facilities, supporting industries and services, availability of the market, waste disposal facilities, availability of infrastructure facilities, availability of skilled manpower, etc. According to the product, its main ingredient is egg fruit (*Pouteriacampechiana*). The other ingredients are Kiri Ala (*Colocasia esculenta*), papaya (*Carica papaya*) and mango (*Mangifera indica*). Mostly egg fruit and Kiri Ala has a minimum usage and maximum wattage. Papaya and mango also have a high wastage during peak seasons. These are the main reasons for choosing this product. When considering these things Kurunegala was selected as the best place for the plant location. Above mentioned raw materials can be found easily from the Kurunegala area. Because egg fruit needs a tropical and subtropical climate. This egg fruit is tolerant of a diversity of soils calcareous, lateritic, acid sandy, heavy clay. These egg fruit plants can be cultivated in soil considered too

thin and poor for most other fruit trees. Kurunegala area has suitable climatic and soil conditions. In addition to that as the largest city of Sri Lanka. Kurunegala has a population of 1.61 million[5]. So there is a good market also. On another side within 2-3 hours products can be transported to the Colombo market freshly. Adequate transportation facilities are essential for the economic operations of the production system. There are highway facilities that can reduce the cost of transportation and reach the market on time. For the processing conditions need more water supply. It can be full fill through the water supply unit in government and purified water taken from the plant. To operate all the machines and other working conditions of the plant, can use electricity generated from solar power. The remaining requirements of electricity can full fill through the government electricity board. From that, it can reduce the cost of production.

Finally, the effluent removal should be highly considered. So liquid waste can transfer to the purifying tank. Using beneficial microorganisms can purify the water by removing dissolved chemicals and other unwanted things, solid waste can transfer to the incinerator to burn at a high temperature. It will reduce the remaining ash content. This ash can be used as a fertilizer for plants. Use filters to filter the smoke that evolves from the burning materials. All these processing steps belong to the maintenance of natural ecological balance.

III. MARKET EVALUATION

This product is a fruit-based supplementary product when considering the current situation this kind of product is not available in the local market, especially based on egg fruit. But there are cereal-based products like ‘samaposhā’, ‘yahaposhā’, breakfast cereal with fruits and oats such as ‘cereal’, ‘nestum’ etc. we can replace our product as an alternative to these products. In the local market, there are many supplementary cereal-based products with fruits, but this is the only product based on fruit. In foreign markets egg, fruit-based products are available such as the pureed flesh added into the custard, egg fruit pudding (Fig. 1), milkshake(egg fruit nog) (Fig. 2), ice creams (Fig. 3), bread, pancakes, smoothies, jams, and marmalade, etc. But this product is not available.



Fig. 1. Egg fruit pudin.



Fig. 2. Egg fruit Milkshake.



Fig. 3. Egg fruit Ice cream.

IV. PROCESS FLOW DIAGRAM

Firstly good mature raw materials were selected and cleaned. Then mature egg fruits were peeled, sliced and then dried at 60°C for 36 hours and ground [6]. Then mature kiriala was peeled, washed, sliced and dried to a specific temperature and ground to get the flour. For the preparation of tutti-frutti, mango and papaya were cut into cubes and add into a concentrated sugar solution. After that, it was kept for about 8 hours. The cubes were dehydrated to get tutti-frutti. Flours taken from kiriala and eggfruit were extrude using an extruding machine. Finally, add tutti-frutti to the extruded flour mixture to get the final product.

Preparing egg fruit flour

Egg fruit = 1000g (1kg)
Moisture content of egg fruit=80% (777.6g)
Moisture content of final egg fruit flour= 14% (31.58g)
Solid content in 1000g of egg fruit flour = 194g

Preparing Kiri Alaflour

Kiri Ala= 300g
Moisture content of Kiri Ala=80% (232.8g)
Moisture content of final Kiri Alaflour= 14% (9.47g)
Solid content in 1000g of Kiri Alaflour = 58.2g
Proportion of each ingredient for final product

Egg fruit flour: Kiri Alaflour:TuttiFruity
20 : 6 : 1

V. CONCLUSION

Sri Lankan people are consuming less amount of Egg fruits compare to other fruits. In Sri Lanka, Egg fruit is considered as underutilized fruits. However, it contains high nutrition value. Kiri Ala is a common local yam variety that provides energy for the product. Tutti Fruity was prepared from an excess amount of mango and papaya. It was used to impart sweet taste and texture for the product.

The best ratio of Egg fruit and Kiri Ala flour to produce fruit Posha with acceptable flavor and nutrition value is 20:6.

The shelf life of a new product is 4 months. This product will touch the demand of local as well as export customers.

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