

Development of Long Lasting Value-Added Products from Jackfruit

Riddheshwar Shinde¹ and Pravin Dalavi²

¹M.Sc. (Scholar), Department of PHM (Fruit, Vegetable and Flower crops), PGI-PHTM, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Ratnagiri, (M.S.)

²M.Sc. (Scholar), Department of PHM (Meat, Poultry, and Fish), PGI-PHTM, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Ratnagiri, (M.S.)

SUMMARY

Value-added processed jackfruit products are available during the off-season and have a longer shelf life than unprocessed fruits. Gluten-free flour alternative with unique flavour and texture for baked goods. Crispy, healthy snack with sweet and savory taste profile. Preserve the natural sweetness of jackfruit in jams, chutneys and spreads. Versatile ingredient for smoothies, sauces and non-dairy desserts. The aim of this article is to reduce post harvest losses and disseminate knowledge on the value-added products of jackfruit in order to promote the utilisation of jackfruit for commercial food production.

INTRODUCTION

The tropical climacteric fruit *Artocarpus heterophyllus* Lam., also referred to as jackfruit, is a member of the Moraceae family and is native to the Western Ghats of India. It is also widely grown in Asia, Africa, and certain parts of South America. It is known as the world's largest edible fruit (Ranasinghe et al. 2019). Jackfruit is a good source of antioxidants, fibre, carbohydrates and vitamin C from a nutritional perspective. Proteins, potassium, calcium, iron, and vitamin B are also abundant in it. The fruit also contains "Jacalin," a substance that helps fight AIDS, colon cancer, and other diseases. Unripe fruit may also aid in the management of diabetes. In fact, compared to some antidiabetic medications, it has a greater hypoglycemic impact. In fact, diabetic people can reduce their insulin consumption by 50% if they use a reasonable amount of unripe jackfruit (Anon, 2020).

However, due to the fruit's natural composition and texture, it is perishable and cannot be kept for an extended period of time. Every year, a large amount of jackfruit especially that which is harvested during the glut season (June to July) is wasted because lack of postharvest expertise during the processes of harvesting, transporting, and storing the fruit in terms of both quantity and quality. For this reason, proper postharvest technology is required to extend shelf life. Additionally, utilising jackfruits in different ways while they are in season helps to minimise postharvest losses. Processing and value addition is a significant among them (Mondal et al).

Definition of value addition

It is the process in which a high price is realized for the same volume of a primary product, by means of processing, packing, upgrading the quality or other such methods. For example: Making jam from jackfruit.

Requirement of value addition in horticulture because:

- To increase farmers' profitability.
- To reduce post harvest losses.
- To give customers branded, safe, and higher-quality food
- Increase opportunities for smaller farms and companies through the development of markets.
- improve the financial stability of farmers
- To emphasize primary and secondary processing (Anon, 2024).

Value added products from jackfruit

Jackfruit is a potential raw material for value addition. Several delicious products can be made out of jackfruit right from immature fruit to seeds (Devi et al. 2014).

Value added products prepared out of immature jackfruit

- Ready to cook tender jackfruit
- Tender jackfruit bhaji

Value added products prepared out of half matured jackfruit

Jackfruit pickle

Value added products prepared out of fully matured unripe jackfruit

- Jackfruit cutlet
- Jackfruit papad
- Jackfruit chips
- Jackfruit bhaji
- Jackfruit pakodas
- Jackfruit xacuti
- Jackfruit biryani

Value added products prepared out of well ripe jackfruit

- Jackfruit pulp
- Jackfruit halwa
- Gulab jamun
- Jackfruit unniyappam (mini appams)
- Jackfruit sweet vada
- Jackfruit custard
- Jackfruit wine
- Jackfruit kheer
- Jackfruit pudding
- Jackfruit fritters
- Jackfruit squash
- Jackfruit jam
- Jackfruit leather
- Jackfruit chocolate

Value added products prepared out of jackfruit Seed

- Jackfruit seed payasam / kheer
- Jackfruit seed burfi
- Jackfruit seed pakodas

The recipes of few value added products that can be made from jackfruit are given below:

Ready to cook tender jackfruit**Ingredients**

- Jackfruit (tender/immature) - 1 kg
- Sodium hypochlorite - 25-50 g
- Sterile water – 2 litre

Method

- Select good quality tender jackfruit.
- Remove outer peel using a clean knife.
- Wash with sterile water with 10% sodium hypochlorite.
- Cut the treated fruit into small pieces.
- Blanch the pieces for 3 minutes in hot water.
- Pack the pieces in LDPE bags using hand wrapper.
- It can be stored below 18°C for 10 days.

Jackfruit Pickle**Ingredients**

- Jackfruit (half matured) - 1 kg raw
- Salt - 100 g
- Chilli powder - 30 g
- Fennel seeds - 2 teaspoon
- Fenugreek seeds - 1 teaspoon
- Asafoetida powder - 1 teaspoon
- Mustard seeds - 3 teaspoon
- Onion seeds /Kalonji - ½ teaspoon
- Turmeric powder - 1 teaspoon
- Vinegar - 100 ml
- Mustard oil - ½ litre

Method:

- Select a jackfruit that is not fully matured. Remove or scrap away the green outer rind. Then, cut the jackfruit into big pieces along with seeds.
- Cook the jackfruit pieces in boiling water until soft.
- Drain, apply salt and keep aside spread on a plate for complete drying.
- Heat 2-3 teaspoon of oil and roast the mustard, fennel, fenugreek and Kalonji seeds.
- Cool the roasted spices and finely powder them.
- Heat oil in a broad mouthed cooking pan, add turmeric powder, chilli powder, asafoetida powder. After putting off the stove, add the above ground mixture.
- After the oil cools down, add the dried jackfruit pieces which should be thoroughly free from moisture.
- Then add vinegar, mix well and store in a clean dry sterilized bottle.

Jackfruit wine

Ingredients

- Jackfruit (ripe) - 1 kg
- Sugar – 500 g
- Water - 1 litre
- Yeast - ½ teaspoon
- Cinnamon - 2 inch bark
- Poppy seeds - 10 no.
- Cardamom - 2-3 no.
- Star anise - 1 no.
- Cloves - 2-3 no.

Method

- Cut open well ripened jackfruit. Remove bulbs and extract the seeds.
- Cut the well ripened bulbs into small cubes.
- Wrap all the spices in a muslin cloth and keep aside.
- Boil and cool the water in a vessel with lid.
- Add jackfruit pieces, sugar and the wrapped spices. Add yeast for fermentation.
- Close the lid.
- Stir regularly for 20 days.
- After 20 days, strain and store the wine in a clean glass bottle.

Jack fruit squash

Ingredients

- Well ripened jackfruit bulbs - 1 kg
- Pineapple - 1 no.
- Sugar - 3/4 cup
- Water - 100 to 150 ml
- Citric acid - 1 teaspoon

Method

- Cut open well ripe jackfruit. Remove bulbs and extract out the seeds.
- Cut the well ripe bulbs into small cubes.
- Boil 1 kg of pieces in water and then pulp into fine paste.
- Take 1 part of pulp, add water and mix thoroughly using mixer.
- Extract juice from pineapple and add to jack pulp in 0.5: 1 ratio.
- Prepare sugar syrup by boiling 250 g of sugar in 250 ml of water.
- Add sugar syrup to jack fruit pulp followed by citric acid.
- Add 700 mg of Potassium Meta bisulphite for 1 litre of squash.
- Cool and fill in glass bottles.

Jack fruit jam**Ingredients**

- Well ripened jack fruit - 500 g
- Sugar - 350 g
- Citric acid - 1 teaspoon
- Water - as required

Method

- Cut the well ripe jack fruit into small pieces.
- Boil the pieces with water and pulp into fine paste.
- Add the jack fruit paste and sugar and cook on pan with little water, if required
- Add permitted food colour and citric acid to the mixture. Add one tablespoon of lime juice to the same (optional).
- Stir continuously till jam consistency.
- Test for end point using ladle test.

Jack fruit chocolate**Ingredients**

- Jackfruit pulp - 1 kg
- Sugar - 500 g
- Milk powder - 150 g
- Butter - 100 g
- Cocoa powder - 50 g

Method

- Cut the well ripened jackfruit into small pieces.
- Pulp into fine paste.
- Mix jackfruit pulp and sugar in a heavy bottom pan.
- Cook on flame till it reduces to 1/3rd volume.
- Then add milk powder dissolved in 100 ml of hot water, followed by ghee and cocoa powder mixed in hot water.
- Mix well and stir on low fire till desirable consistency. One should be able to make balls by rolling on palm.
- Pour the mixture in a plate and roll it into chocolates.
- Refrigerate for 2 hrs and then pack individually in butter paper.

CONCLUSION

Jackfruit is a seasonal fruit with remarkable health and therapeutic importance, that is why processing and value addition are needed. Various value added products are prepared from jackfruit and has a potential to provide gainful employment and income to farmers and processors. Jackfruit's nutritional profile, versatility and growing popularity present significant opportunities for developing value-added products that cater to the increasing demand for healthy, plant-based foods. This make it a promising option for both food security and economic development.

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