



## Potentiality of processed indigenous fruits and their derivatives for providing safe nutrition

By

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## Introduction

- South Asian Region has a wide range of indigenous fruits which have the ability to grow under adverse conditions and are also known for their therapeutic and nutritive value.
- In addition, quite a few of these fruits have excellent flavour and very attractive colour.
- There is always a market demand all over the world for new food products, nutritious and also delicately flavoured.
- Consumers today are becoming increasingly conscious of the health and nutritional aspects of their food.
- Present tendency is to avoid chemicals and synthetic foods and choose therapy and nutrition through natural sources.
- Many of these fruits are highly perishable and difficult to market in the fresh form. Some of them are not easy to eat out of hand.
- A few are not acceptable as a fresh fruit because of high acidity and/or strong astringent taste.
- Strong campaigning is necessary to create awareness and consciousness among the producers and consumers of indigenous tropical fruits.



## Potential for processing indigenous fruits

- These fruits have mostly remained untapped and underutilized by the food processing industry for the domestic market or export.
- Investigations on the potential of Indigenous fruits for processing have clearly indicated that a number of acceptable products can be prepared.
- Such preparations have been standardized, and storage requirements have also been formulated to enable commercial exploitation of these fruits.
- Indigenous fruit flavours are entirely unknown in the export market, and a good range of products have been developed which retain fully the natural flavour.
- These indigenous fruits can bring out a significant economic benefit to the region if properly utilized because they do not face the stiff competition from other countries that most of the major fruit crops face.




## Need to process Indigenous fruit

- It is very difficult to market/consume many of the Indigenous fruit in the fresh form.
- Indigenous fruits such as Jamun and Phalsa are highly perishable and are difficult to keep fresh even for a few days under ambient conditions.
- Bael fruit is not easy to eat out of hand because of hard shell, mucilaginous texture and numerous seeds.
- Kokum is not acceptable as a fresh fruit because of its high acidity; only its thick outer rind is used by food processing industry.
- The fresh Aonla fruit is not liked by many because of its strong astringent taste and acidity.
- Thus, it is necessary to process these fruits for preservation in the form of an acceptable product.
- Farmers/growers of indigenous fruits will get a remunerative price and consumers over the world would get the opportunity to enjoy the fruit in the processed form.

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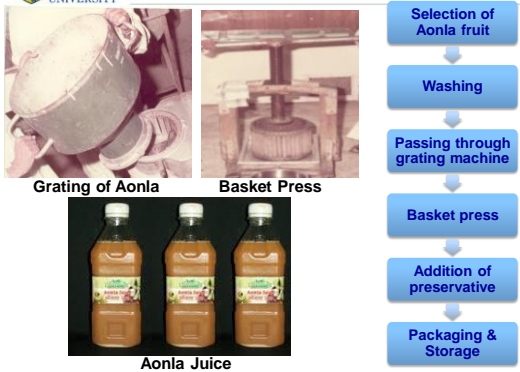
### Aonla (*Phyllanthus emblica*)



- The fruits are highly nutritive and are very rich in vitamin-C and polyphenolics a source of antioxidants
- Aonla fruits are processed into ayurvedic preparations such as 'Chavanprash', 'Trifla' etc.
- Its fruits are used for curing chronic dysentery, bronchitis, diabetes, liver ailment, diarrhoea, jaundice, dyspepsia, cough etc.
- Preserve, pickle, candy, jam, syrup and dried shreds can be prepared

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### FLOW CHART FOR AONLA JUICE



```


    graph TD
      A[Selection of Aonla fruit] --> B[Washing]
      B --> C[Passing through grating machine]
      C --> D[Basket press]
      D --> E[Addition of preservative]
      E --> F[Packaging & Storage]
  
```

Grating of Aonla      Basket Press

Aonla Juice

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### FLOW CHART FOR AONLA PULP



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    graph TD
      A[Selection of Aonla fruit] --> B[Washing]
      B --> C[Steam Blanching with 10% water]
      C --> D[Cooling and Removal of seed]
      D --> E[Crushing and Passing through sieve]
      E --> F[Addition of preservative]
      F --> G[Packaging & Storage]
  
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Washing      pressure cooking      Cooling

Crushing and sieving      Aonla Pulp

Removal of seeds

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### Other Aonla Products


**Aonla Preserve**



**Aonla Candy**




**Bael fruit (*Aegle marmelos*)**



- The fruits are highly nutritive and are very rich in vitamins, minerals and are a good source of antioxidants
- Fruit is difficult to eat out of hand
- The ripe fruit is a tonic, restorative, astringent, prevents constipation and is good for the heart and brain.
- The unripe fruit is digestive and stomachic and is prescribed for diarrhoea and dysentery etc.

**Flow chart of Bael Pulp Extraction**



Fully ripe bael fruit

Washing

Breaking of hard shell

Scooping of pulp with seed and fibre

Addition of water (1:1) & Citric acid (0.5% pH-4.3) & Kneading

Heating at 80°C for 1 minutes

Passing through Pulper

Addition of preservative

Filling in Jerry Can

Weighing

Scooping of pulp

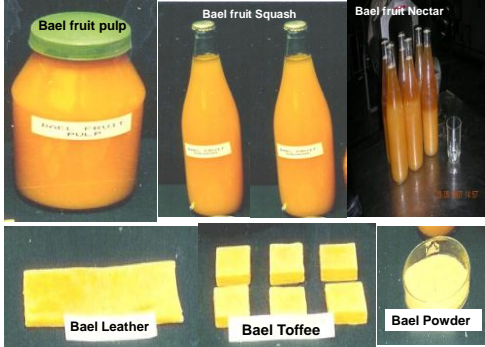
Kneading with water

Heating

Addition of preservative

Extraction of Pulp

**Bael fruit products**



Bael fruit pulp

Bael fruit Squash

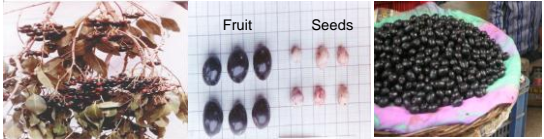
Bael fruit Nectar

Bael Leather

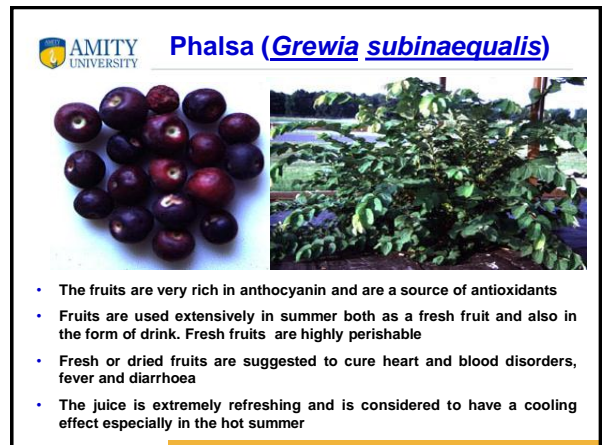
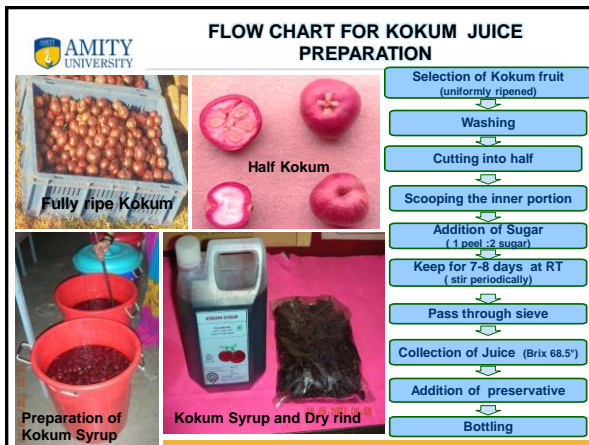
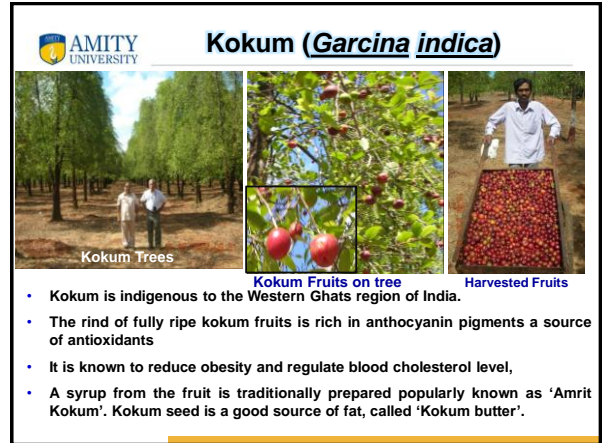
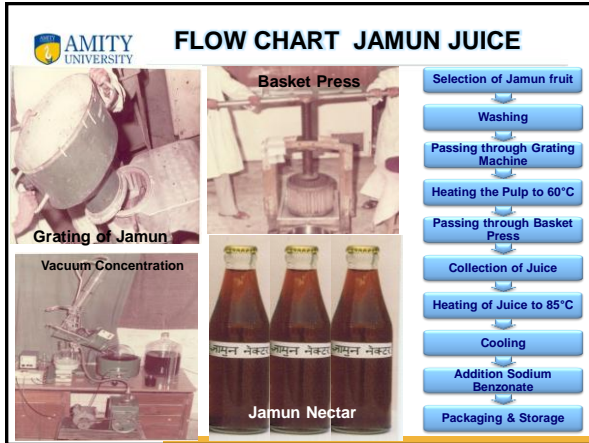
Bael Toffee


Bael Powder


**Jamun (*Syzygium cumini*)**



- The fruits are very rich in anthocyanin and polyphenolics, a source of antioxidants
- Jamun seeds are used to cure diabetes.
- Jamun is very useful for curing diarrhoea and diabetes.
- It is stomachic carminative and has diuretic and digestive properties.
- Fruit is used for preparation of different fruit products such as beverages, wine, vinegar etc.



 **Jack Fruit (*Artocarpus heterophyllus*)**




**Green Jackfruit** **Ripe Jack fruit**

- Jack fruit is hardly recognized as a commercial fruit but both unripe and ripe fruit are used extensively.
- Green jack fruit is utilized for making pickle, canned and curried vegetables.
- Ripe fruit is utilized for making canned, frozen and dried products, such as chips, nectar etc.
- The waste (skin, peels and cores) is a good source of pectin.
- Both green and ripe fruit have great potential for minimal processing.
- Jack fruit is known for strengthening Immune System, preventing Cancer, Aids in healthy digestion, is good for eye and skin and Controls Asthma.


 **Karonda (*Carissa Caranda*)**



- Karonda is a very hardy evergreen bushy shrub.
- It is one of the richest sources of iron and vitamins and known to cure anemia.
- The fruit has a potential for processing: it is used for making juice, squash, pickle, preserve and fermented beverages.
- Presently fruit is extensively utilized for candy making, after artificially colouring it with permitted colour.
- Glazed Karonda is widely used as a topping on bakery products.

 **Conclusion**

- Indigenous fruits of South Asia are presently underutilized in spite of high nutritive value and medicinal properties.
- These fruits can play a great role in satisfying the demand for nutritious and delicious fruits of high therapeutic value
- Investigations have clearly indicated that a number of acceptable processed products can be prepared from indigenous fruits of this region.
- The main problem is lack of market awareness as no serious efforts have been made regarding the marketing and export of processed indigenous fruits.
- Kiwi fruit which was practically unknown in the world market 30 years ago was made popular among consumers throughout the world by highlighting the qualities and nutritional properties.
- There is no reason why processed indigenous fruit products can not achieve similar success
- Highlighting the antioxidant potential, nutritive value and medicinal properties of the processed indigenous fruits of South Asia would go a long way in popularizing the fruits.



**Thank you**