

## EGG FRUIT: AN UNTAPPED EXOTIC FRUIT

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### ABSTRACT

*Canistel fruit is one of the neglected fruits in terms of processing and commercialization. Canistel fruit is a rich source of  $\beta$ -carotene and niacin. It also contains good amount of calcium, iron, protein, fibre and vitamin C. The climacteric and perishable nature of the fruit makes post-harvest management and transportation difficult, leading to its restriction in native for traditional uses. Encouraging the production of this fruit provides the scope for pharmaceutical and nutraceutical utilization. Therefore, the nutritional and therapeutic importance and the development of processing methods need to be done for maximum utilization of canistel fruit in different sectors such as dairy, confectionaries, bakery and medicine.*



### INTRODUCTION

*Pouteria campechiana* Baehni, also known as Canistel or Yellow sapote, belongs to the Sapotaceae family. It is native to Mexico and Central America. The word sapote is derived from the Nahuatl language 'tzapotl' or 'tezontzapotl', a general term applied to all fruit that is soft in texture and sweet in taste. It's a tropical tree having the potential as a commercial crop in tropical and subtropical regions. It is consumed highly in Mexico, Central and South American parts because of its pleasant taste. This plant can also be found in Kenya, Tanzania, Uganda, Egypt, Sri Lanka, India, Thailand, Cambodia, Vietnam, Malaysia, and Indonesia. It is most commonly compared to the texture of a hard-boiled egg and hence the common name Egg fruit. Despite being palatable when eaten fresh or after processing, the fruit is not frequently consumed and is still underutilized. It grows in Maharashtra throughout the Western Ghats, Kerala, limited parts of Tamil Nadu and Karnataka. Egg fruit season in India is June through July and extends up to December. It requires hot, tropical lowlands with moderate to high rainfall, also suited to seasonal dry spells and diverse soil types.

Trees are lactiferous, can reach a height of 12 m, and are propagated by seed or grafting. Though the size and shape of this fruit can vary greatly from one tree to another, the most favourable trees produce large, sweet, yellow fruits with an oval shape. Fruit production begins 3–4 years after grafting and 5–7 years after seed. Fruits are picked three to four days before they are fully ripe when 5 to 8 cm long and 3 to

5 cm in diameter. The unripe fruit is green, while the ripe fruit's skin is yellow-orange and quite delicate. The eggfruit contains one to six large, brown seeds. Because of its productivity, adaptability, and nutrient content, the species has the potential for commercial production. In addition, due to its fast-growing nature, eggfruit trees are ideal candidates for container culture.



**Egg fruit tree with fruits**



**Ripe Egg fruit**

On the other hand, processing any fruit is the widely used technique to make it available for human consumption. Fruits are subjected to various processes and treatments to develop products that can be preserved and exported beyond the geographical and seasonal barriers. Some fruits are wild, semi-domesticated or adopted locally, which are richer in nutrients, minerals and antioxidants compared to common commercial fruit crops. These types of fruits are traditionally used for centuries but less commercialized when more productive crops are cultivated. One of those fruits is Canistel or Egg fruit which has a hard-boiled egg yolk-like texture and sweet taste similar to boiled sweet potato (Kanak and Bahar, 2018).

### **NUTRITIONAL VALUE**

Canistel fruit is a rich source of  $\beta$ -carotene and niacin. It also contains a good amount of calcium, iron, protein, fibre and vitamin C.

Including egg fruit in the diet can lower the risk of diabetes and regulates blood sugar level. It also helps reduce LDL (low-density lipoprotein i.e. bad cholesterol) and detoxifies the body. Studies have shown that egg fruit could be the best treatment for osteoarthritis as niacin

<b>Nutritional value per 100g of fresh pulp</b>	
<b>Principle</b>	<b>Nutritive value</b>
Protein	1.16%
Moisture	52.96%
Fibre	2.12%
Fat	4.97%
Carbohydrates	40.19%
Vitamin C	6 mg
Ash	0.91%
Calories	210 KCal

*Source:*(Sethuraman et al., 2020)

present in it helps in muscle strengthening and joint mobility. The fruit is a great source of carotenoids; it is an effective food for healthy eyes and vitamin C for boosting the immune system. Dietary fibres present in fruit increase digestive health.

Research has shown some metabolites such as alkaloids, glycosides, tannins, terpenoids, steroids, phlorotannins, amino acids, lipids, fats and acidic compounds in canistel fruit which exhibit a wide range of biological activities such as anti-HIV, antitumor, anti-inflammatory, antimicrobial and hepatoprotective. For example, some studies showed the antimicrobial activity of canistel fruit against *E.coli* and *P. aeruginosa*, the fungi *C. albicans* and *T. mentagrophytes* (Mehraj et al., 2015).

## **CULINARY USES OF CANISTEL FRUIT**

Consumption of fresh fruit is beneficial to health but less preferred due to the texture of the fruit pulp, which is not juicy like many other fruits. Egg fruit is generally used to prepare milkshakes, puddings, pie, custard, puree, jams, and marmalades and as a flavouring agent in ice cream.

## **PROCESSED PRODUCTS FROM EGG FRUIT**

Egg fruit is most commonly utilized for traditional preparations. Egg fruit processing is minimal commercially though they are good sources of many nutrients. Several research and trials have been carried out to study the processing behaviour of canistel fruit. The study showed that canistel fruit flour can be the good alternative to all-purpose flour in cookies (Paragados, 2014). Snack noodles prepared from canistel flour (90%) along with the modified cassava flour (10%) and guar gum (1%) were selected as highly accepted in terms of colour and sensory attributes (Retna Pertiwi et al., 2022). But the processing of fruit flour comes up with various challenges, such as eliminating bitterness and wax content and maintaining colour, moisture, carbohydrate, fibre and other nutrients intact throughout the process (Pertiwi et al., 2020). Carotenoids were extracted from canistel fruit with antioxidant activity that can be used as a natural pigment in food products. The extractability and the yield were affected by the extracting solvent, cooking temperature and pH (Huynh & Nguyen, 2022).

## **CONCLUSION**

Canistel fruit is one of the neglected fruits in terms of processing and commercialization. The climacteric and perishable nature of the fruit makes post-harvest management and transportation difficult, leading to its restriction in native for traditional uses. On the other hand, encouraging the production of this fruit provides the scope for pharmaceutical and nutraceutical utilization. Therefore, the nutritional and therapeutic importance and the development of processing methods need to be done for maximum utilization of canistel fruit in different sectors such as dairy, confectionaries, bakery and medicine.

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