

## Fig: A fruit for health

**Fig is grown in many parts of the world with moderate climate. Figs are eaten dry and fresh both, as fresh figs are highly perishable, so fresh figs are consumed only in nearer market but dry figs are exported for long distance markets. Fresh and dry both fruits are rich in fibre; potassium, calcium, and iron. Fresh figs are highly sensitive to physical damage, and susceptible to disease and infections. Preharvest and postharvest conditions are very important to improve fruit quality and postharvest life. Due to its nutritional quality, fresh fruit breeders are taking it as a challenge for development of new improved varieties for long shelf life of fresh fruits.**

**F**IG is botanically called *Ficus carica* (synonyms – forbidden fruit), it comes under family Moraceae, originated in the southern parts of Arabian Peninsula, Italy and USSR and its cultivation spread through Asia minor and into all countries of the Mediterranean region. It has 26 chromosomes and inflorescence hypanthodium with terminal bearing habit on current season growth. Fruit is tasty and sweet with total soluble solids 17 °Brix with good processing quality for export use as a dry fruit. Fig is one of the oldest fruit crops, morphologically it is called as “syconium” which is a vegetative fleshy tissue, with tiny true fruits enclosed inside. Fig is a gynodioecious species and some female types need pollination, while others set fruits parthenocarpically. Pollination is mostly performed by a wasp (*Blastophaga psence*). Fig is grown as a subtropical and temperate crop. It is one of the most salt and drought tolerant fruit tree. Oldest crop well grown in Spain followed by Italy, Iraq, Syria, turkey and other Mediterranean countries. Spain and Italy once produced 2/3<sup>rd</sup> of world’s harvest. In India, its cultivation is confined to western parts of Maharashtra and Gujarat and small areas in Bengaluru (Bellary, Sreerangapatnam,

Chitrdurga) and Tamil Nadu. In North India, most of the cultivation is concentrated in U.P. At present Turkey and Greece are the leading producers of fig, grown in an area of 600 ha in Maharashtra and 120 ha in south India (NHB, 2019).

### Nutritional value

Fig is a highly nutritious fruit with high sugar and low acid content, rich in calories (269), protein and calcium (higher than milk), iron and highest fibre content among fruits. Fig fruits are often consumed as fresh, dried or canned. The nutritional index of dry fig is 11 as compared to 9 of apple, 8 of raisin and 6 of date and pear. The chemical composition and flavor of fig vary with the cultivar. Fresh and dehydrated figs both are rich in nutritional and biochemical content.

### Uses

Fig fruits are consumed as fresh, preserved and dried or canned form. This is very much reputed as a dried fruit; and is processed into jelly and paste. Latex is used to coagulate milk. The latex of the unripe fruits and of any part of the tree may be severely irritating to the skin if not removed promptly. Fig leaves are used for fodder in India. In southern France, there is some use of fig leaves as a source of perfume material called “fig-leaf absolute. Dried latex powder use in coagulating milk to make cheese and junket. From it can be isolated the protein-digesting enzyme *ficin* which is used for tenderizing meat, rendering fat, and clarifying beverages. In tropical America, the latex is often used for washing dishes,



Bearing of fruits in plants

**Table 1.** Biochemical parameters in fresh and dehydrated fig

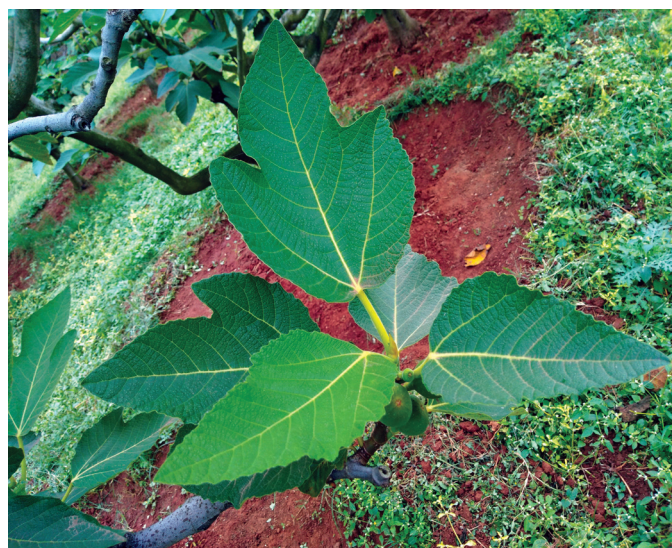
Biochemical Parameter	Fresh Fig (Irfan <i>et al.</i> 2013)	Dehydrated Fig (Naikwadi <i>et al.</i> 2010)
Total soluble solids	17.43 %	35.0 %
Total sugar content	17.55 %	26.3 %
Reducing sugar	13.35 %	24.1 %
Non – reducing sugar	5.70 %	2.2 %
Titrateable acidity	0.35 %	0.09 %
Ascorbic acid	0.85 mg/100 g	1 mg/100 g

pots and pans.

The latex is widely applied on warts, skin ulcers and sores, and taken as a purgative and vermifuge, but with considerable risk. In Latin America, figs are much employed as folk remedies. A decoction of the fruits is gargled to relieve sore throat; figs boiled in milk are repeatedly packed against swollen gums; the fruits are much used as poultices on tumors and other abnormal growths. The leaf decoction is taken as a remedy for diabetes and calcifications in the kidneys and liver also. Fresh and dried figs have long been appreciated for their laxative action.

#### Plant description

Fig is moderate sized deciduous tree in subtropics but performs as evergreen in tropics. Branches are irregular, shoots develop at base of trunk, leaves are very broad, ovate and long stalked. Fruits mostly long stalked, pear shaped with a velvety or glabrous skin, purplish or black in color. Fig is a multiple fruit, botanically a ‘Syconium’ which consists of a hollow receptacle with a narrow



Leaf shape of fig

aperture at the tip and numerous small tiny fruits lining in inner surface.

**Table 2.** Some popular varieties of fig and their characteristics

Type	Popular varieties	Flower type	Mode of pollination	No. of crops	Listed var.	Other features
Edible or common fig	Poona Conardia Mission Kadota Brown Turkey	Long styled pistillate flowers	Fruits develops parthenocarpically	1	470	Seeds are hollow without kernals and the embryo. some varieties produce a small <b>Breba</b> or first crop in addition to main or second crop
Smyrna	Calimyrna Zidi Taranimt	Long styled pistillate flowers	Female wasps emerging from the spring Caprifig enter Smyrna fig for oviposition and in the process effect pollination	1	116	Originated from the caprifig. The fertile seeds contribute to the excellent quality
San Pedro	King Gentile Sanpedro Dauphine lampeiria	Long styled pistillate flowers	First crop (Breba) fruit develops without pollination but not second crop(main)	2	21	Commercially not well important, some while, large fruited types are grown in Mediterranean countries for drying
Wild or caprifig or goat fig	Roeding3 Samson Stanford Brawley	Short styled pistillate flowers and functional staminate flowers near the Ostiole	Self-fertile (persistent) syconia	3	20	A primitive type. Fruits have almost no edible value, but serves as an abode for fig wasp and Smyrna and Sanpedro figs



Dry fruit packing and fresh fruit packing

we need only present those that are suited to warm areas and do not require pollination. Most popular among these are 'Celeste' and 'brown Turkey', followed by 'Brunswick' and 'Marseilles', but some hybrids from California have reportedly performed better over Poona Fig.

### Varietal diversity of Fig

Nearly 700 varieties of fig have been listed in the world. Based on pollination pattern and sex of flower, there are four types of fig.

Based on the colour, figs are classified into three types:

1. Fruit green or yellow - Adriatic, Kadota
2. Fruit shaded with bronze or copper colour - Brunswick
3. Fruit dark violet or purplish black - Partridge eye

Poona fig is most popular cultivar grown in India. It is bell-shaped, medium size, weighing about 1.5 oz (42 g); thin-skinned; light-purple with red flesh, of sweet, good flavour. Some well-known fig hybrids from California have performed well in comparison to Poona fig under Bangalore conditions, they produce parthenocarpic fruits. In India Adriatic fig is commonly grown. Most common varieties grown are Black Ischia, Brown Turkey, Turkish white, Kabul, Marseilles, Lucknow and Poona figs. A type of Adriatic fig of high quality introduced at Coimbatore and locally known as Coimbatore fig is reported to be highly superior than Poona fig. There are many cultivated varieties in each class of figs. In fact, over 700 varietal names are in use but many are synonyms. Here



Fully grown plant of fig in field at IIHR, Bengaluru

### Harvesting indices

Fresh figs should be harvested when they are soft, slightly wilted at the neck and drop; no milky latex flow at the cut end of the stalk; sudden increase in fruit size and opening of ostiole. Figs are handpicked from the trees by twisting the neck at the stem end. Harvested fruits are spread out in the shade for a day so that the latex will dry a little. In India, a fig tree bears 180 to 360 fruits per year.

### Grading

- After picking, figs are carefully stored. Diseased and damaged ones are culled.
- Fruits are graded for size as 50 g, 40-50 g and 30-40 g.

### Packing

Fig fruits packing should be done in a corrugated box (CFB) carton of 3 ply having 12 holes for ventilation and arrange in the carton in 2 layers, each of 28(4 rows of 7 figs in a line). Fig leaves are used for cushioning material.

### Storage

Fresh figs are very perishable so, for storage needs very much care and fresh fruits can be stored at 40° to 43°F (4.44°-6.11°C) and 75% relative humidity. Figs remain in good condition for 8 days but have a shelf life of only 1 to 2 days when removed from storage. At 50°F (10°C) and relative humidity of 85%, figs can be kept no longer than 21 days and fruits remain in good condition for 30 days when stored at 32° to 35° F (0°-1.67° C). If frozen whole, they can be maintained for several months.

### Conclusion

As discussed above, fig is very nutritious and delicious in taste as fresh and processed both but needs cultivation of some improved varieties for longer shelf life like Poona and Black Ischia figs. Some improved technology like modified atmospheric storage, cold storage and controlled atmospheric storage conditions are required for increasing shelf life of fresh fruits.

For further interaction, please write to:

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