

## DESCRIPTION AND USE OF FIG

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**BOTANICAL SPECIES:** *Ficus carica* L.

**FAMILY:** *Urticaceae* (Tribe: *Moreae*)

**HABITAT:** The *carica* species, like most of the 900 species of *Ficus*, is a native plant of Eastern tropical and subtropical areas. The climatic factor which most affects the spreading of the species both in altitude and latitude is the temperature. In Europe the fig is cultivated from sea level to 1000 metres above sea level and is most widespread in coastal and hilly areas of Mediterranean countries which are characterised by light winds, a high number of sunny days and an average rainfall between 300 and 700 mm.

The plants are damaged by winter temperatures below  $-7^{\circ}\text{C}$ , by autumn frosts below  $-5^{\circ}\text{C}$ , and by spring frosts below  $-1^{\circ}\text{C}$ . The fruits tend to swell if it rains during the last two weeks before ripening. Excessive wind during the flying period of the fig wasp (*Blastophaga psenes*) can compromise the caprification. The species easily adapts itself to various types of soil, from sandy to clayey (resisting well in an average presence of limestone) with the soil pH values between 6 and 7.8. The plants suffer in compact soils which are not very deep because they are sensitive to root suffocation.

**CULTIVARS:** With reference to the cultivars of "domestic fig" or "female fig", European countries lying around the Mediterranean have been cultivating the same fig cultivars for several centuries because the material for propagation was transported by trading ships and easily took root in new places. There were also frequent commercial dealings with Portugal.

The fig cultivars can have one crop a year (main crop), two crops (first and main crop), or three crops (first crop, main crop and late crop). The three crops are obtained from cultivars which are not very widespread.

The most well known French cultivars mentioned are Blanquette, Bourjassotte ( blanche, noire), Dauphine, Longue d' Août, Violette, Bellonne, Col de dame, Pastilière ( blanc, gris, noir ).

The germplasm in Greece is differentiated but there is little information available about it.

There is a widespread cultivation of some types of figs to be dried , with large fruits.

In Italy, several types of early fig (or Columbri), Brogiotti (white and black), as well as the very widespread Dottato and others: Duas Vias, Fico Bianco del Cilento, Gentile, Petrelli, Troiano, Verdeccio ecc. Those particularly suitable for the dried product are Dottato, Fico Bianco del Cilento, Farà, Taurisano.

In Portugal, among others, Lampeira, Lampa preta, Pingo de mel, Princesa are cultivated.

In Spain various types of Blanca, Negra, Coll de dama ( blanca, negre, rossa), Napolitana, and Envernesca Franciscana, Verdal are cultivated. Martinenca, Pajajero, as well as Napolitana are suitable for drying.

**PLANT:** The fig tree lives on average between fifty and ninety years. It can exceed 10 metres in height but in cultivation it can be kept down to 3 – 4 metres. The bark is an ash-grey colour. The wood of the fig tree which is soft and light coloured is easily subject to decay and has no value. The roots are sturdy and expanded. The branches tend to have a curvilinear growth depending on the cultivar. On the branches, there are wooden buds (small, in the axil of the leaves), fruit buds (hemispheric and collateral to the wood ones), mixed buds (large and cone-shaped, generally at the top of the branches ) as well as adventitious and dormant buds.

On one single branch the leaves are wide with various heterophylly forms, ranging from undivided to seven lobes with petiole sinus generally truncate, cordate or calcarate. The species is deciduous.

**FLOWER:** The great number of flowers on the fig are contained inside a receptacle and cover its internal walls. There are three types:

- long styled female flowers, which are numerous in edible figs, in which they are either on their own or together with short-styled female flowers.
- male flowers, which carry the pollen and are numerous in the caprifigs;
- short styled female flowers or gall flowers, which are numerous in the caprifigs and are able to house the larva of the fig wasp in the "gall".

**FRUIT:** The receptacles in time become collective fleshy fruit called syconium. The syconium can form either following the fertilisation of the long-styled flowers or by parthenocarpy. If fertilisation takes place the real fruits, which botanically are achenes, form in the syconium. There can be more than 1500 inside a caprifigged syconium. The syconium of the female cultivar is edible and is commonly called "the fruit of the fig". The shape can vary depending on the

cultivar, from the spherical-flattened shape to an elongated pyriform.

**CAPRIFICATION:** Alongside the "domestic" or "female" fig, there is also in nature and in cultivation, the wild fig (caprifig) or "male" fig with non edible fruits. In one single year the wild fig plants produce three kinds of syconium and in the middle of each one the reproductive cycle of the hymenopteran insect, the *Blastophaga psenes*, takes place: the "mamme" house the first cycle of the blastophaga from October to April, when the blastophaga leaves the "mamme" to enter the "profichi" where the second cycle occurs; it then leaves the "profichi" in June to get into the third kind of syconium, called "mammoni"; in September it leaves the "mammoni" to enter the "mamme". The adult blastophaga which leave the "profichi" in June are covered with pollen and if they enter the receptacles of the edible female cultivars, they fertilise the long-styled female flowers there. The farmer exploits this contemporaneity of events (the ripening of the pollen in the "profichi" and the receptivity of the female flowers) to pollinate the domestic cultivars which need fertilisation and by doing so, makes them fructify. This practice is the so-called caprification and takes advantage of wild fig cultivars which are opportunely selected.

**USES:** Since ancient times the fig has been used for human consumption, (as sweet and refreshing fresh fruit, as the tasty dried fig). Recently the nutritive value has been highlighted: the pectic substances are useful to prevent the blocking of veins; in infantile feeding, figs provide calcium for children who are allergic to milk; the high fibre content has laxative effects; there is a high varied content of mineral salts; a diet based on figs can prevent cancer of the colon and slow down the development of carcinomas.

The main use is as fresh fruit, then as dried product (often stuffed with other nuts; aromatized in various ways; covered with chocolate, icing etc.). It is also possible to produce canned figs, cakes, fruit salads and jams using also the fruit of the wild figs. Alcohol also can be obtained. Ficin is extracted from the leaves and used in pharmaceuticals.