

***Ceratonia siliqua* L.**
Legumino-Caesalpinaceae



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■ **Morphological description**

The carob tree is a tall tree that can grow to 5-10 metres, with a short trunk, spreading cyme and thick foliage. It can grow to be very big: 16-20 m. high with a trunk 3 m. in circumference. It is long-lived, between 300 and 400 years. It seems dioecious but actually has hermaphrodite flowers. Its leaves are alternate, evergreen, with caducous, compound, paripinnate stipules, with 3-5 pairs of simple, tough folioles that are glistening underneath and glaucous on top, oval, whole, 6-7 cm. long and 4-5 cm. wide.

The flowers have a sweet, penetrating smell, and are reddish green, borne on the previous year's branches, in erect axillary bunches, dioecious or hermaphrodite, and very small; the calyx is a mere disc with 5 caducous lobes and the petals are non-existent. There are 5 stamens, diverging, protruding to some length and set under a glandulous disc. The pod is indehiscent, brown, flat, tough, pendant, 10-30 cm. long and with a sugary pulp containing 12-16 seeds.

The carob flowers in winter and the pods are ripe at the end of summer.

■ **Geographical distribution**

Local: Common in most of Tunisia either wild or cultivated.

Regional: In North Africa, it is widespread from Morocco to Libya.

Global: It is a Mediterranean species whose area extends from the Iberian peninsula to Turkey and North Africa.

***Ceratonia siliqua* L.,** Sp. Pl.: 1026, 1753

The carob tree's Greek name, *keration*, gave birth to the word 'carat' for a unit of weight used in the trade in gold and precious stones. Formerly, jewellers used the seeds as a unit for weighing (their weight being amazingly uniform).

Arabic: Kharroub

French: Caroubier à siliques, caroubier

English: Carob tree, locust tree

■ **Ecology**

The carob tree is indifferent to soil type but particularly likes Mediterranean soils.

It has markedly the same ecology as the olive in Tunisia. It is more sensitive to the cold and thus cannot grow in the cool variant unless there are compensatory factors (e.g. facing south). It develops in areas with an annual rainfall of 250-900 mm., but is happiest in 400-600 mm.

The carob is characteristic of the olealentic and carob groups, found from the lower humid to the lower semi-arid. These groups represent a warm to tepid variant of the olealentic groups, with its floral core, essentially composed of nitrophilous and humicolous plants. Its full development coincides with the upper semi-arid bioclimate level, where it is found both in the region lying between Zaghuan, Teboursouk, Jendouba, Oued Zarga and Tunis and in the foothills of Bargou, Serj and Belouta.

■ **Status, conservation, culture**

The carob tree is a species that is picked for use in Tunisia. Carobs are sold in shops that market conditions.

Research programmes aiming at mastering the technique of propagating and growing the carob are being developed within the Forestry Commission.

The carob tree is grown on light, fairly dry soil, in full sun. It dislikes cold. It is propagated by seedlings or by cuttings from harvested branches. Germination of the seeds is difficult. In nurseries, they are scalded to help them germinate.

■ Part used

Fruit: pericarp (pulp) and seeds.

■ Constituents

The pulp of the carob fruit contains various soluble sugars (40-45%), condensed tannins (20%), mucilage (2-3%), starch (3.5%) and fats.

The seed with its integument removed has an albumen that provides the 'carob gum', made up of a sugary polymer (90-95%), proteins and mineral salts.

■ Pharmacological action

Against diarrhoea and vomiting, as a thickener.

■ Traditional medicine

The fruit's pulp triturated in water gives a refreshing juice that is diuretic, bechic and laxative. It is very good for diarrhoea.

Water from the carob is well-known for treating liver problems.

Carobs with fenugreek, *trigonella foenum-graecum* L., raisins, cumin, *Cuminum cyminum* L. and dried figs make a tisane taken in childbirth when it is difficult to stop haemorrhage. In southern Tunisia, a mixture of carob and figs is cooked to give a brown compote that is given to women when they rise after childbirth.

■ Use in herbal medicine

As a non-digestible thickener, carob gum from the seeds is much used for infant vomiting. In diets, it is suggested as an additive to slimming diets. The fruit's pulp acts against diarrhoea for infant gastroenteritis.

■ Other uses

The fruit is used in the agroalimentary industry (cream desserts, biscuits, ices, etc.) and as an additive in cosmetic products. The seeds act as a coffee substitute. The leaves and bark, rich in tannins, are used to tan skins. The pod is still used in certain traditional dishes.

Carobs are used for cattle fodder, the hard, rose-red wood for carpentry, the leaves and bark for tanning skins, and the juice to decorate traditional pottery. In industry, it is a substitute for astragalum gum (emulsive), in cosmetology for gummy paper, in the textile industry, etc.



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