

***Capparis spinosa* L.**
Capparidaceae (or Capparaceae)



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■ Morphological Descriptio

Caper plants are small shrubs, and may reach about one meter upright. However, uncultivated caper plants are more often seen hanging, draped and sprawling as they scramble over soil and rocks.

Caper stems have tiny thorns, are serpent-like when young, dry and brittle when old. Leaves are variable in texture, orbicular to elliptic, base rounded and apex mucronate. Flowers are born on first-year branches.

The plant flowers only bloom for 24 hours then die. Flowers are white, solitary, axially. Sepals are sub equal, petals are white, and its anther filaments are purple and are longer than the petals. The berry is ellipsoid, ovoid or obovoid and pericarp thin. The seeds are 3-4 mm in diameter, globose, smooth and brown.

Flowering period: June-December

■ Geographical Distribution

Local: *Var. canescens*, *var. rupestris* in the mountains of *Meddle Atlas*, High Atlas, and Rif.

Regional: The species cultivated in the Mediterranean region are *C. spinosa* L. and *C. ovata* Desf. The differences between the two species are mainly related to the shape and dimension of the leaves, the color of the trunk, and the shape of the flower buds. The varieties of *C. spinosa* are *spinosa*, *inermis*, *parviflora*, *aegyptica*, and *pubescence*. Those of *C. ovata* are *ovata*, *sicula*, *herbacea*, *palaestina*, *mycophylla*, *kurdica*.

Capparis sinaica has all the positive attributes of its domesticated relative *Capparis spinosa*.

Global: *Capparis spinosa* is said to be native to the

***Capparis spinosa* L.**

Capparis rupestris

Arabic: l'Kabbar, Kabbar, Àssaf, Lasaf.

الكبر أو كبر - أصف - لصف

Berber: Taylulut, Tailoulout, Amserlih, Ouai loulou.

English: Caper bush, Caperbush, caper, caperberry,

French: Câprier, Caprier commun, Câpres, Fabagelle, tapana

Mediterranean basin, but its range stretches from the Atlantic coasts of the Canary Islands and Morocco to the Black Sea to the Crimea and Armenia, and eastward to the Caspian Sea and into Iran. It grows in North Africa, Europe, West Asia, Afghanistan, and Australia. In India it grows from Punjab and Rajasthan to the Deccan Peninsula.

■ Ecology

Capparis spinosa grow spontaneously in cracks and crevices of rocks and stone walls. Plants grow well in nutrient poor sharply drained gravelly soils.

Mature plants develop large extensive root systems that penetrate deeply into the earth. Capers are salt-tolerant and flourish along shores within sea-spray zones. They are also wind-tolerant. The caper's vegetative canopy covers soil surfaces, which helps to conserve soil water reserves.

Capparis spinosa is cultivated for production of Capers. Even though slow and difficult to germinate it grows in very dry warm climate. Dry heat and intense sunlight make the preferred environment for caper plants to give the best results. Plants are productive in zones having only 200 mm annual precipitation (falling mostly in winter and spring months) and easily survive summertime temperatures higher than 40°C. However, caper is a cold tender plant and has a temperature hardiness range similar to the olive tree (- 8°C).

■ Status

Not IUCN Threatened species

■ Part(s) Used

Capers (flower buds), Caperberries (fruits), leaves, roots, seeds.

The caper plant yields two kinds of fruit - the caper itself, and the caperberry.

Capers are the small buds picked very young, even before they have bloomed. If the caper is not picked, it will soon become a flower. This flower produces a fruit called the caperberry. Caperberries are the mature fruits of the caper bush. They are the same size and color as a small green olive, with a delicate fruity flavor. The caperberry resembles a large grape with white stripes like a small watermelon.

■ Constituents

The crude extract of the flower buds contains 162 volatile constituents of which isothiocyanates, thiocyanates, sulphides and their oxidative products have been identified as the major components. The root contains glucobrassicin, neoglucobrassicin and 4-methoxy-glucobrassicin. The root bark contains stachydrine, rutic acid and a volatile substance with garlic odor. The cortex and leaves contain stachydrine and 3-hydroxystachydrine. The leaves and seeds contain glucocapparin and glucoleomin. The seeds are rich in protein, oil, and fiber. The main fatty acids identified by gas chromatography were palmitic, oleic and linoleic acids. *Capparis spinosa* L. was found to contain the pharmacologically active compound rutin, in all aerial parts. The average content of flavonoid glycosides (quercetin 3-rutinoside, kaempferol 3-rutinoside; and kaempferol 3-rhamnosyl-rutinoside) in commercial capers produced in different Mediterranean countries was 5.18 mg/g fresh weight. A serving of caper (10 g) will provide 65 mg of flavonoid glycosides or the equivalent 40 mg of quercetin as aglycone. The caper is rich in capric acid. This gives a distinctive aromatic flavor enhanced by pickling.

■ Pharmacological Action and Toxicity

Capparis spinosa L. possesses several chemically active constituents, but one of the most important classes of compounds are the flavonoids, in particular rutin - the most abundant flavonoid in the plant. Since ancient times, caper poultices have been used to ease swellings and bruises and this led to the belief that rutin had properties affecting the permeability of the blood capillaries; such as

reducing their fragility though clinical evidence is inconclusive

However the herb was reported to have hepatoprotective and immunosuppressive effects and an anti-tumor activity against human leukemia in vitro. Caper extracts and pulps have been used in cosmetics, but there has been reported contact dermatitis and sensitivity from their use.

■ Traditional Medicine and Indigenous Knowledge

Roots are used as diuretic, astringent, and tonic. Bark root, which has a bitter taste, is used as appetizer, astringent, tonic, antidiarrheic and to treat hemorrhoids, and spleen disease. Bark is also used for gout and rheumatism, as expectorant, and for chest diseases.

Infusion of stems and root bark antidiarrheic, febrifuge.

Fresh fruits sciatica, and dropsy. Dried and powdered fruit combined with honey is used in colds, rheumatism, gout, sciatica and backache. In decoction it is said efficient against gastric pain. Applied on the all body this decoction is said to be good in epilepsy. Seeds are used in feminine sterility and dysmenorrhea. Crushed seeds for ulcers, scrofula, and ganglions. Seeds are used in a mixture of spices called Ras El Hanout, which means the "head of the shop". Flowers in a poultice in eczema.

In the Sahara, the steam of the plant's decoction is said to clean eyes.

Leaves crashed are and applied in a poultice on the front against headache, on the face against toothache. Leaves heated in butter are used against external parasitic disease of camel.

The flower buds (Capers) are pickled and used as condiment or legume.

■ Other Indications

The plant is credited with anti tubercular property. A decoction of the plant is used to treat yeast and vaginal infections such as candidiasis.

The bark is bitter, diuretic and expectorant. It is given in spleen, renal and hepatic complaints.

The root bark is purifying and stops internal bleeding. It is used to treat skin conditions, capillary weakness, and easy bruising, and is also used in cosmetic preparations.

Infusions and decoctions from caper root bark have

been traditionally used for dropsy, anemia, arthritis and gout.

The bruised leaves are applied as a poultice in gout. The unopened flower buds are laxative and, if prepared correctly with vinegar, are thought to ease stomach pain.

Capers are an appetizer and digestive. They are said to reduce flatulence and to be anti-rheumatic. They have reported uses for arteriosclerosis, as diuretics, kidney disinfectants, vermifuges and tonics.

■ Mention in old books and modern treatment

An extract of the plant is one of the constituents of the Ayurvedic preparation administered to treat preliminary cases of acute viral hepatitis and cirrhosis of liver; and has shown encouraging results against viral infection in man.

The plant extract is also a constituent of another drug 'Geriforte' useful in treating senile pruritis, itching and other ailments associated with old age and anxiety neurosis.

In ayurvedic medicine capers (Capers = Himsra) are recorded as hepatic stimulants and protectors, improving liver function.

■ Diseases/Properties

Diseases: spleen disease, sciatica, backache, dropsy, gout, rheumatism, gastric pain, epilepsy, feminine sterility and dysmenorrhea, ulcers, scrofula, hemorrhoids, and parasitic disease of camel

Properties: diuretic, astringent, tonic, appetizer, anti-diarrheic, febrifuge, expectorant, clean eyes.

Other uses of the plant (Ethnobotany)

Roots and bark of the caper plant are used medicinally and in cosmetics.

■ Culinary Uses

Capers of commerce, which have been pickled in vinegar or preserved in granular salt, have a sharp piquant flavor and add pungency, a peculiar aroma and saltiness to comestibles such as pizza, fish, meats and salads. The flavor of caper may be described as being similar to that of mustard and black pepper. In fact, the caper strong flavor comes from mustard oil: methyl isothiocyanate (released from glucocapparin molecules) arising from crushed plant tissues.

Semi-mature fruit (caperberries) and young shoots

with small leaves may also be pickled for use as a condiment. Caperberries are edible, piquant delicacies processed like the buds. Caperberries are some times picked with the stem attached, and are used as a garnish or an appetizer.

Tender young shoots including immature small leaves may also be eaten as a vegetable, or pickled.

In Morocco, given the price of the product, farmers usually prefer to sell them. Some times they are eaten like olives or used as legume in "tajines".

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