Quince

*BOTANY*

Pyrus *cydonia* L. (=*Cydonia oblonga* Miller, *Cydonia europea* Savi, *Cydonia vulgaris* Pers.) belongs to the family *Rosaceae* (is the only member of the genus *Cydonia*) and its common name is quince.

This deciduous tree with an irregular Crown and small or medium-size (4-6 m) presents a tortuous trunk and a smooth and grayish bark, which detaches into flakes with age. Its alternate leaves are simple, 5.11 cm long, with the reverse surface densely populated with white and fine hairs and a short petiole. The solitary flowers are white or pink, with five petals, which appear in the axils of the leaves and have a diameter of 4-5 cm. Its fruit, called quince, is bright yellow-golden when mature, pyriform, 7-12 cm long and 6-9 cm wide; its pulp is white-yellow, hard, rough and very aromatic. The immature fruits are green, with a dense grey pilosity, which is lost before maturity; when they are mature, they can weigh around 250g.
The Rosaceae family includes more than 2000 species of herbaceous plants, shrubs and trees distributed in temperate regions around the world. Quince is native to the Mediterranean and Caucasus regions, in areas with temperate climate up to 2000m high. It is widely cultivated in Argentina, Uruguay, the Balkans, Spain and the Mediterranean basin; also in vegetable gardens, associated with forests of oak, pine and mixed pine-oak.

Quince is extracted from the fruits of Pyrus cydonia L.

CHEMISTRY

Quince presents numerous interesting components for skin care. Its active ingredients include tannins (particularly abundant in seeds: 20%), pectin and mucilage, sugars (fructose, glucose, galactose, sucrose), organic acids (citric, ascorbic, malic, quinic, ferulic, tartaric, shikimic, and fumaric acids) (Silva, 2002), vitamins A, B and C, and several minerals (potassium mainly). It also presents free amino acids such as asparagine, aspartic acid, ant hydroxyproline (related to collagen) (Silva, 2004).

TRADITIONAL USES

Among the ancient Greeks, quince was offered at weddings, a rite that came from the East with the cult of Aphrodit (Paris granted a Quince as a reward to Aphrodite) and remained as a sacred fruit. Plutarch related that Greek brides bit a Quince to perfume their kisses before entering into the bridal chamber. The best type of Quince came from the region of Cydonia, on the northwest coast of Crete, fruit known by the Greeks as "Mela kudonia" or "Apple of Cydonia", from which also derives its scientific name.

The Romans also used quinces; the Roman cookbook of Apicio provided recipes for stewing Quince with honey, and even combining them, surprisingly, with leeks.

Quince was mentioned for the first time in English at the end of the 13th century text, although cultivation in England is not very suitable, as well as in North America. Charlemagne established that quinces must be planted quinces in well supplied orchards; therefore they are commonly cultivated in several central and south areas of Europe, although not in large quantities, usually only one or two trees along with apples and other fruit trees.
Quince is not usually eaten raw, but in some areas of Mexico they prepare it with salt and chili, and products with quince are marketed as “ates”, “cajetas”, pallets of milk and water, snow and punch. Its strong aroma makes it an ideal complement to add to pies, compotes, puddings and jams, to enhance its flavor. In Spain, it is sweetened before consuming it (in Tenerife and Gran Canaria); in the province of Granada is cooked with sugar to get the traditional "dulce de membrillo". In Argentina, Uruguay and Peru, this sweet it is of great importance in the traditional pastries, and Venezuela is consumed accompanied by crackers, saltines, or bread and coffee, as dessert or snack.

The “dulce de membrillo” may be a very healthy alternative for lunches and snacks for children as well as those who need an extra supply of calories (as athletes) to gain weight or because they are hypertensive.

It is also used to perfume clothes with their powerful fragrance (in France) and as an ornamental tree.

Quince is also used for therapeutic purposes as emollient, moisturizing (lips, eczema), astringent, expectorant, tonic and protective of intestinal mucous membranes. Their seeds are demulcents, emollients and astringent. Quince is indicated for gastritis, gastro-duodenal ulcers (it reduces acidity), irritable bowel syndrome, diarrhea (it reduces intestinal transit and is anti-inflammatory), colds, pharyngitis and bronchitis. It is externally used mainly as a moisturizer and softener.

**COSMETIC PROPERTIES**

Cosmetic benefits of quince are basically due to its content in tannins, mucilage, pectins and various acids, but above all, it is really important for its moisturizing and astringent activity.

**Moisturizing activity**

Quince has a chemical composition that gives it an important moisturizing activity at cutaneous level. Carbohydrates are widely used in cosmetics as active ingredients since they are capable of adsorbing water, maintain the stratum corneum hydric balance, avoid massive water loss and stop dehydration. In addition, some of these compounds form a protective film on the skin, preventing and delaying transepidermal water loss.

In the same way, mucilages and pectin are excellent moisturizing agents that also absorb and retain water. These biopolymers form a film on the skin surface, which reduces TEWL.

In addition, potassium is an important mineral that participates in the regulation of the hydric balance of the skin, as well as in many other cellular processes.

Therefore, quince is recommended for cosmetic products with moisturizing, softening and conditioning hair and skin activity.
Antioxidant activity

Due to the presence of ferulic acid, quince has skin beneficial antioxidant properties. This acid neutralizes free radicals (superoxide, hydroxyl radicals, nitric oxide) that can cause oxidative damage to cell membranes and DNA, and also prevents damage caused by ultraviolet light (in fact the UV radiation can increase the antioxidant activity of this acid). It also neutralizes lipid peroxidation, helping reduce cellular oxidation.

In a study (Fattouch, 2007), it was found that quince extract (with a high percentage in phenols) had a 70-80% inhibitory effect on DPPH radicals, which makes it an interesting skin and hair antioxidant.

In addition, the content of vitamin C reinforces the antioxidant capacity of this extract.

Therefore, quince is useful for cosmetic products with antioxidant, anti-aging and hair and skin protection against oxidative processes.

Purifying activity

The astringent property of quince is mainly due to its content in tannins, which are astringent substances, but also contributes its fiber (pectin and mucilage) content. In addition, the presence of malic acid gives it extra purifying benefits.

Fattouch in 2007 evaluated the antimicrobial activity of quince extract and showed that it inhibited the growth of harmful bacteria for the skin, due to the chlorogenic acid presence.

Thus, quince is useful for cosmetic products with astringent and purifying activity.

Anti-inflammatory activity

Shinomiya in 2009 examined the effect of a crude hot-water extract (HW) of quince (Cydonia oblonga Miller) fruit on type I allergy in vivo and in vitro. They showed a significant decrease in the development of cutaneous lesions when quince was applied. The concentration of IgE was also lowered (in a dose-dependent manner), as well as mRNA expression of the high-affinity IgE receptor (FcepsilonRI) gamma subunit.
Mucilage content also gives it anti-inflammatory properties. Ali in 2000 conducted a study where they applied quince mucilages in wounds to see their ability to accelerate their healing. Results indicated that wounds improved earlier in the group treated with quince mucilages.

Therefore, quince is highly recommended for cosmetics with soothing and anti-inflammatory activity, especially for sensitive skins.

**COSMETIC APPLICATIONS**

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**RECOMMENDED DOSE**

The recommended dose is between 0.5% and 5%.

**BIBLIOGRAPHY**


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