

GOIABEIRA/ GUAVA**Scientific name:** *Psidium guajava* Linné. ^(1,2)**Family:** Myrtaceae. ^(1,2)**Popular names:**

goiabeira, guava yellow guava, apple guava

Used parts: leaves ⁽²⁾

Botanical characteristics: A small tree to 33 ft (10 in) high, with spreading branches, the guava is easy to recognize because of its smooth, thin, copper-colored bark that flakes off, showing the greenish layer beneath; and also because of the attractive, "bony" aspect of its trunk which may in time attain a diameter of 10 in (25 cm). Young twigs are quadrangular and downy. The leaves, aromatic when crushed, are evergreen, opposite, short-petioled, oval or oblong-elliptic, somewhat irregular in outline; 2 3/4 to 6 in (7-15 cm) long, 1/2 to 2 in (3-5 cm) wide, leathery, with conspicuous parallel veins, and more or less downy on the underside. Faintly fragrant, the white flowers, borne singly or in small clusters in the leaf axils, are 1 in (2.5 cm) wide, with 4 or 5 white petals which are quickly shed, and a prominent tuft of perhaps 250 white stamens tipped with pale-yellow anthers. The fruit, exuding a strong, sweet, musky odor when ripe, may be round, ovoid, or pear-shaped, 2 to 4 in (5-10 cm) long, with 4 or 5 protruding floral remnants (sepals) at the apex; and thin, light-yellow skin, frequently blushed with pink. Next to the skin is a layer of somewhat granular flesh, 1/8 to 1/2 in (3-12.5 mm) thick, white, yellowish, light- or dark-pink, or near-red, juicy, acid, subacid, or sweet and flavorful. The central pulp, concolorous or slightly darker in tone, is juicy and normally filled with very hard, yellowish seeds, 1/8 in (3 mm) long, though some rare types have soft, chewable seeds. Actual seed counts have ranged from 112 to 535 but some guavas are seedless or nearly so. ⁽⁴⁾

Habitat: *Psidium guajava* commonly known as guava belonging to the family Myrtaceae is a native of tropical America and has long been naturalized in Southeast Asia. ⁽²⁾ Today, the tree can be found cultivated or growing wild in nearly all the countries of the Tropical World Belt, from the West Coast of Africa to the Region, including India and China, with varieties originally introduced from America over the past 300 years. ⁽³⁾

Chemical composition:

- **Leaves:** tannins, monoterpenoids, esters, essential oil ⁽¹⁾, triterpenoids (guavanoic acid, guavacoumaric acid, jacoumaric acid, isoneriucoumaric acid, asiatic acid, ilelatifol D and b-sitosterol-3-O-b-d-glucopyranoside, ursolic acid, oleanolic acid, maslinic acid, arjunolic acid), flavonoids, ⁽²⁾, Quercetin ⁽³⁾, caryophyllene, b-bisabolene, aromadendrene, b-selinene, nerolidiol, caryophyllene oxide and sel-11-en-4x -ol, b-sitosterol, lagic acid and starch.
- **Pulp:** vitamin C, lycopene, dietary fibers 4,75 ± 0,36
- **Fruit:** the fruits contain vitamin C, vitamin A, iron, calcium and phosphorus. Guava are up 5 times richer in vitamin C than oranges. Manganese is also present in the plant in combination with phosphoric, oxalic and malic acids. The fruit contains saponin combined with oleanolic acid. Morin-3-O-a-L-lyxopyranoside and morin-3-O-a-L-arabopyranoside and flavonoids, guajavarin and quercetin. The essential oil and headspace of fresh white-flesh guava fruits. ⁽⁵⁾

Indications:

- Leaves: spasmolytic and antibacterial activity ⁽¹⁾, anti-diarrheic, sedative ⁽³⁾, Kidney problems, vaginal disorders, malaria ⁽⁵⁾
- Fruit: food uses, diabetes, gout ⁽⁵⁾

Others informations:

P. guajava bark extracts showed a significant antibacterial activity. The bark methanolic extract showed the highest activity against all tested standard microorganisms. However, all clinical isolates were sensitive to both extracts, confirming its traditional uses. ⁽¹⁾

Abstracts:

J. Agric. Food Chem., 47 (1), 145 -151, 1999.
10.1021/jf980405r S0021-8561(98)00405-1
Carotenoids from Guava (*Psidium guajava* L.):
Isolation and Structure Elucidation
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Sixteen carotenoids were isolated from the flesh of Brazilian red guavas (*Psidium guajava* L.). Their structures were established by means of UV-visible, 400 and 500 MHz ¹H NMR, 120 and 125 MHz ¹³C NMR, mass, and circular dichroism spectra. The carotenoids were identified as phytofluene, (all-E)-, (9Z)-, (13Z)-, and (15Z)-carotene, (all-E)-carotene, (all-E)-, (9Z)-, (13Z)-, and (15Z)-lycopene, (all-E,3R)-

-cryptoxanthin, (all-E,3R)-rubixanthin, (all-E,3S,5R,8S)-cryptoflavin, (all-E,3R,3'R,6'R)-lutein, (all-E,3S,5R,6R,3'S,5'R,8'R)-, and (all-E,3S,5R,6R,3'S,5'R,8'S)-neochrome. Thirteen of the carotenoids identified are reported as guava carotenoids for the first time.

THE EFFECTS OF GUAVA (PSIDIUM GUAJAVA) CONSUMPTION ON TOTAL ANTIOXIDANT AND LIPID PROFILE IN NORMAL MALE YOUTH

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Fruits contain a broad spectrum of nutrients, and many of which have antioxidant properties. Phenolic substances, vitamin A, vitamin C and minerals that are present in fruits displayed high antioxidant activity. These properties have been associated with the decreased risk of certain degenerative diseases. This study was conducted to determine the effects of guava (*Psidium guajava*) consumption on total antioxidant status and lipid profile (total cholesterol, triglycerides, LDL-cholesterol and HDL-cholesterol) in normal male youth. This study was carried out over nine weeks, which was divided into three phases, that is, baseline (one week), treatment (four weeks) and control (four weeks). Blood samples were collected at the end of each phase for biochemical test. Total antioxidant status, glucose, lipid profile and antioxidant enzymes (glutathione peroxidase and glutathione reductase) were determined using Cobas Mira auto analyzer (Roche).

Dietary intake in each phase was studied using 24-hours diet recall. There was a significant increase of total cholesterol, triglyceride and HDL-cholesterol during the treatment phase, compared to the baseline and control phases ($p < 0.05$). The increase of HDL-cholesterol was associated with the decreased risk of heart attack and cardiovascular disease. Although there was an increase in total cholesterol and triglyceride in the treatment phase compared to baseline and control phases, the increase was still in normal range. There was a significant increase of total antioxidants during the treatment phase, compared to the baseline and control phases ($p < 0.05$). There were trends of reduction for both glutathione peroxidase and glutathione reductase in the treatment phase as compared to baseline and control phases. However, the reduction was not statistically significant. The reduction of antioxidant enzymes was associated with decreased oxidative stress and decrease in free radical activities. The consumption of guava, therefore, could result in improved antioxidant status and lipid profile. Thus, it could reduce the risk of disease caused by free

radical activities and high cholesterol in blood.

Keywords: guava, lipid profile, total antioxidant status

Guava Fruit (*Psidium guajava* L.) as a New Source of Antioxidant Dietary Fiber

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Guava (*Psidium guajava* L.) is a tropical fruit, widely consumed fresh and also processed (beverages, syrup, ice cream, and jams). Pulp and peel fractions were tested, and both showed high content of dietary fiber (48.55-49.42%) and extractable polyphenols (2.62-7.79%). The antioxidant activity of polyphenol compounds was studied, using three complementary methods: (i) free radical DPPH scavenging, (ii) ferric reducing antioxidant power assay (FRAP), and (iii) inhibition of copper-catalyzed in vitro human low-density lipoprotein (LDL) oxidation. All fractions tested showed a remarkable antioxidant capacity, and this activity was correlated with the corresponding total phenolic content. A 1-g (dry matter) portion of peel contained DPPH activity, FRAP activity, and inhibition of copper-induced in vitro LDL oxidation, equivalent to 43 mg, 116 mg, and 176 mg of Trolox, respectively. These results indicate that guava could be a suitable source of natural antioxidants. Peel and pulp could also be used to obtain antioxidant dietary fiber (AODF), a new item which combines in a single natural product the properties of dietary fiber and antioxidant compounds.

References

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