

Chemical composition of the plant

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28. The pericarp of *G. cambogia* Desr., contains 10 to 30% organic acids, calculated as citric acid equivalents, including less than 1% citric, oxalic, tartaric, and acetic acids; more than 4% malic acid; and up to over 15% HCA. It was identified that other *Garcinia* ssp., also contained HCA though typically at lower levels.

29. HCA (C₆H₈O₈) is a derivative of citric acid that has an additional hydroxyl group on the second carbon, creating two chiral centres at positions C-2 and C-3. HCA exists as four stereoisomers: (-)-HCA (2*S*,3*S*), (+)-HCA (2*R*,3*R*), (+)-*allo*-HCA (2*S*,3*R*) et (-)-*allo*-HCA (2*R*,3*S*).

30. In *G. cambogia* Desr., this compound [HCA] appears in the (2*S*,3*S*) or (-)-HCA configuration and serves as a competitive inhibitor of ATP-citrate lyase, an enzyme that drives fatty acid synthesis. Each stereoisomer can cyclise to a γ -lactone. In *G. cambogia* Desr., HCA occurs in both its non-lactonic form and its lactonic form, known as garcinia lactone or (2*S*,3*S*)-3-hydroxy-5-oxo-2,3,4,5-tetrahydrofuran-2,3-dicarboxylic acid. From the literature, it was described that the lactonic form of (2*S*,3*S*)-HCA inhibits ATP citrate lyase less effectively than the non-lactonic form. It is also less bioavailable.

31. Industrial processes generally stabilise HCA as a single, double, or triple salt to prevent its cyclisation into the lactone form. The most common are calcium, magnesium, or potassium salts because they offer greater stability, higher solubility, and lower hygroscopicity compared to sodium salts.

32. The fruit of *G. cambogia* Desr., contains 6.25% carbohydrates, 3.25% protein, less than 0.0060% amino acids, and 0.34% lipids. The dried pericarp of *G. cambogia* Desr., contains 14.4 mg vitamin C. The bark has also been reported to contain certain B-group vitamins: 48 μ g vitamin B1, 275 μ g vitamin B2, 45 μ g vitamin B3 and 8.8 μ g vitamin B12 per 100 g. The dried fruit bark also contains minerals: 2.8 mg sodium, 26.6 mg potassium, 12.7 mg calcium, 14.4 mg magnesium, 9 mg iron and 5.3 mg phosphorus per 100g.

33. *G. cambogia* Desr., has been described to contain polyisoprenylated benzophenones (precursors of xanthenes). Studies have isolated garcinol, isogarcinol from the plant's bark and fruit. Both compounds have been shown to have antitumour, antimicrobial, antioxidant, anti-inflammatory, and central nervous system effects, especially *in vitro* and in animal models. Other isolated

polyisoprenylated benzophenones are presented in the ANSES Opinion.

34. The xanthone content of the fruit was estimated to be 1.96%. The total phenol content is estimated to be 3.26%. Flavone heterosides (apigenin, luteolin) and flavanols (kaempferol, quercetin) have been detected in *G. cambogia* Desr., fruits.

35. Glycosylated derivatives of caffeic acid (caffeoyl glucose), esterified with quinic acid (dicaffeoyl-quinic acid) as well as *p*-coumaroyl-quinic acid have also been detected in fruits.