



- **Latin Name:** *Garcinia gummi-gutta* (*Garcinia Cambogia*)
- **Active Ingredient:** Hydroxycitric acid
- **CAS No.:** 6205-14-7
- **Test method:** HPLC

Product Description:**Name :** Brindleberry ExtractSource: *Garcinia gummi-gutta*Botanical Name : *Garcinia gummi-gutta* (*Garcinia Cambogia*)

Extract part: Fruit

Composition ratio: 4:1

Identification measure : HPLC

Appearance: Fine White powder

Country of origin: P.R. China

Source

Garcinia gummi-gutta, commonly called as brindleberry, Malabar tamarind, kudam puli or *Garcinia cambogia* (a former scientific name), is a tropical species of Family Clusiaceae native to Indonesia. *Garcinia gummi-gutta* is grown for its fruit in Southeast Asia, coastal Karnataka/Kerala, India, and west and central Africa. *Garcinia gummi-gutta* is one of several closely related *Garcinia* species from the plant family Clusiaceae. With thin skin and deep vertical lobes, the fruit of *Garcinia gummi-gutta* and related species range from about the size of an orange to that of a grapefruit; *Garcinia gummi-gutta* looks more like a small yellowish, greenish, or sometimes reddish pumpkin. When the rinds are dried and cured in preparation for storage and extraction, they are dark brown or black in color. Additional ethnobotanical uses include its use as a digestive and a traditional remedy to treat bowel complaints, intestinal parasites and rheumatism. In late 2012, a United States television personality, Dr. Oz, promoted *Garcinia cambogia* extract as "an exciting breakthrough in natural weight loss." The medical literature primarily documents weight loss and lipid-lowering activity for the plant.

Main bio-actives

Hydroxycitric acid (HCA) is a derivative of citric acid that is found in a variety of tropical plants including *Garcinia gummi-gutta* and *Hibiscus subdariffa*. As the primary medicinal component contained in the fruit rinds of *Garcinia gummi-gutta*, it is present as up to 30% by weight in the pericarp of *Garcinia gummi-gutta* fruit. Laboratory and animal studies of HCA have produced

results that indicate a potential for modulation of lipid metabolism.

Functions

Anti-obesity

Studies have shown that the extracts as well as (-)-hydroxycitric acid (HCA), a main organic acid component of the fruit rind, exhibited anti-obesity activity including reduced food intake and body fat gain by regulating the serotonin levels related to satiety, increased fat oxidation and decreased de novo lipogenesis.

Modulating Visceral Fat Accumulation

Hydroxycitric acid (HCA) is an active ingredient extracted from the rind of the Indian fruit *Garcinia gummi-gutta*. It inhibits adenosine triphosphate citrate lyase and has been used in the treatment of obesity. The administration of *Garcinia gummi-gutta* extract (GGE) on visceral fat accumulation was evaluated by a 12 weeks investigation on CURRENT THERAPEUTIC RESEARCH. The body indices (including height, body weight, body mass index [BMI], waist and hip circumference, and waist-hip ratio) and laboratory values (including total cholesterol, triacylglycerol, and free fatty acid) were also examined. The study was performed according to a double-blind, randomized, placebo-controlled, parallel-group design. Subjects aged 20 to 65 years with a visceral fat area 90 cm² were randomly assigned to receive treatment for 12 weeks with GGE (containing 1000 mg of HCA per day) or placebo. Study result showed GGE group had significantly reduced visceral, subcutaneous, and total fat areas compared with the placebo group (all indices $P < 0.001$). No severe adverse effect was observed at any time in the test period. It is therefore expected that GGE may be useful for the prevention and reduction of accumulation of visceral fat.

Appetite suppression

A growing body of evidence demonstrates the efficacy of *Garcinia cambogia*-derived natural (-)-hydroxycitric acid (HCA) in weight management by curbing appetite and inhibiting body fat biosynthesis. Study reported Molecular and Cellular Biochemistry investigated the exact mechanism of HCA weight loss action. In a previous study, researchers showed that in the rat brain cortex a novel HCA extract (HCA-SX, Super CitriMaxTM) increases the release/availability of radiolabeled 5-hydroxytryptamine or serotonin ([³H]-5-HT), a neurotransmitter implicated in the regulation of eating behavior and appetite control. Following study determined the effect of HCA-SX on 5-HT uptake in rat brain cortex in vitro; and (b) to evaluate the safety of HCA-SX in vivo. Isolated rat brain cortex slices were incubated in oxygenated Krebs solution for 20 min and transferred to buffer solutions containing [³H]-5-HT for different time intervals. In some experiments, tissues were exposed to HCA-SX (10 μ M – 1mM) and the serotonin receptor reuptake inhibitors (SRRI) fluoxetine (100 μ M) plus clomipramine (10 μ M). Uptake of [³H]-5-HT was expressed as d.p.m./mg wet weight. A time-dependent uptake of [³H]-5-HT occurred in cortical slices reaching a maximum at 60 min. HCA-SX, and fluoxetine plus clomipramine inhibited the time-dependent uptake of [³H]-5-HT. At 90 min, HCA-SX (300 μ M) caused a 20% decrease, whereas fluoxetine plus clomipramine inhibited [³H]-5-HT uptake by 30%. In safety studies, acute oral toxicity, acute dermal toxicity, primary dermal irritation and primary eye irritation, were conducted in animals using various doses of HCA-SX. Results indicate that the

LD50 of HCA-SX is greater than 5,000 mg/kg when administered once orally via gastric intubation to fasted male and female Albino rats. No gross toxicological findings were observed under the experimental conditions. Taken together, these in vivo toxicological studies demonstrate that HCA-SX is a safe, natural supplement under the conditions it was tested. Furthermore, HCA-SX can inhibit [3H]-5-HT uptake (and also increase 5-HT availability) in isolated rat brain cortical slices in a manner similar to that of SRRIs, and thus may prove beneficial in controlling appetite, as well as treatment of depression, insomnia, migraine headaches and other serotonin-deficient conditions.

Antidiabetic

Researches noted that HCA exert antidiabetic activities by decreasing intestinal glucose absorption. Study on Am J Physiol Gastrointest Liver Physiol investigated the efficiency of HCA reducing postprandial glucose response in rats through a comparative experiment. In the study, researchers investigated. We compared the effect of regulator HCA (310 mg/kg) and vehicle (control) on the glucose response after an intragastric or intraduodenal glucose load to investigate the role of altered gastric emptying. Steele's one-compartment model was used to investigate the effect of HCA on systemic glucose appearance after an intraduodenal glucose load, using [U-13C]-labeled glucose and D-[6,6-2H₂]-labeled glucose. Because an effect on postabsorptive glucose clearance could not be excluded, the effect of HCA on the appearance of enterally administered glucose in small intestinal tissue, liver, and portal and systemic circulation was determined by [U-14C]glucose infusion. Data show that HCA treatment delays the intestinal absorption of enterally administered glucose at the level of the small intestinal mucosa in rats. HCA strongly attenuated postprandial blood glucose levels after both intragastric (P 0.01) and intraduodenal (P 0.001) glucose administration, excluding a major effect of HCA on gastric emptying. HCA delayed the systemic appearance of exogenous glucose but did not affect the total fraction of glucose absorbed over the study period of 150 min. HCA treatment decreased concentrations of [U-14C]glucose in small intestinal tissue at 15 min after [U-14C]glucose administration (P 0.05), in accordance with the concept that HCA delays the enteral absorption of glucose. These data support a possible role for HCA as food supplement in lowering postprandial glucose profiles.

Applications

At Present Garcinia Cambogia Extract HCA is the best and most healthy materials of losing weight. Below is the main two types:

- 1.HCA-Ca, it is not only a kind of calcium supplement but also can help lose weight. It can be used in the raw materials of solid preparation, such as tablets, capsules, etc.
- 2.HCA-K, it is water-soluble and can be used in the oral liquid, beverages, dairy products, etc.

--Garcinia gummi-gutta - Wikipedia, the free encyclopedia

--Hydroxycitric acid - Wikipedia, the free encyclopedia

--Garcinia Cambogia_ Uses, Benefits & Dosage - Drugs

--Semwal RB et al; "A comprehensive scientific overview of Garcinia cambogia";Fitoterapia. 2015

--Kohsuke Hayamizu et al; "Effects of Garcinia cambogia (Hydroxycitric Acid) on Visceral Fat

Accumulation: A Double-Blind, Randomized, Placebo-Controlled Trial"; CURRENT THERAPEUTIC RESEARCH

--Sunny E. Ohia et al; "Safety and mechanism of appetite suppression by a novel hydroxycitric acid extract (HCA-SX)"; Molecular and Cellular Biochemistry

--Peter Y. Wielinga et al; "Hydroxycitric acid delays intestinal glucose absorption in rats"; Am J Physiol Gastrointest Liver Physiol

