

Acai

Scientific Name(s): *Euterpe oleracea* Mart. Family: Arecaceae.

Common Name(s): Acai , acai palm , assai palm , cabbage palm , palma manaca

Clinical Overview

Uses of Acai

Antioxidant and anti-inflammatory activity of acai has been documented. Folk medicinal uses include treatment of fever, pain, and flu. The fruit's dark green oil has been used as an antidiarrheal agent. However, there is a lack of clinical information to recommend acai for any use.

Acai Dosing

Numerous dosage forms are available including juices, powders, capsules, liquids, creams, and lotions. Capsule dosage guidelines are typically 1,000 mg once or twice daily with food. Follow manufacturers' suggested regimen.

Contraindications

Avoid use if hypersensitivity to any acai palm components exists.

Pregnancy/Lactation

Information regarding safety and efficacy in pregnancy and lactation is lacking.

Acai Interactions

None well documented.

Acai Adverse Reactions

No data.

Toxicology

No data.

Botany

Acai, a member of the genus *Euterpe* , is indigenous to Central and South America and grows in the Amazon estuary as well as in swamps, upland regions, and floodplains. [1](#) , [2](#) , [3](#) The acai palm is tall and slender, growing 15 to 30 m in height. The leaves are feather-like or pinnate in shape and grow up to 3 m in length. [4](#) The plant is multistemmed and produces 3 to 4 bunches of round fruits 1 to 1.5 cm in diameter, with each bunch of fruit weighing 3 to 6 kg. The fruits

appear in green clusters when immature and ripen to a dark purple color. Each acai fruit contains a seed that accounts for nearly 90% of its weight and diameter. The seeds are covered with a fibrous layer under which is a small edible layer. Although the fruits may be harvested throughout the year, the highest yields are obtained during the dry months of August through December versus the rainy months of January through July. [4](#) , [5](#)

History

The fruit is of economic value; its juice is used to produce jelly, syrup, liquor, ice cream, energy drinks, and a variety of other beverages. [4](#) Approximately 110,000 tons of fruit yield 100,000 tons of acai seeds commercially every year in the city of Belem, Brazil, alone. [1](#) , [2](#) , [5](#) The frozen aqueous extract has been exported to numerous countries including the United States, Japan, the Netherlands, and Italy. [6](#) The fruit also serves as a major food source for people indigenous to Brazil, Colombia, and Suriname. Folk medicinal uses include treatment of fever, pain, and flu. The fruit's dark green oil has been used as an antidiarrheal agent. [3](#)

Heart of palm is a vegetable harvested from the inner core of various palm trees, including acai palm. It is considered a delicacy and is consumed pickled and in salad. [7](#) The extraction of the heart of palm may lead to the death of the entire tree, which has economic implications; however, research has been undertaken to explore alternative solutions. [8](#) , [9](#) The scale of illegal palm heart harvesting is difficult to estimate. [9](#)

There are numerous commercial acai products. Most claim antioxidant and antiaging properties. [10](#) Topical formulations are promoted for inflammatory skin conditions, such as acne, and in hair restoration treatments. [10](#) , [11](#) Acai is used in cold and flu products and as a functional pigment for yogurt. [12](#)

Chemistry

The primary medicinal part of the plant is the fruit or berry. Numerous studies have been completed on the nutritional composition and chemistry of the fruit. Acai fruit and berries contain lipids (49.4% and 33.1%), proteins (13.8% and 9.3%), ash (5.2% and 2.2%), and total dietary fiber (27.3% and 18%), respectively. [13](#)

Another study on freeze-dried acai fruit identified 19 amino acids, making up 7.6% of total weight. Oleic acid (54%), palmitic acid (27%), and linoleic acid (12%) were the 3 dominant fatty acids. Nutrient analysis of 100 g of powder found 534 calories, 52 g carbohydrates, 8 g protein, 33 g total fat, and 44 g fiber. Vitamins A, B₁, and C are present, as well as calcium and iron. Five sterols have also been isolated. The major phytochemicals include anthocyanins, proanthocyanidins, and other flavonoids, which are most likely associated with antioxidant activity. Cyanidin 3-glucoside and cyanidin 3-rutinoside are the 2 predominant anthocyanins. [3](#) , [7](#) , [14](#) Total analysis of all flavonoids in the fruit pulp [7](#) and antioxidant capacity of the seed extract [5](#) is documented.

Color and stability studies of acai in food, beverage, and nutraceutical products are also available. [4](#) , [15](#) Due to acai's deep pigmentation, it has been examined as an alternative oral contrast agent for imaging of the GI tract, GI motility, and evaluation of dyspepsia. [16](#)

Acai Uses and Pharmacology

Antioxidant and anti-inflammatory activity of acai has been studied.

Anticancer activity

In vitro

Acai fractions containing polyphenolic compounds reduced the proliferation of HL-60 leukemia cells through caspase-3 activation in a dose- and time-dependent manner. The mechanism of action is associated with polyphenolic phytochemicals activating caspase-3, leading to cell death or apoptosis. [17](#)

Anti-inflammatory and antioxidant activity

In vitro

The total oxygen scavenging capacity of acai was high against peroxy radicals, good for peroxynitrite, and mild for hydroxyl radicals when compared with other European fruit and vegetable juices. [18](#) , [19](#)

The freeze-dried powder showed high antioxidant capacity against superoxide, the initial producer of potent reactive oxygen species, and peroxy scavenging in a superoxide dismutase assay. Acai also inhibited cyclooxygenase enzymes COX-1 and COX-2, with greater effect on COX-1. Antioxidant molecules from acai also entered human neutrophils and inhibited oxidation induced by reactive oxygen species. [20](#)

Acai extracts inhibited lipopolysaccharide and interferon gamma-induced nitric oxide (NO) production in a macrophage cell line. Overproduction of NO may lead to activation of NO synthase, leading to the generation of cells mediating inflammatory processes. The mechanism of action is associated with inhibition of NO synthase expression and activity. [10](#)

The antioxidant activities of the seeds are similar to those of the berries against peroxy radicals. However, the seeds have a stronger antioxidant effect against peroxynitrite and hydroxyl radicals when compared with the berries. [5](#)

Other pharmacological activity

Digestive enzyme inhibition

Proteins from acai fruit pulps inhibited salivary alpha-amylase in vitro. [21](#)

Iron bioavailability

Iron in acai fruits was not effective in improving hemoglobin concentrations in a rat study. [22](#)

Prostate

An ethanol extract of acai palm fruit peel inhibited testosterone 5-alpha reductase. In patients with an enlarged prostate, dysuria was prevented by the administration of 2 tablets per day (80 mg of acai palm fruit peel extract powder per tablet) for 1 month. [23](#)

Vasodilation

Acai induced an endothelium-dependent vasodilator effect in a rat mesenteric vascular bed. The mechanism of action appeared to be dependent on activation of NO-GMPc pathway and may involve endothelium-derived hyperpolarizing factor release. 6

Dosage

Numerous dosage forms are available including juices, powders, capsules, liquids, creams, and lotions. Capsule formulation dosage guidelines are typically 1,000 mg once or twice daily with food. Follow manufacturers' suggested regimen.

Pregnancy/Lactation

Information regarding safety and efficacy in pregnancy and lactation is lacking.

Interactions

No drug-drug or drug-food interaction data could be found.

Adverse Reactions

Avoid use if hypersensitivity to any acai palm components exists. No adverse reaction data was found.

Toxicology

No toxicology data has been published.

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