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File: ■ Açai (*Euterpe oleracea*)
■ Phytochemistry
■ Pharmacology
■ Health Claims

HC 041131-423

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RE: Phytochemical and Pharmacological Assessment of Açai's Health Claims

Heinrich M, Dhanji T, Casselman I. Açai (*Euterpe oleracea* Mart.)—a phytochemical and pharmacological assessment of the species' health claims. *Phytochem Lett*. 2011;4(1):10-21.

Açai (*Euterpe oleracea*) berries are marketed for health benefits such as promoting rapid weight loss, improving digestion, fighting cardiovascular disease, and preventing the aging process. Such claims are based on "an alleged special phytochemical composition" of the berries and their antioxidant properties, say the authors. Many studies suggest that high levels of antioxidants such as polyphenols, phenolic acids, flavonoids, and carotenoids may reduce the risk for cardiovascular diseases and some cancers. These authors, from the University of London in England and Southern Cross University in Lismore, Australia, reviewed the evidence on the use of açai in the treatment and prevention of specific diseases, focusing on the phytochemical data on the species.

Açai, a multi-stemmed, monoecious palm, is abundant in the Amazonian estuary floodplains. With a strong history of use as a medicinal plant, it has been used to treat fevers, skin complications, digestive disorders, and parasitic infections.

With the emergence of the Internet has come the online availability of numerous herbal products and different information sources about herbal medicines and nutraceuticals. Açai is among the products advertised widely on the Internet in recent years.

For this review, the authors used Google Insight for Search, which shows search volume and regional search interest, to assess the global as well as regional interest in açai from 2004 to the present.

The predominant chemical constituents in açai are polyphenols, most notably anthocyanins and flavonoids. Cited in this review are reports of anthocyanin levels in açai pulp ranging from 88 mg/L to 211 mg/L. The major anthocyanins are cyanidin 3-

glucoside and cyanidin 3-rutinoside. Other reported anthocyanins, in minor quantities, include peonidin 3-rutinoside and peonidin 3-glucoside.

The major flavonoids found in açai are quercetin, orientin and its derivatives, as well as proanthocyanidins.

"Data concerning the species' antioxidant potential are conflicting," note the authors. One cited report concluded that anthocyanins were the predominant contributing factor to the antioxidant capacity of açai, which was found to be higher than that of muscadine grape juice and that of several berries (high-bush blueberries, strawberries, raspberries, blackberries, and cranberries).[1] One report adds that açai has been shown to have large contents of chlorophyll, as well.[2]

Also reported to be present in açai are fatty acids, amino acids, and nutrients, as well as small amounts of lignans. The main polyunsaturated, monounsaturated, and saturated fatty acids include linoleic acid, oleic acid, and palmitic acid. Other minor fatty acids and a range of lignans have also been reported.

In vivo studies on the bioavailability of both flavonoids and anthocyanins are limited. "The forms in which proanthocyanidins are absorbed or metabolized are not well understood and therefore their in vivo capacity is still open for interpretation," state the authors.

Açai extracts have exhibited a spectrum mostly of in vitro pharmacological properties; however, say the authors, the overall pharmacological findings relating to antiproliferative, anti-inflammatory, antioxidant, and cardioprotective activities are unclear and inconclusive. The quality of the studies varies, with most focusing on the antioxidant effects. "In general terms, such in vitro studies are very limited and in vivo studies practically absent. Overall, açai does not seem to have superior antioxidant levels based on current literature, and the evidence points to variable antioxidant capacities," the authors state.

Regarding its cardioprotective properties, açai supplementation led to better lipid profiles and appetite suppression in hypercholesterolemic rats.[3]

In two in vitro studies,[4,5] açai demonstrated strong antiproliferative activity; however, both studies failed to demonstrate any possible protective mechanisms of açai. Further investigation is needed.

The authors suggest that more rigorous intervention studies and clinical trials are needed on açai and other food supplements to assess their potential health benefits. Epidemiological studies should also be conducted on the incidence rates of coronary heart disease, obesity, and diabetes in people whose principle diet includes açai.

The authors recommend the establishment of strategies to prioritize lesser studied herbal medicines or nutraceuticals distributed or popularized on the Internet to assess their benefits and risks and to evaluate the health benefit claims made. The authors do not include the human trial that found açai to demonstrate an increase in antioxidant capacity (See HC 110682-373).[6]

—Shari Henson

References

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