

The Astounding Acai Berry

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Introduction

Higher intakes of fruits and vegetables have been positively correlated with a lower risk of disease. Current research is establishing the positive impact of berry fruits on health and disease prevention. The most powerful antioxidant berries to emerge in recent studies contain a class of polyphenols known as anthocyanins. These nutrients produce the deep red, blue, and purple pigments found throughout the plant kingdom. Fruits and vegetables bearing these colors – blueberries, cranberries, pomegranates, black currents, beets and acai – are especially rich in anthocyanins. Acai berry’s high antioxidant activity, along with additional nutrients suggests it’s potential in prevention of chronic diseases (Enten, 2010).

Background

- Acai berries, *Euterpe oleracea* Mart., come from the acai palm tree which is native to Central and South America (Sabbe, Verbeke, Deliza, Matta, & Van Damme, 2009)
 - Acai trees grow as tall as 80 feet (Sego, 2009)
- Small, black-purple-colored berries about 1-1.5 cm in diameter that grow in clusters on the acai palm tree (Sabbe et al., 2009)
- Each berry has a seed inside making up 85% of the fruit (Sabbe et al., 2009)
- Seed is surrounded by a thin pulp layer (about 1 mm) and covered by a hard deep-purple-colored shell (Sabbe et al., 2009)
- Consumed raw, as a pulp, in juice form, or in supplements (Marcason, 2009)
- Commercially, it can be found in beverages, ice creams, smoothies, etc. (Sabbe et al., 2009)
- Highly perishable, thus commercialization of berry in fresh form is limited to regional level (Sabbe et al., 2009)
- Acai oil is also found in a variety of cosmetic and beauty products (Nappo-Dattoma, 2009)



Nutrient Profile

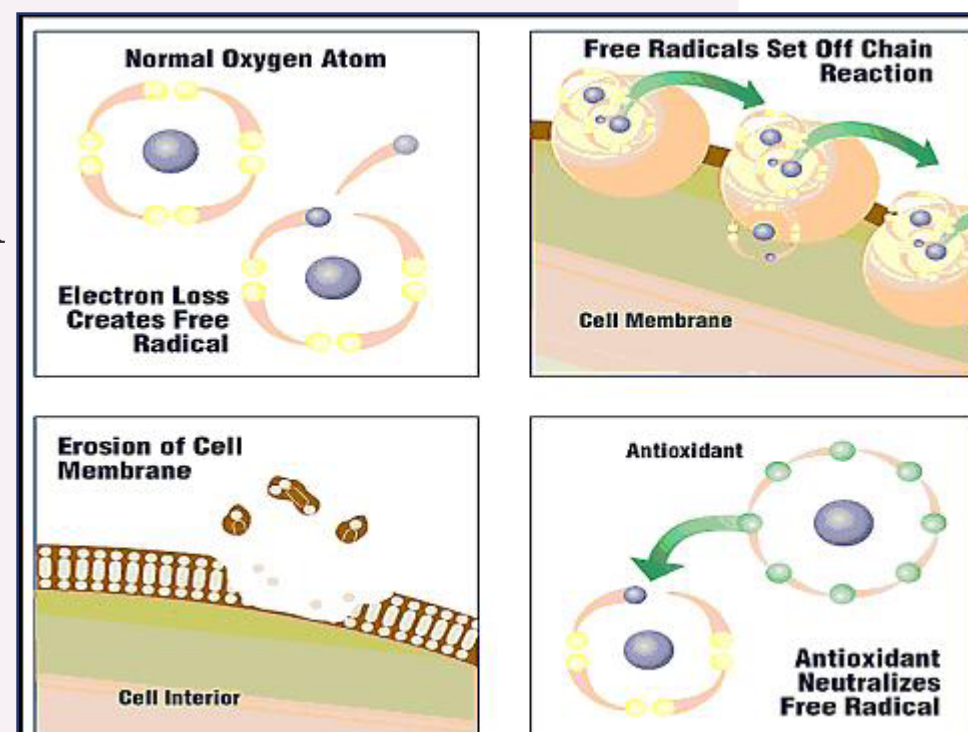
- Nutrients include vitamins A, C, and E, calcium, phosphorus, iron, thiamine, antioxidants, amino acids, essential fatty acids, sterols and fiber (Marcason, 2009) (Nappo-Dattoma, 2009)
- Nutrients per 100g (3.5 ounces) freeze-dried acai berry powder (Sego, 2009):

533.9 calories	52.2 g carbohydrate	44.2 g dietary fiber	8.1 g protein	32.5 g fat
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- No established recommended daily allowance (RDA) for acai (Sego, 2009)
- Acai juice is a viscous liquid containing 2.4% protein and 5.9% lipids while acai fruit pulp contains 4% protein and 12% lipids (Marcason, 2009)

Antioxidant Capability

- Cells in the human body withstand an estimated 10,000 individual attacks from externally introduced free radicals (Enten, 2010)
- Acai powerfully counteracts several of the most destructive free radicals stopping the oxidation process (Enten, 2010)
- Highest ORAC (oxygen radical absorbance capacity) value of any food tested with a rating of 18,400 units/100 g (Enten, 2010)
- In a randomized, placebo-control trial, 12 health individuals ingested a standardized acai extract, when serum antioxidant levels were sampled one and two hours later, the concentrations had increased at each interval (Sego, 2009)
- A study analyzing the antioxidant capacities of acai fruit pulp found the contributions of the anthocyanins to the overall antioxidant capacity of the fruit to only be approximately 10%, suggesting compounds not yet identified are responsible for a major part of the antioxidant capacity of acai fruit pulp (Lichtenthäler et al., 2005)



Health Benefits

- There are many emerging health benefits to acai berries. However, until health benefits are more scientifically proven, it appears to be more reasonable, cost effective, and safer to attain antioxidants from other fruit and vegetable sources (Marcason, 2009)

Longevity

- Potential for significant beneficial effects on longevity
- Study on the lifespan and survival of Drosophila melanogaster flies discovered dietary supplementation of 2% acai increased lifespan of females fed a high-fat diet by approximately 20% (Enten, 2010)

Cancer

- Evidence is building for acai as a cancer fighter
- Polyphenolic mixtures of acai pulp and oil extracts inhibited the proliferation of human colon cancer cells in the lab by up to 90.7% (Enten, 2010)
- Study on human leukemia cells found acai polyphenols reduced cell proliferation from 56-86%, triggering a self-destruct response (Enten, 2010)

Marketing Ploys

- Gained popularity in North America due to promotion by Nicholas Perricone, MD as a “Superfood for Age-Defying Beauty” on the Oprah Winfrey Show (Marcason, 2009)
- It has been heavily marketed as a dietary supplement (Marcason, 2009)
- Many health claims have been made on account of acai berries, with limited scientific research to support these claims (Marcason, 2009)
- The Better Business Bureau warns consumers to be wary of advertisements about acai products, especially online (Bowling, 2010)
- Some companies made it appear like Oprah Winfrey and Dr. Mehmet Oz had endorsed their acai products when in fact they had not (Bowling, 2010)

Safety

- Few studies have used human subjects when studying acai, but the available nutritional data indicates the risk of adverse effects is small (Sego, 2009)
- There is a potential for an allergic response (Sego, 2009)
- Some potent antioxidants can interact with medications, such as warfarin, due to competing metabolic pathways (Sego, 2009)

Cardiovascular

- Acai is emerging as a cardiovascular protector
- University of Rio de Janeiro study showed acai extract induced long-lasting endothelium-dependent vasodilation in the abdominal vascular tissue of rats, this is strongly linked to improved cardiovascular function (Sego, 2009)
- Supplementation with acai berries is shown to reduce total and non-HDL cholesterol in animals with experimentally induced high cholesterol (Enten, 2010)
- Results from a study investigating the antioxidant potential and hypocholesterolemic effects of acai pulp ingestion in rats suggest the consumption of acai improves antioxidant status and has a hypocholesterolemic effect (lowering total and non-HDL cholesterol levels) in an animal model of dietary-induced hypercholesterolemia (de Souza, Silva, Silva, Oliveira, & Pedrosa, 2010)

Brain Function

- Acai has potential implications for the treatment of neurological disorders, including Alzheimer’s disease and Parkinson’s disease (Enten, 2010)
- Pre-treatment of brain tissue from the cerebral cortex, cerebellum, and hippocampus with acai decreased free radical-induced damage of lipids and proteins in all brain tissues tested (Enten, 2010)

Conclusions

- The acai berry is a nutrient rich exotic fruit containing many nutritional components, such as antioxidants
- Acai berries have many potential health benefits including increased longevity, fighting cancer, cardiovascular protection, and increased brain function
- Until health benefits are more scientifically proven, it seems more reasonable, affordable, and safe to obtain antioxidants from other fruit and vegetable sources

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