

Acai Berry - The Amazon's Super Food

World of Acai

all about acai



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Website: worldofacai.com Phone: 1-877-265-3772 E-mail: info@worldofacai.com



Acai Berry Product Preparation

Acai berries grow in clusters of 700 to 900 fruit. Each is about 1 inch in diameter and has a single large seed. While acai berries resemble grapes, they produce far less pulp; in fact, about 80% of each berry is seed. However, the way that they are prepared and served is similar.

Traditionally, the berries were harvested by hand, though this has changed as the demand for the popular fruit has increased. Acai palms are now farmed and mass-produced to keep up with the health-conscious fan base they have attracted.



In a study of three traditional Caboclo populations in the Amazon region of Brazil, açai palm was described as the most important plant species because the fruit makes up such a major component of diet (up to 42% of the total food intake by weight) and is economically valuable in the region (Murrieta et al., 1999). It is still prepared in the traditional way in much of Brazil; the pulp and juice are served in cuias with tapioca and sugar, or alone chilled in a bowl. Another traditional method of preparation was to combine the juice with a starchy root called manioc to create a purple porridge.

Acai berries are first soaked in water to soften their hard outer shell. Each fruit is then squeezed and strained to get rid of the seed, leaving a creamy, oily liquid. Acai pulp and juice must be kept refrigerated to maintain its nutritional integrity. The anthocyanins in the juice, which are responsible for producing the antioxidants, degrade quickly when exposed to heat. This liquid can be used in a number of different ways:

Acai Juice

This is Acai in its purest form. However, many modern manufacturers dilute the Acai juice with apple juice or red wine. It is also commonly mixed with guarana juice, the juice of another high-energy berry that is also high in caffeine. Acai juice must be kept refrigerated.

Acai Pulp

Acai pulp can be frozen and is a great way to ensure you are getting the maximum benefit from the fruit. The pulp is frozen into bars and should be kept at a temperature below -18°C. About one hour before serving, the bar is removed from the freezer and allowed to thaw

slightly. It is added to smoothies or other cold dishes and consumed immediately.

Baking/Preserves

Though there are many recipes for Acai pies, tarts and jams, the nutritional value is debatable as the heat involved in the cooking or canning process breaks down the nutritious components of the berry.

Pulping into Wine

Despite the name, Acai wine is actually non-alcoholic. It simply refers to the juice extracted from the berries. This liquid has 10 times the antioxidant power of red wine from grapes and 30 times the anthocyanins.

Energy Drinks

Acai juice is often mixed with other natural and herbal liquids to create energy drinks such as Red Bull. The nutritional value of these drinks is debatable, as acai begins to lose its potency 24 hours after the juice is extracted.

Powders

Acai powders may be prepared using either the freeze drying or spray drying methods described below. It may come in loose powder form, in capsules or mixed into energy bars. As you will see below, the key to determining its nutritional value is in the way that it is processed.

The method used to prepare the acai juice or extract is crucial in preserving its full health benefit. Some methods are cheaper and easier, and are therefore more attractive to large companies who sell the drinks in mass quantities. Considering that the acai industry has exploded into a \$2 million market in recent years, it's no wonder that some companies try to move as much product as possible with little concern for the integrity of the product.

It is crucial that you understand the different methods used to prepare acai products in order to determine which is most potent, offers the greatest health benefits and contains the least additives possible.

Below are the ways that acai berries can be processed and delivered to the consumer:

Concentrating

When acai juice is concentrated and subsequently reconstituted, much of the nutritional benefit is lost through pasteurization and bottle sterilizing. Checking with your manufacturer to ensure that the product was cold bottled is one way of knowing that the healthful anthocyanins have not been destroyed by heat during the bottling process.

Sodium benzoate is sometimes added to hot bottled acai drinks to prolong the shelf life. However, this creates a problem of its own; it may lead to the formation of carcinogenic benzene. The manufacturer should be able to guarantee a benzene-free product if they have used a cold bottling technique.

Spray Drying

This is one of the cheaper ways to process acai berries to produce an extract. Unfortunately, spray drying requires that the berries are heated to a very high temperature to remove the water content and, as we have discussed, this destroys the anthocyanins that produce the healthy antioxidants. After the heating process, the remaining berry product is sprayed with a substance such as maltodextrin.

The end result is a dried powder that may consist of up to 40% maltodextrin. Since it is not an actual ingredient, rather an additive in the manufacturing process, maltodextrin does not need to be listed on the label, according to the FDA.

Extracts

Other herbal remedies extract the active, beneficial component out of the ingredient and concentrate it to make a "super" health supplement. However, the entire acai berry has health benefits. It just doesn't make sense to extract any one portion, as the seed, pulp, juice and stem all have something to offer.

The other problem with acai extracts is that most are made of spray dried berry powder. The label may say "concentrated", but the extract contains a high concentration of additives.

Freeze Drying

This is the preferred method of acai berry preparation. It is not the fastest or cheapest way, but it preserves the integrity of the berry without adding artificial substances.

Freeze drying requires little heat and no additives. The acai pulp is dried, frozen and turned into a powder that can be added to drinks, cereal, ice cream and other cold dishes.

Acai's taste is best described as a robust mixture of berries and chocolate. This taste may be mimicked by artificial ingredients, so it is important to read the label carefully and ask questions of the manufacturer, if necessary. They should be preparing the acai berries within 24 hours of harvest, using a method that does not destroy the healthful components of the fruit.

Acai Shelf Life

Though some manufacturers claim that their acai products have a shelf life of up to a year, or one week if the product has been opened, the safest bet is to consume it as soon as possible.

Choose a retailer or manufacturer who specializes in acai supplements, as they are more likely to move the product quickly and have a consistently fresh supply.

The most important part of the process occurs within 24 hours of the harvest, long before the product ever reaches your table. Ensure that your supplier is processing the berries within this timeframe.



The Powerful Components of Acai

Acai has exploded as a "superfood" because it offers a vast array of benefits with no known side effects. Unlike some herbal remedies, acai products are not known to negatively interact with medications or other foods. However, any change in diet should be discussed with your physician.

What is it that makes acai so beneficial? There are a number of different components that all contribute to the overall value of this unassuming fruit. In the next section, we will explore the health benefits that each of these components provides.

Vitamins

Vitamin B

The most abundant vitamin in acai berries, Vitamin B works to improve sleep and increase stamina and energy. It also assists in the absorption of iron, manganese, chromium, potassium and vanadium.

Vitamin B2 (Riboflavin)

Acai is rich in riboflavin, which serves several functions in the body. First, it is necessary to process amino acids and fats; second, it activates the Vitamin B6 and folic acid in the body; and third, it helps to convert carbohydrates into usable fuel for the body.

Vitamin B3 (Niacin)

Every cell in the body requires niacin to assist in cellular energy production; simply put, niacin works with two important co-enzymes to produce the body's fuel.

Beta Carotene and Vitamin C

The high levels found in acai berries contribute to better vision. Vitamin C can also help boost collagen production, an important factor in healthy cartilage development.

Vitamins K & D

Acai is a great source of these vitamins and can reduce bone density loss through healthy bone growth and mineralization. Vitamin D also assists in mineral metabolism.

Acai Fast Facts

- The Acai Berry has 10 times the antioxidant power of red grapes.
- The Acai Berry has double the antioxidant power of blueberries.
- The Acai Berry has 10-30 times the anthocyanin of red wine
- Acai has been called the #1 Superfood by Dr. Perricone.
- Acai is an excellent source of fiber, healthy fats and proteins.

Vitamin E

Acai contains ample amounts of Vitamin E, well known for its ability to restore damaged tissues. It also works to protect the tissues against oxidative stress.

Minerals

Calcium

Acai is rich in a highly absorptive form of calcium. This aids in the growth and maintenance of healthy bones and teeth,

Potassium

The most abundant mineral in the acai berry, potassium is essential to the body's regulation of water balance, blood pressure and acidity levels. It also plays a crucial role in the body's regulation of electrical impulses in the heart. Finally, potassium aids in muscular health and neuromuscular activity.

Copper

Acai has a high copper content. Copper is a trace mineral and the body does not require a lot of it; however, many people do not even get the small amount required in their diet as there are few copper-rich foods. Copper is an important co-factor for enzymes involved in hemoglobin and collagen formation and is involved in incorporating iron into the hemoglobin.

Manganese

Acai is unusually high the trace mineral manganese. It is stored in the bones, liver, kidneys and pancreas and is necessary for normal brain and nerve function. Manganese aids in the formation of connective tissues, blood-clotting factors, bones and sex hormones. It also assists in calcium absorption, blood sugar regulation and carbohydrate metabolism.

Zinc

Zinc works to help the body heal from wounds and cuts and in boosting the body's natural immunity. It is also important in the maintenance of healthy skin and is vital in helping your body to regulate the 300 processes involved in sensory perception (taste, smell, sight, sound, touch).

Phytonutrients

Phytonutrients are nutrients derived from plant material that have been shown to be necessary in sustaining human life. The powerful antioxidant anthocyanins so abundant in the acai berry work to neutralize potentially harmful free radicals. This helps to ensure the healthy function of the body's systems and organs. The antioxidant phytonutrients also help ward off the damaging effects of LDL cholesterol on the arteries.



Acai provides important nutrients and antioxidants to promote good health and fight signs of aging.

Other Nutritious Components

Fiber

Acai is an excellent source of fiber, with 44.2 grams of fiber per 100 grams of acai. Fiber has many benefits and is an important part of your diet; it works to decrease ingestion, prolong retention of food, slow absorption in the small intestine, nourish the colon and speed up the passage of waste and soften stool. One liter of acai actually contains 90% of the recommended daily fiber intake.

Essential Omega Fatty Acids

The acai has a fatty acid ratio very similar to that of olive oil, containing Omega 3, 6 and 9. These serve to maintain HDL (good cholesterol) while lowering LDL (harmful cholesterol). These fatty acids increase healthy cell development and as a result help to combat heart disease.

Amino Acids

Acai juice and pulp provides an almost perfect essential amino acid complex, which is crucial in muscle development, regeneration, endurance and strength. Amino acids, the building blocks of protein, are produced in the liver. However, it produces only 80% of the body's supply – the remaining 20% must be provided by your diet.

Theobromine

This alkaloid is similar to caffeine, however it has a few important advantages over the better known stimulant. It has a lesser effect on the central nervous system, while stimulating the heart to a greater degree. Theobromine acts as both a heart stimulant and a vasodilator, meaning that it increases the heartbeat but also works to dilate the blood vessels, leading to better heart function with lower blood pressure. It is also beneficial to the lungs; theobromine suppresses vagus nerve activity, which reduces coughing, and relaxes the smooth muscles in the bronchi to make breathing easier, especially in patients with asthma.

Nutritional Breakdown

The acai berry is widely considered the most nutritious fruit on earth. The following chart is a breakdown of some of the nutrients in acai and the quantities/concentrations in which they occur.

Content per 100 grams of Acai	
Acid	0.13%
Fiber	16.9g
Protein	13g
Niacin	0.40mg
Phosphorus	58mg
Vitamin B1	0.36mg
Vitamin B2	0.01mg
Calcium	9mg
Vitamin C	9mg
Calories	247
Potassium	932mg
Lipids	48g
Sodium	56.40mg
Magnesium	174mg
Iron	1.50mg
Copper	1.70mg
Zinc	7mg
Vitamin E	45mg
Anthocyanins	1.02g

The actual nutritional value may vary depending on the individual palm that the berries came from; however, the variance should not be great. As long as the acai juice, pulp or powder was harvested, processed and packaged correctly, you can be confident that you are enjoying all that this superfruit has to offer. Try to use it in its purest form, as a freeze dried powder, purred pulp syrup or fresh juice, rather than in energy drinks which may be heavily diluted with other substances.

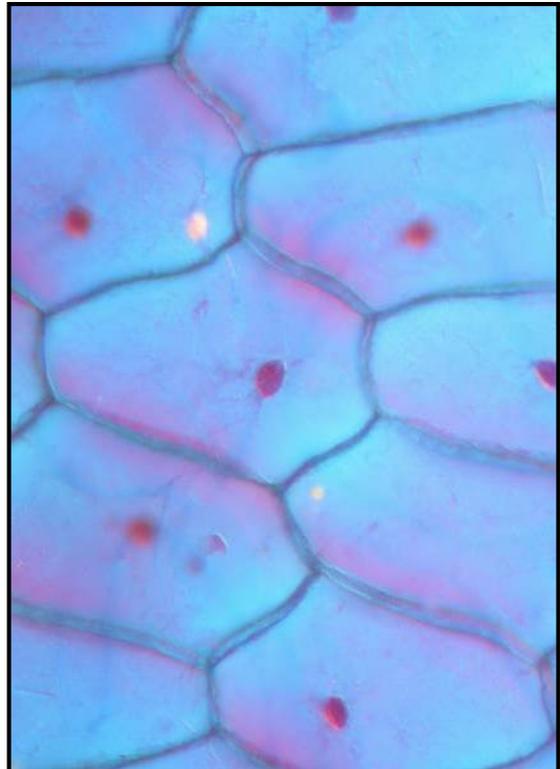
Acai clearly provides many vitamins, minerals and other nutrients necessary for healing, fighting disease, cell regeneration and promoting good general health. In the upcoming sections, we will explore these healthful, youth preserving benefits in greater detail.

Acai as an Antioxidant

The healing and rejuvenating power of antioxidants is well known and documented. However, many are unsure of how this works. Without taking you back to your dreaded high school chemistry days, we will explore the ways that oxidation damages cells and subsequently the way in which the antioxidants in acai products prevents and corrects this damage.

Oxidation is a naturally occurring process in the body and actually refers to the loss of an electron. Every cell in the human body consists of a nucleus, neutrons, protons and electrons. The number of protons, or positively charged particles, in the cell determines the number of electrons, or negatively charged particles, orbiting the atom. The correct number of electrons is important, as it will determine the cell's chemical behavior. The cell will try to maintain the balance of protons and electrons by either picking up missing electrons or dispensing extras.

If the molecule finds itself missing an electron, a free radical is formed. It will attack the nearest stable molecule in an effort to steal back the needed electron. This starts a chain reaction, as the cell that lost an electron to replace the missing electron in the first one has now produced a free radical of its own. This process eventually leads to the disruption of the cell as the free radicals chip



away at the cell wall, causing damage that accumulates with age. Eventually, the free radicals can affect the cellular DNA. This cell damage shows itself in the human body is a number of ways:

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- Cancer
 - Arteriosclerosis
 - Atherosclerosis
 - Heart Disease
 - Cerebrovascular disease
 - Stroke
 - Emphysema
 - Diabetes Mellitus
 - Rheumatoid arthritis
 - Osteoporosis
 - Ulcers
 - Sunburn
 - Cataracts
 - Crohn's disease
 - Behcet's disease
 - Aging
 - Senility

(<http://www.bsherman.org/freeradicals.htm>)

Antioxidants Prevent Cellular Damage

Antioxidants prevent this damage by stabilizing the free radicals before they cause cellular damage. They act as donors, supplying one of their own electrons to stabilize the molecule and effectively preventing them from stealing one from another healthy molecule. Antioxidants are able to do this because they do remain stable after losing an electron of their own. They are able to function normally after donating an electron.

Sources of Antioxidants

Antioxidants are naturally present in the human body. Problems occur, however, when there are not enough to neutralize the number of free radicals in the system. Free radicals are produced in the body, but we are also bombarded with them through smoking and our polluted environment. Unless we are obtaining additional antioxidants in our diet, the balance of free radicals to antioxidants shifts out of our favor.

Many fruits and vegetables contain antioxidants, however the acai berry is incredibly rich in these age and disease fighting agents. Another important factor is that there are different types of antioxidants. Without getting into another chemistry lesson, suffice it to say that acai and other natural plant products contain a wider variety of antioxidants than supplements, which often contain only one type. Therefore, it is better to obtain antioxidants through diet than by taking supplements.



Acai is unique because of the sheer amount of the antioxidant anthocyanins it contains. This is the same substance linked to the low incidence of heart disease in the French population. Even though their lifestyle typically includes a diet heavy in cheese and bread, and with the high rate of smoking and drinking alcohol, the French still enjoy an atypically low rate of heart disease.

This has been linked to their intake of red wine, which is particularly high in anthocyanins. They work to lower cholesterol and prevent damage to the heart and arteries by neutralizing the free radicals that would otherwise wreak havoc on the cardiovascular system. For years, red wine was touted as the best preventative agent against heart disease.

Acai has quickly overtaken that title. People who use acai products enjoy up to 30 times the amount of anthocyanins as red wine drinkers. A balanced diet with a variety of fruits and vegetables is recommended for optimum antioxidant intake; acai is a crucial component of that healthy diet as the richest source of antioxidants.

Acai in Cancer Prevention and Treatment

“More than a decade ago the National Cancer Institute launched the Eat 5 A Day for Good Health program to move Americans closer to a cancer-fighting diet. Today the evidence is even stronger that a diet high in fruits and vegetables can help prevent cancer over a lifetime.”

- The American Cancer Society

We know that antioxidants prevent cellular damage by giving electrons to stabilize free radicals. At the most basic level, cancer is what happens when abnormal cells grow and multiply rapidly. It's not surprising then that many are curious about the possible link between antioxidants and cancer prevention. After all, if antioxidants can prevent and repair cellular damage, couldn't they prevent and cure cancer?

Studies are being done to determine just that – and the results of some are promising. One in particular, performed by a team led by Stephen Talcott at the University of Florida, studied the possible link between cancer treatment and the acai berry.

UF Study Shows Acai Extract Has Leukemia Fighting Power

Talcott, an assistant professor in U of F's Institute of Food and Agricultural Sciences, published his study in the Jan 12, 2006 edition of the Journal of Agriculture and Food Chemistry. It showed that extracts from acai berries triggered a self-destruct response in up to 86% of leukemia cells tested.

The study used different concentrations of the acai extract on leukemia cells over a period of 24 hours. The results were promising, although Talcott planned to conduct a further study to determine how quickly and effectively the acai extract could be absorbed and used in the human body.

“Acai berries are already considered one of the richest fruit sources of antioxidants,” Talcott said. “This study was an important step toward learning what people may gain from using beverages, dietary supplements or other products made with the berries.”



Stephen Talcott, an assistant professor with the University of Florida's Institute of Food and Agricultural Sciences in Gainesville