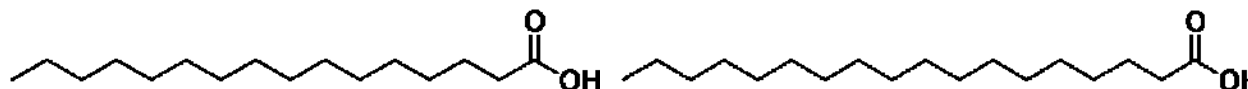




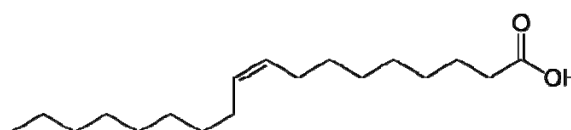
Fat

Cocoa beans contain approximately 50% fat. It is primarily comprised of triglycerides containing two saturated fatty acids, palmitic and stearic acids, and the mono unsaturated oleic acid. These fats do not raise blood cholesterol. However, when consuming milk chocolate or lower grade chocolate where a part of the total fat content comes from milk fat or various other types of fat, blood cholesterol levels might be adversely affected.



Palmitic Acid

Stearic Acid



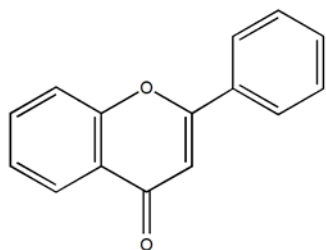
Oleic Acid

Sugar

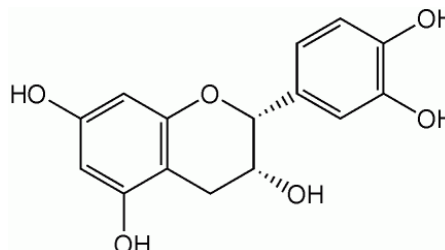
The cacao bean contains carbohydrates - most of it is starch, soluble dietary fibers and insoluble dietary fibers. A very small proportion is simple sugars. Sugar is added during the manufacture of chocolate.

Antioxidants

Cocoa beans contain polyphenols (similar to those found in wine) with antioxidant properties which are health beneficial. These compounds are called flavonoids and include catechins, epicatechins, and procyanidins. The antioxidant flavonoids are found in the nonfat portions of the cocoa bean. The flavonoids also reduce the blood's ability to clot and thus reduces the risk of stroke and heart attacks. Epicatechin, one of several catechin flavonoids in chocolate, improves blood flow and thus seems good for cardiac health. Epicatechin also has nearly twice the antioxidant content of red wine and up to three times that of green tea.



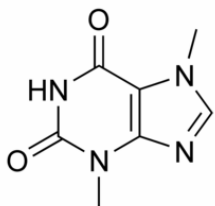
Flavonoid Backbone



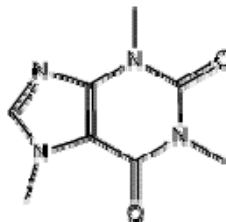
Epicatechin

Methylxanthines

The major methylxanthine in cocoa beans is theobromine. Theobromine is a very mild stimulant with a mild diuretic action (increases the production of urine). Cocoa beans contain a very small amount of caffeine. Please note that theobromine can be toxic to animals like dogs, cats, parrots and horses.



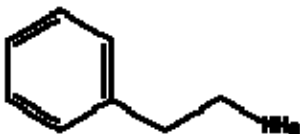
Theobromine



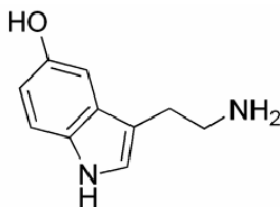
Caffeine

Neurotransmitters

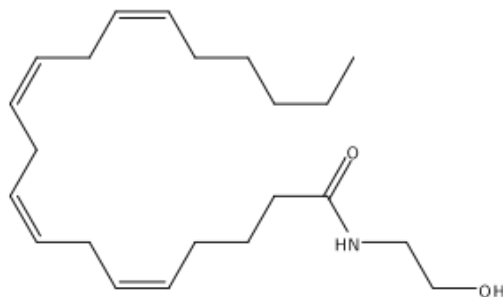
Phenylethylamine is a slight antidepressant and stimulant similar to the body's own dopamine and adrenaline. Cocoa and chocolate can increase the level of serotonin in the brain. Serotonin levels are often decreased in people with depression and in those experiencing PMS symptoms. Endogenous cannabinoids such as anandamide, occur in minute quantities in cocoa (fermented *Theobroma cacao*) beans, in sea urchin roe, and in chocolate, though there is some controversy over whether they have any effects on the body in these quantities.



Phenylethylamine



Serotonin



Anandamide

Essential minerals and Vitamins

Cocoa beans are rich in a number of essential minerals, including magnesium, calcium, iron, zinc, copper, potassium and manganese. Cocoa beans contain vitamins A, B1, B2, B3, C, E and pantothenic acid.

**See's
CANDIES**