

## *Cacao, Better Than A Kiss?*

Many myths and legends surround the ancient tasty delight known as chocolate. Manufacturers and consumers alike have claimed it can do everything from cure depression to fortify soldiers for battle. While chocolate has become famous around the world, most people don't know what chocolate actually is. Let's take a look at this world famous, yet little understood wonder called chocolate.

Chocolate comes from the seed of the cacao tree, which is a plant indigenous to the Central and Southern American rainforest. It has large leaves and grows best in shady forest with tropical temperatures. The cacao tree is one of the few trees on earth that blooms all year round and bears fruit at the same time. The fruit of the cacao tree grows to about four to five inches and turns a number of different colors when ripe. The fruit, visually, looks like a butternut squash that has been stretched into the shape of a football.

Originally, the Mayans consumed the beans from inside the cacao fruit as a spice after grinding them. The most common use was as a beverage. The ground beans

were added to hot water and then flavored with vanilla or chili pepper. This beverage, though simple, was typically reserved for the ruling class.

In the late 15<sup>th</sup> century, when Spain conquered the Aztecs, the Spanish discovered the beverage and began exporting it back to Spain where it soon became a delicacy. Within a hundred years, most of Europe had developed a taste for this bitter, yet tasty bean and soon chocolate houses, the predecessors of the coffee house, sprang up all over the European continent.

A contributor to this widespread popularity was the Catholic Church. In 1569, Pope Pius the 5<sup>th</sup> declared that consuming chocolate did not constitute breaking the fast on fasting holidays. Every pope until Benedict the 14<sup>th</sup> affirmed his decision. The message was clear: popes love chocolate.

Only the rich, however, were able to afford the chocolate beverage, which by then had become a mix of ground cacao (misspelled cocoa) bean, hot water with sugar added to it so that the European palate could tolerate the bitter flavor. It wasn't until 1828 when a Dutchman invented a machine that could press nearly

all the fat out of the cocoa paste and turn into powder, which we now call Dutch cocoa. With this new invention, the chocolate recipe became powder, milk (to return 3% fat back to the cocoa) and a little sugar.

Two decades later, the first bar chocolate was made by adding the cocoa fat taken out by the Dutch press and adding it back into the powder to make a moldable mass.

Now the world finally had a viable commercialized chocolate that could be preserved and sent all over the world. We now have moldable chocolate that can be shaped into Easter bunnies and holiday coins of all shapes and sizes. The sad fact is, however, that these cannot be honestly called chocolate. Real chocolate has cacao as the primary ingredient. Today's chocolate is mostly sugar, then milk, then a fatty filler like cocoa butter or something less expensive, and then possibly ten to fifteen percent 'cocoa solids'.

The flavor that people associate with chocolate today is actually just milk and sugar. A good example is white chocolate. White chocolate is milk chocolate with no cocoa in it. When manufacturers and scientists talk

about certain health effects, both positive and negative, of chocolate, it is important to recognize if they are making a distinction between milk chocolate, which is *candy* and cacao which is the pure plant substance.

Another concern with modern chocolates is the use of genetically engineered bacteria that are used to process the cacao beans. In order to remove the bitter taste, cacao beans have to be fermented in yeast. The most common yeast bacteria employed for this purpose are *Candida krusei* and *Geotrichum*. These particular fungi have been known to cause problems in those who have weaker immune systems or with liver problems. In fact, that particular strain of *Candida* has one of the higher mortality rates than many of the other strains.

Cacao contains a substance called *theobromine*. It is a unique molecule that occurs only in the cacao plant. Its properties are extremely similar to caffeine. In fact, many people believe there is caffeine in chocolate, but it is actually theobromine. The effects of theobromine and caffeine are similar, but the differences are significant enough that when presented, it is clear that

theobromine is the preferred choice.

Caffeine is a stimulant that is fast acting, but also quickly dissipates. It increases one's level of alertness, but also increases emotional stress, as well as stimulates the cardiovascular and respiratory systems. It has also been found to be physically addictive with definite withdrawal symptoms. Caffeine is also an extreme diuretic and greatly contributes to dehydration, the prime cause of headaches.

Theobromine, on the other hand, is also a stimulant, but its effect is mild and lasts much longer than caffeine. It is also a mild anti-depressant that is not addictive and has no withdrawal symptoms. Though it is a diuretic, its effect is much less than caffeine and thus has a smaller contribution to potential dehydration. In fact, in some individuals, the stimulant effect of the theobromine in cacao actually relieves headaches.

The theobromine in cacao, though not known as such, has been used for thousands of years. The great empires of ancient Mesoamerica fed it to their soldiers in order to increase their marching capacity on less food. In fact, I believe one of the

reasons Europeans tolerated its bitter flavor was because of its mild narcotic effect. Another interesting use of cacao in the past was as an anti-diarrhea treatment.

It gets better, at West Virginia's Wheeling Jesuit University researchers have found that cacao may increase your attention span, reaction time, memory, and problem-solving skills due to an increased blood flow to the brain.

In any case, though it may not have the fatty, sugary-goodness of a Hershey Kiss, natural cacao is a much healthier alternative to coffee, milk chocolate, and most of the other things you find on the menu at Starbucks. But hey, even the Aztecs didn't eat it straight. They added vanilla, black pepper, cinnamon, or other creative varieties. Be creative, or better yet, go find out if cacao really is an aphrodisiac!



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