



Ethnobotanical Leaflets



Green Tea: Nature's Rediscovered Ancient Medicine

By Amy Huddleston

According to legend, tea originated in China in 2737 B.C. with Emperor Shen Nung, who observed that those who boiled their water before drinking it were bestowed with good health. One day he was boiling water when a gust of wind blew leaves from a tea tree into his pot. He was very pleased with the drink's aroma and taste, and thought the drink to be sent from heaven. Shortly after tea was invented, it found its way to Japan and spread throughout Asia (2). Tea did not make its way to the United States and Europe until about 1650, when it was brought over by the Dutch. At first, tea was only available to the rich and royalty because it was so expensive. Tea leaves were brought to England by the East India Company in 1669, and in 1721, all tea imported to England came under the monopoly of this company. In the 1800's, the price of tea went down as the supply grew due to the "clipper's" who came to London from China with their cargo in a race to get the best prices (2).

It has been about 5,000 years since tea was discovered, yet it still remains as the second most consumed beverage in the world, with water holding the number one position. Green tea has always been and still is the most popular tea in China and Japan. Today, 90% of green tea comes from China, where they devote over 4 million acres to this plant's cultivation (1). In America, black tea accounts for approximately 80-90% of the tea consumed, with green and oolong tea sharing the remainder of the percentage. But, green tea was the top imported tea in the U. S., above black, up until about 1915. It was also more popular than black tea in Britain until the eighteenth century. Teas have had a huge impact on America, especially in our fight for independence. The British government put a tax on the American Colonists' tea in 1767. The Colonists protested "taxation without representation" and stopped the tea from being unloaded. They dressed up as American Indians in December of 1773 and took over ships from the East India Company, throwing the tea overboard in what we now call the Boston Tea Party. This act eventually led the way to the independence of America (1).

There are three categories of tea: black, oolong, and green. All tea comes from the leaves of the plant *Camellia sinensis*. The fermentation process of the leaves after harvest is what makes these teas different. Black tea is fermented, oolong tea is only fermented partially, whereas green tea is steamed and not fermented at all (1). Because green tea is the least processed and freshest of the teas, it has more health benefits than the others do. Green tea also contains significantly less caffeine than black tea, but it

has been found that decaffeinated green tea lacks the health benefits that the leaves possess in their natural state. The benefits of the tea are also decreased when milk is added to the drink. When preparing green tea, you should not steep in boiling water, but rather in hot water (approximately 160-200 degrees). If using loose tea leaves, one teaspoon tea should be added for a little over one cup of water (2).

Each kind of tea has a slightly different effect on the body. Black tea is the strongest of the three types of teas, contains more caffeine (although still half the caffeine of coffee), and is a good tea for the morning. Green tea is said to be good at night and supposedly has a calming effect. The Chinese and Japanese believe that green tea purifies and cleanses the body. They also feel that it cools the body, where black and oolong teas heat the body. The medicinal powers of green tea are so strongly believed in the Orient, the Chinese actually say "it is better to take green tea than to take medicine." Some studies have shown that black tea may have adverse effects, actually increasing the risk of certain cancers (Fujiki, 1996). Green tea taken in moderation can reduce the risk of cancer, but if more than five cups a day are consumed, it may increase the risk of pancreatic cancer. The consumption of one to four cups per day has shown no harm; only benefits (Imai, 1993).

Scientifically, the health benefits of green tea have been proven and have been mentioned in such newspapers and journals as: The New York Times, USA Today, CNN, Chinese News Daily, Journal of the National Cancer Institute, etc. (2). Green tea is anticarcinogenic, and controlled studies have shown that the two components that make it so beneficial are polyphenol and epigallocatechin gallate (EGCG). EGCG is an anti-oxidant, and is more powerful than other anti-oxidants such as BHA, BHT, vitamin C, vitamin E, and resveratrol (Tijburg, 1997). Dr. Lester Mitscher, a professor of Medicinal Chemistry at the University of Kansas found in a study in September of 1997, that green tea has in it the strongest of any known form of anti-oxidants. Dr. Mitscher has devoted the past ten years researching green tea and its health benefits. He sparked an interest in the subject while traveling through Asia. He noted his surprise in the fact that the people of these regions had significantly lower rates of cancer compared to Americans, even though they have a higher rate of cigarette smoking and poverty. He believed that the daily consumption of green tea could be a possible reason, and this became the focus of his research. Mitscher co-wrote a book with Victoria Dolby about this research, called *The Green Tea Book: China's Fountain of Youth* (Avery Publishing Group: 1996) (1).

When it comes to neutralizing free radicals, EGCG is 25 times more powerful than vitamin E, and over 100 times as powerful as vitamin C. Anti-oxidants are important because they can prevent diseases such as cancer by preventing the cellular damage that lead to such conditions. EGCG also forces certain cancer cells into a situation called "apoptosis," where these cells are either killed or kill themselves (Imai, 1993). This chemical can also stop the formation of tumors by inhibiting urokinase, an enzyme that is necessary for the growth of tumors. A study was done on green tea's ability to prevent cancer, by Dr. Jerzy Janlern and Associates, from the Medical college of Ohio in June of this year. This study, which was published in the science journal *Mature*, compared amiloride, a well-known urokinase inhibitor, with green tea. Amiloride can only be taken 20 mg per day at the max, where each cup of green tea contains approximately 100-200 mg EGCG, and is therefore more effective as well as safe. Earlier studies on the inhibition of urokinase showed that it could cause complete remission of cancer in

mice (Fujiki, 1996). Polyphenol is also a potent anti-oxidant found in green tea that helps prevent certain kinds of cancer. In dry weight, a green tea leaf is about 40% polyphenols. These anti-oxidants prevent LDL cholesterol from oxidizing and have been proven to be very beneficial to the heart. Catechins in green tea are also believed to prevent cardiovascular disease as well as cancer (Imai, 1996). Green tea has shown to be antibacterial. It has been proven to have the ability to kill *Bacterium acne*, the bacteria that causes acne, as well as *Staphylococcus aureus*. Green tea extract can also destroy *E-coli* and *Salmonella* on contact, as well as many other disease causing bacteria. Green tea leaves, in their natural form, contain fluoride and can help prevent cavities and strengthen bones. It also kills the bacteria which cause gum disease and gingivitis (Ode, 1993).

The American Medical Association shows that green tea can lower cholesterol levels, high blood pressure, and reduce the risk of strokes (especially in men). The National Cancer Institute reports that because of the highly effective anti-oxidants in green tea, it can ward off esophageal and skin cancer, just to name a few (2). There are many more therapeutic values in green tea, including: aiding digestion, blood purification, ensuring regularity, lowering body temperature, strengthening teeth and bones, boost immune system, enhance heart function, suppress aging, deter food poisoning, fights virus, and lowers blood sugar levels. The Japanese, who drink green tea every day, have half the rate of lung cancer in smokers than American smokers. Green tea also has shown to inhibit breast and prostate cancer in test tubes and animal studies. Waun Ki Hong, a Medicine Oncologist from M.D. Anderson points out that the Japanese do in fact have a lower rate of cancer, and that those who develop cancer, even when drinking green tea, tend to develop it later on in life (Fujiki, 1996). A study done in China in 1994, published in *CardiSense Magazine*, showed that green tea reduced the risk of esophageal cancer by 57% in males and 60% in females. Green tea also has some benefits for the body if used externally. It can be used to stop or slow bleeding, and can relieve itchy rashes and bug bites. Also, many hair and skin care products make use of tea tree oil to add shine and replenish. Researchers are also looking into green tea as a natural sun block (2). The first human trial of green tea as a cancer fighter recently won approval from federal regulations in Texas. Doses of green tea will be given to cancer patients whose condition was determined untreatable. The research will be done by doctors at the University of Texas M.D. Cancer Center, and their colleagues at the Sloan-Kettering Cancer Center in New York. Little, if any, side effects are expected during the experiment (2).

Green tea may have numerous health benefits, but much more research is needed if we want to find its true role in the fight against such diseases as cancer. Green tea has been around for 5,000 years, yet we are just now realizing its potential benefit in America, as well as around the world. It is amazing the kind of power that one little plant could possess, and how its components could completely change our lives. Since green tea had little caffeine and is one of the mildest of the teas, there are no adverse side effects. Now that we have rediscovered this ancient wonder, we need to grab hold of it and use it to our advantage.

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