



# HerbClip™

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**FILE: ■ Coffee (*Coffea arabica*)**

**■ Functional Food and Medicinal Herb**

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**RE: Coffee's Role as Functional Food and Medicinal Herb**

Meletis CD. Coffee -- Functional food and medicinal herb. *Altern Complement Ther.* February 2006;12(1):7-13.

Coffee (*Coffea arabica*) is the most frequently consumed functional food in the world: in the United States alone, there are 108 million coffee consumers who spend \$9.2 billion in the retail sector and \$8.7 billion in the foodservice sector each year.<sup>1</sup> In addition to its cultural significance, coffee has been shown to provide therapeutic benefits. The author reviews recent research into coffee's active constituents and its potential clinical applications. The article presents the positive benefits of coffee and looks at its antimicrobial effects, its antioxidant power, its impact on cognition and mood, and its effect on asthma, bronchitis, cardiovascular disease, diabetes, gastrointestinal and liver health, Parkinson's disease, and other neurological conditions. The author does caution that "one size does not fit all," and that certain people with underlying health conditions should probably be advised to avoid using coffee as a medicinal food or to work closely with their health care provider.

Coffee's bioactive profile contains many of the most important constituents known to exist within functional foods: flavonoids (catechins, anthocyanins), caffeic acid, and ferulic acid.<sup>2</sup> Additional biologically active components found in coffee include nicotinic acid, trigonelline, quinolinic acid, tannic acid, pyrogallol, and caffeine.<sup>3</sup> A cup of coffee also provides an array of minerals and other nutrients: a single cup can provide 8% of the daily intake of chromium<sup>4</sup> as well as being a significant source of magnesium.<sup>5</sup>

Scientific literature continues to suggest that antibacterial and antiviral properties may be present in coffee, says the author. He cites a study that reports that coffee can lessen the physiologic damage caused by viral infections and another study on the antibacterial properties found in caffeic acid, chlorogenic acid, and protocatechic acid, all found in coffee. Another study shows antiadhesive properties that influence *Streptococcus mutans*, the bacterium associated with chronic oral pharyngeal infections.

Coffee is rich in antioxidants. When evaluating coffee's antioxidant properties, higher activity levels appear in vivo, after the coffee has been consumed, because colonic microflora metabolize most of the dietary phenols and therefore significantly increase antioxidant activity.<sup>6</sup> Research has shown that the melanoidins in coffee produce high antioxidant activity. A Westernized diet often lacks sufficient

antioxidants (partly because of an inadequate intake of fresh fruits and vegetables), and coffee may help fill the void, says the author.

Referring to the role of coffee in maintaining healthy airway function, the author cites studies that have shown that regular consumption of coffee reduces symptoms of asthma and lessens the probability of experiencing bronchial asthma.

Researchers have shown significant decreases in total plasma homocysteine levels and improvements in vasoreactivity (two independent risk factors for cardiovascular disease) with the use of green coffee bean extract. Further research has revealed a positive effect of caffeine in lowering the incidence of cardiovascular events in patients with type 1 diabetes. Coffee has been shown to help strengthen information processing and to counteract fatigue. And, some studies have shown that coffee can help improve mood. The author cites numerous studies on the link between coffee consumption and diabetes, not only referring to its role in reducing plasma glucose levels but also in its role as a protector from the development of diabetes and its role in increasing metabolic rates and managing weight.

The author points out that the effects of coffee on the gastrointestinal tract, the liver, and the biliary tract are well documented. Among the studies he cites are ones that show a reduction in the risk of disease processes such as alcohol-induced pancreatitis, alcoholic and nonalcoholic liver cirrhosis, chronic liver disease, and gall stones. Several studies have shown that coffee consumption can decrease the incidence or risk of Parkinson's disease and that it is associated with a reduced risk of Alzheimer's disease. The author cites one study reporting that total testosterone is associated positively with coffee consumption in men. He notes that drinking at least 1 cup of coffee per day increases sexual activity in elderly women, and higher potency has been reported in elderly men.

Referring to caffeine, the author notes that "it is important to realize that because caffeine is a well-known and documented biomarker in coffee research, the frequently large variations in levels of caffeine in prepared coffee serves as a point for consideration. The typical caffeine content in coffee ranges from 58 to 259 mg per dose." He further suggests that in the process of encouraging the use of functional foods as tools in overall diet and lifestyle modifications attempts should be made to provide consistent quality and therapeutic bioactivity.

The author concludes that coffee can be important for helping to sustain human health.

—Shari Henson

## References

- <sup>1</sup>Specialty Coffee Association of America (SCAA). SCAA 1999 Market Report. California; 1999.
- <sup>2</sup>Hasler CM. The changing face of functional foods. *J Am Coll Nutr.* 2000;19(suppl):499-506.
- <sup>3</sup>Minamisawa M, Yoshida S, Takai N. Determination of biologically active substances in roasted coffees using diode-array HPLC system. *Anal Sci.* 2004;20:325-328.
- <sup>4</sup>Santos EE, Lauria DC, Porto da Silveria CL. Assessment of daily intake of trace elements due to consumption of food stuffs by adult inhabitants of Rio de Janeiro city. *Sci Total Env.* 2004;327:69-79.
- <sup>5</sup>Astier-Dumas M, Gounelle de Pantanel H. Some nutritional aspects of coffee [in French]. *Arch Sci Med.* 1974;131:18-23.

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