Journal of Pharmacognosy and Phytochemistry

Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2019; 8(2): 1413-1415
Received: 03-01-2019
Accepted: 06-02-2019

Jaspreet Kaur
Ph.D. Research Scholar, Department of Food Science and Nutrition. College of Community and Applied Science, MPUAT, Udaipur, Rajasthan, India

Shabana
Ph.D. Research Scholar, Department of Food Science and Nutrition. College of Community and Applied Science, MPUAT, Udaipur, Rajasthan, India

Seema Singh
Ph.D. Research Scholar, Department of Food Science and Nutrition. College of Community and Applied Science, MPUAT, Udaipur, Rajasthan, India

Correspondence
Jaspreet Kaur
Ph.D. Research Scholar, Department of Food Science and Nutrition. College of Community and Applied Science, MPUAT, Udaipur, Rajasthan, India

Beneficial role of green tea to health: A review

Jaspreet Kaur, Shabana and Seema Singh

Abstract
Tea (*Camellia sinensis)* is a popular drink and among different types of tea, green tea has been regarded to possess anti-cancer, anti-obesity, anti-atherosclerotic, anti-diabetic and antimicrobial effects. Its different compounds have been proven variety of beneficial functions for body. The main bioactive components present in green tea are polysaccharides, flavonoids, vitamins B, catechin compounds, fluoride etc. The article has mainly intended for review the health benefits of green tea to make it more familiar. The literature was searched through Google search engine and other Journals.

Keywords: *Camellia sinensis*, green tea, antioxidants

Introduction
After water, tea is most consumed beverage in the world and well ahead of coffee, beer, wine and carbonated soft drinks (Rietveld. 2003) [12]. *Camellia sinensis* is known to be grown in as many as 30 countries. *Camellia sinensis* grows in certain tropical and subtropical regions (Gupta *et al*. 2014) [6]. From the same harvested tea, with different processing four main types of tea can produced. Depending upon it's processing, types of tea are white, green, Oolong and black tea.

Table 1: Classification of Plant

Classification	
Kingdom	Plantae- Plant
Subkingdom	Tracheobionta- Vascular Plant
Superdivision	Spermatophyta- Seed Plant
Division	Magnoliopsida- Flowering Plant
Class	Magnoliospida- Dicotyledons
Subclass	Dilleniidea
Order	Theales
Family	Theaceae
Genus	*Camellia* L. *Camellia*
Species	*Camellia Sinensis* (L.) Kunt- tea

Table 2: Chemical composition of green tea

Constituent	**(% weight of extract solids)**
Catechins	30-42
Flavonols	5-10
Other flavonoids	2-4
Other depsides	1
Theogallin	2-3
Ascorbic Acid	1-2
Gallic Acid	0.5
Quinic acid	2
Other organic acids	4-5
Theanine	4-6
Other amino acids	4-6
Methylxanthines	7-9
Carbohydrates	10-15
Minerals	6-8
Volatiles	0.02

Source: Harold *et at.*, 1992 [7]

The tea flavanols

The health-endorsing characterstics of the tea plant are often attributed to the active ingredients that include polyphenols (But *et al.* 2009) [1]. Tea flavanols are a group of natural polyphenols (epicatechins) found in green and black tea. There are four flavanol derivatives found in tea: Epicatechin (EC), epigallocatechin (EGC), epicatechin gallate (ECG), and epigallocatechin gallate (EGCG) (Cooper *et al.* 2005) [2].

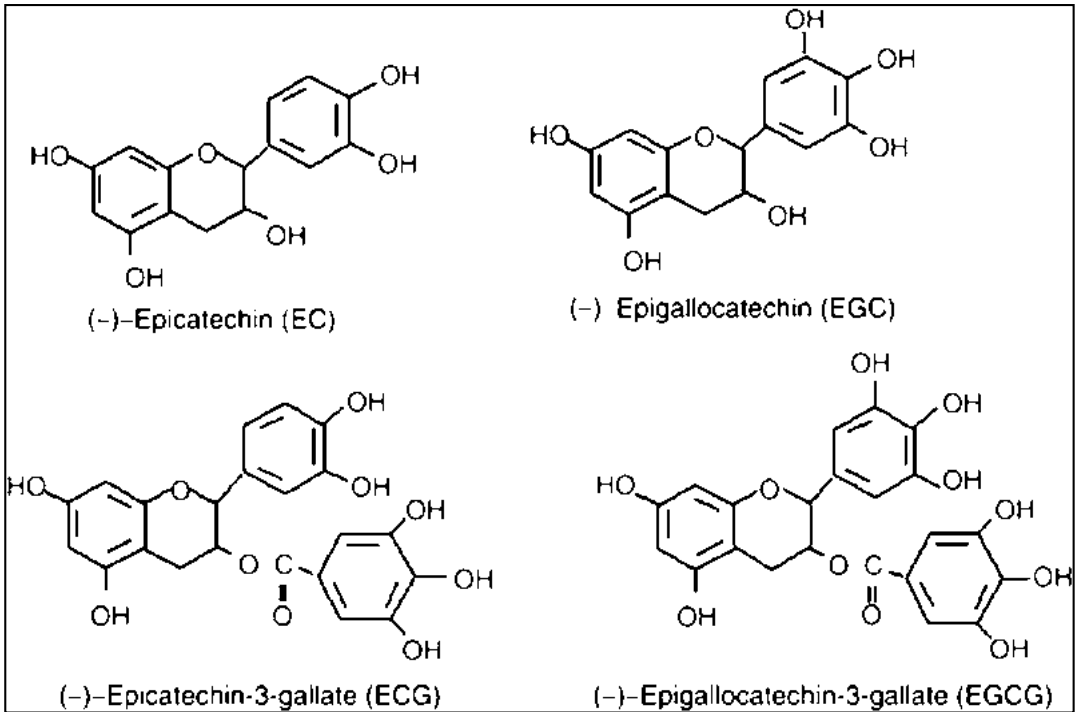

Fig 1: Flavanols in green tea

Beneficial properties of green tea

Antioxidant property

Catechin, polyphenols are secret of green tea particularly EGCG. The EGCG is a powerful anti-oxidant which helps in inhibiting the growth of cancer cells (Katiyar *et al.* 2001) [8]. Green tea enhances humoral and cell-mediated immunities, lowers the risk of certain cancers and cardiovascular diseases. Much of the cancer chemopreventive properties of green tea are mediated by EGCG and it has been assumed that it induces apoptosis and promotes cell growth arrest by altering the expression of cell cycle regulatory proteins (But *et al*. 2009) [1].

Anticancer properties

The cancer-protective effects of green tea have been reported in several population-based studies. For example, cancer rates tend to be low in countries such as Japan where green tea is regularly consumed (Fujiki *et al.* 2003) [4]. One benefit of consuming green tea is that carcinogenesis in the digestive tract was claimed to be inhibited by ECGC as demonstrated in cells (Okabe *et at.* 1999) [11].

Cardiovascular Disease

The ability of green tea to prevent cell invasion and matrix degradation might contribute to its protective effect on atherosclerosis and cancer. Two studies from Japan that included nearly 50,000 people found a decreased mortality rate due to CVD based on consumption of various numbers of cups per day. One study showed a 28% decrease in CVD death between those who consumed 3 cups and those who consumed 10 cups. The other study showed a 14% decrease in CVD mortality between those who consumed <1 cup and those who consumed 5 cups (Kuriyama *et al.* 2006) [9].

Healthy Skin

Green tea has also become a part of our cosmetic industry and it is being used in many skin care cosmetics due to its antioxidant properties. It is also have anti aging properties and can be used for treatment of acne because of its sheer efficiency against fighting acne. Even the used tea wastes are useful in reduce redness and inflammation on skin these are also helpful to reduce dark circles and puffy eyes (Graham, 1992) [5].

Weight management

Several small clinical trials have investigated the effect of green tea on weight loss and weight management (Diepvens *et al.* 2006) [3]. Nagao *et al.* (2007) [10] studied for 12 week double-blind controlled trial compared the effects of a green tea extract beverage high in catechins with a lower catechin placebo beverage in 240 Japanese adults who were obese. The results showed that the active treatment group had greater reductions in body weight, body mass index, body fat ratio, body fat mass, and waist and hip circumference.

Conclusion

Green tea has been used widely used as a health tonic from centuries in many societies. Multiple components in green tea may contribute to its health benefits. Evidence propose that green tea is effective to prevent cancer, aging also helpful in losing and managing weight, and lowering cholesterol.

References

1. But SM, Sultan MT. Green tea: Nature's defense against malignancies. Critical Reviews in Food Science and Nutrition. 2009 49:463-73.
2. Cooper R, Morré DJ, Morre DM. Medicinal benefits of green tea: Part II: Review of anticancer properties.

Journal of Alternative and Complementary Medicine. 2005; 11:639-652.
3. Diepvens K, Kovacs EM, Vogels N, Westerterp-Plantenga MS. Metabolic effects of green tea and of phases of weight loss. Physiology & Behavior. 2006; 87(1):185-191.
4. Fujiki H, Suganuma M, Kurusu M. New TNF-alpha releasing inhibitors as cancer preventive agents from traditional herbal medicine and combination cancer prevention study with EGCG and sulindac or tamoxifen. Mutation Research. 2003; 4:119-425.
5. Graham HN. Green tea composition, consumption and polyphenol chemistry. Preventive Medicine. 1992; 21(3):334-350.
6. Gupta DA, Bhaskar DJ, Gupta RK, Karim B, Jain A, Dalai DR. Green tea: A review on its natural anti-oxidant therapy and cariostatic benefits. Biological Sciences and Pharmaceutical Research. 2014; 2:8-12.
7. Harold N, Graham PD. Green tea composition, consumption and polyphenol chemistry. Preventive Medicine. 1992; 21:334-350.
8. Katiyar SK, Elmets CA. Green tea polyphenolic antioxidants and skin photo protection (review). International Journal of Oncology. 2001; 18:1307-1313.
9. Kuriyama S, Shimazu T, Ohmori K, Kikuchi N, Nakaya N, Nishino Y *et al.* Green tea consumption and mortality due to cardiovascular disease, cancer, and all causes in Japan: The Ohsaki study. Journal of the American Medical Association. 2006; 296:1255-1265.
10. Nagao T, Hase T, Tokimitsu I. A green tea extract high in catechins reduces body fat and cardiovascular risks in humans. Obesity. Silver Spring. 2007; 15(6):1473-1483.
11. Okabe S, Ochiai Y, Aida M, Park K, Kim SJ. Mechanistic aspects of green tea as a cancer preventive: effect of components on human stomach cancer cell lines. Japanese Journal of Cancer Research. 1999; 90:733-739.
12. Rietveld A, Wiseman S. Antioxidant effects of tea: evidence from human clinical trials. Journal of Nutrition 2003; 133:3285-3292.