

Green Tea 600™



Clinical Applications

- **Chemoprotective** ^{1,10,11,12}
- **Cardiovascular Health** ¹³ & **Metabolic Syndrome** ⁵
- **Inflammatory Conditions** ⁷
- **Infection** ²
- **Weight Management** ^{4,5}
- **Herpes Simplex Virus Type 1** ³

Robert Rountree, M.D., medical director of XYMOGEN® noticed a constant in the research on the health benefits of green tea; most all of it was based upon an ultra-pure extract of non-GMO cultivated Indonesian green tea powder. XYMOGEN® contacted the cultivator of this therapeutic green tea and has incorporated the imported extract into the innovative formula Green Tea 600™. This formula is extracted in pure deionized water without the use of any solvents. Green Tea 600™ meets German standards for pesticide content (extremely low levels). This green tea formula is rich in polyphenols, a class of powerful compounds that provide antioxidant support for all cells of the body.

Green Tea 600™ is manufactured and a Federal Drug Registered and State Board Pharmacy cGMP laboratory

Discussion

The health benefits of the tea leaf (*Camellia sinensis*) are derived from a group of phytochemicals known as polyphenols. Polyphenols in fresh green tea leaves are present as a series of chemicals called catechins. The dominant and most biologically active among the catechins is Epigallocatechin Gallate (EGCG).

Many of the wide range of health benefits derived from green tea are dose-dependent and most Americans are not willing to consume the necessary 5-10 cups of tea a day. Careful processing of the tea into an extract highly concentrates the key beneficial constituents. Each highly concentrated 600 mg capsule of Green Tea 600™ contains 60% polyphenols, 30% catechins and 18% EGCG. This is the equivalent of about 10 cups of green tea. Each capsule contains about 36 mgs of caffeine, roughly the equivalent of a can of cola and less than the 60-120 mgs of caffeine in an 8 oz cup of brewed coffee. Naturally-occurring caffeine in green tea is believed to act synergistically with the polyphenols.¹⁴

Green tea's benefits are based upon four actions: 1) it is a powerful antioxidant that protects against DNA damage; 2) it induces detoxifying enzymes; 3) it effects gene signaling that regulates cellular growth, development, and apoptosis; and 4) it selectively improves the function of the intestinal bacterial flora.¹

EGCG has been shown to have selective immunomodulatory effect on macrophages, which have a critical role in infections.² It has also been shown to have a moderate inhibitory effect against Herpes Simplex 1. Other green tea catechins, also contained in Green Tea 600™ had a strong inhibitory effect against this type of virus.³

Researchers have reported still other benefits of green tea. For example, green tea has thermogenic properties and promotes fat oxidation beyond what might be explained by its caffeine content.⁴ EGCG significantly reduced food intake; body weight; blood levels of leptin, insulin, insulin-like growth factor I, glucose, cholesterol, triglyceride. Benefits depending upon circumstances, it also reduced LH, testosterone, and estradiol.⁵ Green tea's ability to chelate iron may offer neuroprotection in related diseases such as Alzheimer's, Parkinson's, etc.⁶ Tea catechins also inhibit pro-inflammatory signal transduction.⁷



Supplement Facts

Serving Size: 1 Capsule
Servings Per Container: 60

| | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| Green Tea Extract (Camellia sinensis) | 600 mg | ** |
| <small>(60% Polyphenols, 30% Catechins, 18% EGCG, 6% Caffeine)</small> | | |

** Daily Value not established

Other ingredients: HPMC (capsule), Stearic Acid, Silica, Magnesium Stearate.

Dosing

The general recommendation is one capsule daily or as directed by the health care practitioner.

References

1. Weisburger JH, Chung FL. Mechanisms of chronic disease causation by nutritional factors and tobacco products and their prevention by tea polyphenols. *Food Chem Toxicol.* 2002 Aug;40(8):1145-54 [PMID: 12067577]
2. Matsunaga K, Klein TW, Friedman H, Yamamoto Y. Legionella pneumophila replication in macrophages inhibited by selective immunomodulatory effects on cytokine formation by epigallocatechin gallate, a major form of tea catechins. *Infect Immun.* 2001 Jun;69(6):3947-53 [PMID: 11349063]
3. Lyu SY, Rhim JY, Park WB. Antiherpetic activities of flavonoids against herpes simplex virus type 1 (HSV-1) and type 2 (HSV-2) in vitro. *Arch Pharm Res.* 2005 Nov;28(11):1293-301. [PMID: 16350858]
4. Dulloo AG, Duret C, Rohrer D, Girardier L, Mensi N, Fathi M, Chantre P, Vandermander J Efficacy of a green tea extract rich in catechin polyphenols and caffeine in increasing 24-h energy expenditure and fat oxidation in humans. *Am J Clin Nutr.* 1999 Dec;70(6):1040-5. [PMID: 10584049]
5. Kao YH, Hiiipakka RA, Liao S. Modulation of endocrine systems and food intake by green tea epigallocatechin gallate. *Endocrinology.* 2000 Mar;141(3):980-7. [PMID: 10698173]
6. Mandel SA, Avramovich-Tirosh Y, Reznichenko L, Zheng H, Weinreb O, Amit T, Youdim MB. Multifunctional activities of green tea catechins in neuroprotection. Modulation of cell survival genes, iron-dependent oxidative stress and PKC signaling pathway. *Neurosignals.* 2005;14(1-2):46-60 [PMID: 15956814]
7. Wheeler DS, Catravas JD, Odoms K, Denenberg A, Malhotra V, Wong HR. Epigallocatechin-3-gallate, a green tea-derived polyphenol, inhibits IL-1 beta-dependent proinflammatory signal transduction in cultured respiratory epithelial cells. *J Nutr.* 2004 May;134(5):1039-44. [PMID: 15113942]
8. Dudka J, Jodynis-Liebert J, Korobowicz E, Burdan F, Korobowicz A, Szumilo J, Tokarska E, Klepacz R, Murias M Activity of NADPH-cytochrome P-450 reductase of the human heart, liver and lungs in the presence of (-)-epigallocatechin gallate, quercetin and resveratrol: an in vitro study. *Basic Clin Pharmacol Toxicol.* 2005 Aug;97(2):74-9 [PMID: 15998352]
9. Rushmore TH, Kong AN. Pharmacogenomics, regulation and signaling pathways of phase I and II drug metabolizing enzymes. *Curr Drug Metab.* 2002 Oct;3(5):481-90. [PMID: 12369894]
10. Rodriguez SK, Guo W, Liu L, Band MA, Paulson EK, Meydani M. Green tea catechin, epigallocatechin-3-gallate, inhibits vascular endothelial growth factor angiogenic signaling by disrupting the formation of a receptor complex. *Int J Cancer.* 2005 Oct 10; [Epub ahead of print] [PMID: 16217757]
11. Lin SC, Li WC, Shih JW, Hong KF, Pan YR, Lin JJ. The tea polyphenols EGCG and EGC repress mRNA expression of human telomerase reverse transcriptase (hTERT) in carcinoma cells. *Cancer Lett.* 2005 Jun 20; [Epub ahead of print] [PMID: 15975707]
12. Burzynski SR. Aging: gene silencing or gene activation? *Med Hypotheses.* 2005;64(1):201-8. [PMID: 15533642]
13. Townsend PA, Scarabelli TM, Pasini E, Gitti G, Menegazzi M, Suzuki H, Knight RA, Latchman DS, Stephanou A. Epigallocatechin-3-gallate inhibits STAT-1 activation and protects cardiac myocytes from ischemia/reperfusion-induced apoptosis. *FASEB J.* 2004 Oct;18(13):1621-3. Epub 2004 Aug 19. [PMID: 15319365]
14. Dulloo AG, Seydoux J, Girardier L, Chantre P, Vandermander J. Green tea and thermogenesis: interactions between catechin-polyphenols, caffeine and sympathetic activity. *Int J Obes Relat Metab Disord.* 2000 Feb;24(2):252-8. [PMID: 10702779]

Additional references available upon request.

Precaution

Although the list of potential drug interactions is sizeable for Green Tea; the adverse effects for the most part are believed to be associated with its caffeine content. The amount of caffeine in a capsule of Green Tea 600TM (approx. 36 mg) is significantly less than would be found in the equivalent 8-10 cups of green tea if consumed as a beverage. Green tea may increase the toxicity of certain chemotherapeutic drugs (e.g. doxorubicin) by up-regulating P-450 reductase.8,9 It may be best to consult a pharmacist if on medications. Pregnant and lactating women may need to monitor intake for caffeine content.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

