

FULL TEXT LINKS



[J Agric Food Chem](#). 2006 Mar 8;54(5):1599-603. doi: 10.1021/jf052857r.

Catechin and caffeine content of green tea dietary supplements and correlation with antioxidant capacity

Navindra P Seeram¹, Susanne M Henning, Yantao Niu, Rupo Lee, H Samuel Scheuller, David Heber

Affiliations

PMID: 16506807 DOI: [10.1021/jf052857r](#)

Abstract

The health benefits associated with tea consumption have resulted in the wide inclusion of green tea extracts in botanical dietary supplements, which are widely consumed as adjuvants for complementary and alternative medicines. Tea contains polyphenols such as catechins or flavan-3-ols including epicatechin, epigallocatechin, epicatechin gallate, and epigallocatechin gallate (EGCG), as well as the alkaloid, caffeine. Polyphenols are antioxidants, and EGCG, due to its high levels, is widely accepted as the major antioxidant in green tea. Therefore, commercial green tea dietary supplements (GTDS) may be chemically standardized to EGCG levels and/or biologically standardized to antioxidant capacity. However, label claims on GTDS may not correlate with actual phytochemical content or antioxidant capacity nor provide information about the presence and levels of caffeine. In the current study, 19 commonly available GTDS were evaluated for catechin and caffeine content (using high-performance liquid chromatography) and for antioxidative activity [using trolox equivalent antioxidant capacity (TEAC) and oxygen radical antioxidant capacity (ORAC) assays]. Product labels varied in the information provided and were inconsistent with actual phytochemical contents. Only seven of the GTDS studied made label claims of caffeine content, 11 made claims of EGCG content, and five specified total polyphenol content. Caffeine, EGCG, and total polyphenol contents in the GTDS varied from 28 to 183, 12-143, and 14-36% tablet or capsule weight, respectively. TEAC and ORAC values for GTDS ranged from 187 to 15340 and from 166 to 13690 $\mu\text{mol Trolox/g}$ for tablet or capsule, respectively. The antioxidant activities for GTDS determined by TEAC and ORAC were well-correlated with each other and with the total polyphenol content. Reliable labeling information and standardized manufacturing practices, based on both chemical standardization and biological assays, are recommended for the quality control of botanical dietary supplements.

[PubMed Disclaimer](#)

Related information

[Cited in Books](#)

[PubChem Compound](#)

[PubChem Compound \(MeSH Keyword\)](#)

[PubChem Substance](#)

LinkOut - more resources

[Full Text Sources](#)

[American Chemical Society](#)

Other Literature Sources

[The Lens - Patent Citations Database](#)

Medical

[MedlinePlus Health Information](#)