

Analysis of The Catechin and Caffeine Content in Fresh Tea Leaves from Fifteen Distinct Tea Cultivars and The Processing of Catechin Enriched Specialty Tea

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Abstract

Tea made from tender shoots of *Camellia sinensis* (L). O. Kuntze is the most consumed beverage in the world next to water due to its unique taste, aroma, and beneficial health properties. Tea has the potential to function as an antioxidant due to the various forms of catechins and their derivatives. Caffeine is an important secondary metabolite found in tea. The chemical composition of tea varies and largely depends on climatic conditions, genotype, horticultural practices, soil, growth altitude, plucking season, sorting, grading, processing, extraction, storage, and drying. The objective of the current study was to determine the amount of catechin and caffeine content in freeze-dried leaves from fifteen distinct tea cultivars grown in identical agronomic and environmental conditions. The catechin, epicatechin (EC), epicatechin gallate (ECG), epigallocatechin (EGC), epigallocatechin gallate (EGCG), caffeine, and gallic acid of 15 tea cultivars were analyzed by using High Performance Liquid Chromatography according to ISO 14502–2:2005 method. TRI 3055 had the highest catechin content (21.45%) and EGCG content (13.671%) of the 15 cultivars. The most common individual catechin present in all tea cultivars is EGCG content. Out of 15 cultivars, TRI 4052 had the highest caffeine content (3.476%). TRI 3055 might be used in upcoming breeding projects because of its high catechin content.

Keywords: Caffeine, Catechin, HPLC, Tea Cultivars, Specialty tea