Theaflavins in black tea and catechins in green tea are equally effective antioxidants.

Published: 2001
Author: Leung

Green tea catechins, including (-)-epicatechin (EC), (-)-epicatechin gallate (ECG), (-)-epigallocatechin (EGC) and (-)-epigallocatechin gallate (EGCG), are oxidized and dimerized during the manufacture of black tea and oolong tea to form orange-red pigments, theaflavins (TF), a mixture of theaflavin (TF1), theaflavin-3-gallate (TF2A), theaflavin-3’-gallate (TF2B) and theaflavin-3,3’-digallate (TF3). The present study was designed to compare the antioxidant activities of individual TF with that of each catechin using human LDL oxidation as a model. All catechins and TF tested inhibited Cu(+2)-mediated LDL oxidation. Analysis of the thiobarbituric acid-reactive substances (TBARS) and conjugated dienes produced during LDL oxidation revealed that the antioxidant activity was in the order: TF3 > ECG > EGCG > or = TF2B > or = TF2A > TF1 > or = EC > EGC. Four TF derivatives also demonstrated a dose-dependent antioxidant activity in Cu(+2)-mediated LDL oxidation at concentrations of 5-40 micromol/L. These results demonstrate that the TF present in black tea possess at least the same antioxidant...
potency as catechins present in green tea, and that the conversion of catechins to TF during fermentation in making black tea does not alter significantly their free radical-scavenging activity.
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