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Comparison of the antioxidant activity of Black, Green and White Tea

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Most of the studies on cancer preventive properties of tea (*Cammelia sinensis*) have been carried out with green tea, black tea extracts or individual catechins (polyphenolic compounds) present in tea. The composition of tea polyphenols differs for black tea, green tea and white tea because of the different degrees of fermentation during manufacture. The objective of this study is to compare the antioxidant activity of different types of tea related to their method of manufacture.

Different types of tea products were boiled with distilled water for 10 minutes to obtain the tea extracts. Total free radical scavenging activity (DPPH assay), reducing power and anti lipid peroxidation activity (TBARS assay) of black tea, green tea and white tea were investigated and compared with ascorbic acid and vitamin E. Further polyphenols were separated from tea, and assayed for DPPH radical scavenging activity to study the contribution of polyphenols to the free radical scavenging activity.

The EC_{50} values for black, green and white tea were; for DPPH assay 56.81 ± 1.73, 19.12 ± 0.08 and 34.11 ± 0.26 mg dm^{-3} respectively; for the lipid peroxidation assay, 2.79 ± 0.26 , 1.95 ± 0.11 and 1.275 ± 0.03 mg dm^{-3} respectively. In the absence of polyphenols, no DPPH scavenging activity was shown with black tea. The reducing power was highest with white tea followed by black and green tea.

For DPPH radical scavenging assay green tea shows the highest antioxidant activity. However, white tea shows the highest antioxidant activity for lipid peroxidation and measurement of reducing power assays.

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