

## Variation in total polyphenol content, antioxidant potential, theaflavin & thearubigins content of BOPF grade Sri Lankan black teas (*Camellia sinensis L.*) of different climatic elevations & BOPF grade commercially available black teas in Sri Lanka

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Tea polyphenols possess antioxidant properties and have been shown to have a protective effect against several degenerative diseases. Black tea is the most popular tea among three major types of tea namely green, oolong and black tea. Unblended Sri Lankan black teas are classified as high grown, medium grown and low grown based on their geographical origin. Some studies have been reported regarding the chemical parameters of black teas from different agro climatic elevations of Sri Lanka, such details like purity, cultivar and the particle size of teas have not been specified. And also there is no systematic screening has been reported for black tea commercialized in Sri Lankan market. So the main objective of this study was to analyze the total polyphenol content, antioxidant activity and total thearubigins & theaflavins content in unblended Sri Lankan black teas collected from factories representing different tea growing regions. And also to analyze the same biochemical parameters for the black teas that are commercialized in Sri Lankan market. During the month of April 2012, BOPF grade fermented black tea samples produced by TRI 2025 were collected from twelve tea plantations of different agro climatic elevations. All the teas processed according to the orthodox-rotor vane method. Ten commercialized samples of different brands were also analyzed. Total phenolic content (ISO 14502-1 method), 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical-scavenging activity, TF (flavognot method) and TR content were determined for each sample. Mid grown tea showed highest mean values in TPP content ( $15.9454 \pm 2.5778$  % GAE), TF content ( $22.2200 \pm 3.9575$   $\mu\text{mol/g}$ ) and TR content ( $14.6031 \pm 1.8970$  %). The antioxidant activity was well correlated with the total polyphenol content ( $P < 0.05$ ) and thearubigins contents ( $P < 0.05$ ). Lowest mean EC<sub>50</sub> value ( $49.6791 \pm 5.9475$   $\mu\text{g/ml}$ ) was obtained by mid grown tea samples, indicating highest antioxidant activity among others. Rilagala plantation showed the maximum values in TPP content, antioxidant activity, TF and TR contents among others.

### Biography

Roger Senarath Ratnayake has completed his B.Sc. in Food Science and Technology at the age of 25 years from Faculty of Applied Sciences, University of Sri Jayawardenepura. He currently works at a leading pharmaceutical organization known as GlaxoSmithkline as a Production Executive.

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