

## DETERMINATION OF TOTAL POLYPHENOL CONTENT IN TEA GROWN IN SEVEN REGIONS OF SRI LANKA

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Tea is an aromatic beverage widely consumed worldwide. Total Polyphenol Content (TPC) in tea varies, depending on many agro-climatic factors including soil conditions, temperature, humidity and rain fall. The objective of the study was to determine TPC of tea grown in seven dominant regions of Sri Lanka which are Nuwara Eliya, Ruhuna, Kandy, Sabaragamuwa, Dimbula, Uva and Udupussellawa. ISO 14502-1: 2005 standard procedure was followed for the analysis of TPC. In the study, 175 tea samples were collected from 70 factories located in seven regions. Polyphenols were extracted in hot 70 % methanol and Folin Ciocalteu method was carried out to determine TPC. Tea from Nuwara Eliya recorded the highest TPC% with 16.59 % which is significantly higher than TPC values of tea from rest of regions. TPC % of Ruhuna and Kandy rank second and third highest with 16.03 % and 15.67 % respectively. Ruhuna and Kandy tea share no significant difference in TPC% although the geo-climatic conditions are different. Tea from Uva (11.6%) and Udupussellawa (11.56%) regions showed low TPC% suggesting exposed climatic conditions as possible influential reasons in varying the production of polyphenols, whereas both regions are neighboring to each other. Tea from all the regions complies with the quality parameters of ISO 3720 providing a beneficial impact for "Ceylon Tea". The present study opens gates for future investigations to examine underlying reasons for the observed variation of TPC in tea produced by different regions. It would be helpful to improve and develop methods for cultivation of tea with higher polyphenol content to achieve economic benefits to the country.

**Keywords:** Tea, Agroclimatic factors, Total Polyphenol Content, ISO standards