Determination of Total Polyphenol Content of Ceylon Green Tea

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Green Tea is made from the leaves of the *Camellia sinensis* and is used most popularly as a beverage all over the world. Leaves of green tea are rich in bioactive compounds, particularly phenolic compounds which are closely associated with the sensory properties and quality of tea brew. Epicatechin (EC), epicatechin-3-gallate (ECG), epigallocatechin (EGC) and epigallocatechin-3-gallate (EGCG) are the main active ingredients of green tea and which are the major polyphenols of green tea. Ceylon green tea industry is young and growing rapidly. Green tea is produced by manufactures in mid and high elevation in Sri Lanka using steaming and pan firing methods. During the green tea manufacturing, high temperature is applied for the enzyme deactivation. Therefore, green tea is called as unfermented tea which has higher polyphenol content than black tea. The objective of the study was to determine the total polyphenol content of Ceylon green tea depending on processing method, elevations (High and Medium) and sub elevation levels in selected elevations (Uva and Western). Total polyphenol content was determined according to the International Organization for Standardization method (ISO) 14502-1:2005. The analysis showed that there is significant ($P<0.05$) relationship between tea making method and elevation as well as the elevation and sub elevation. According to the results, green tea manufactured in high elevation by pan firing method contained the highest level of polyphenols (25.4%) whereas the green tea manufactured in medium elevation by steaming method contained the lowest amount of polyphenols (21.2%) than others. Uva, high elevation green tea contained the highest level of polyphenols (24.5%) whereas the Uva, medium elevation green tea contained the lowest amount of polyphenols (21.3%) than others in Sri Lanka.

Keywords: Green tea, Polyphenol content, Tea making method, Elevation, Sub elevation