Determination of the Variation of Biochemical Properties of Selected Tea Cultivar (*Camellia sinensis* (L.) O. Kuntze) in Mid Country

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In the tea trade, quality is used to indicate the presence of special desirable attributes in the tea liquor which are detected by physical appearance, smell and taste. The biochemical properties of tea is very complex and is currently a subject of broad medicinal and toxicological studies. This study was conducted to determine the variation of selected biochemical properties (polyphenols, free sugars, and total proteins) of commonly growing tea cultivar (Camellia sinensis (L.) O. Kuntze), of TRI 2025 among all tea growing agro ecological regions in Mid Country of Sri Lanka. Fresh tea samples (two leaves and bud) were collected from same aged plants by using stratified sampling technique and samples from each stratum were selected randomly from different tea estates of each agro ecological region in Mid Country (WM1a, WM1b, WM2a, WM2b, WM3a, WM3b, IM1a, IM2a, IM2b, IM3a). Collected samples were placed on an ice and transported and oven dried at 50 ˚C for 12 hours and crushed in to fine particles. Methanol extraction was performed for the analysis of total polyphenol content and reducing sugars while phosphate buffer was used to extract samples for the analysis of proteins. The concentrations of polyphenols, proteins, and free sugars were determined by folin Ciocalteu reagent method, Lowry's method and dinitrosalicylic acid method respectively with slight modifications. The findings of this study shown that biochemical properties of teas such as polyphenol, total protein and free sugars contents were significantly different ($p < 0.05$) among many tea growing ago ecological zones in mid country of Sri Lanka. Maximum polyphenol, free sugar, total protein contents were recorded in WM1b, WM2a and IM2a respectively. Minimum polyphenol, free sugar, total protein contents were recorded in IM2a, IM3a and IM2a, respectively. This sets a precedent for the characterization of biochemical profiles of mid grown tea of Sri Lanka.

Keywords: Agro ecological zones, Free sugars contents, Mid country, Polyphenol, Total protein