

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

T. Thiruneelan, P.E. Kaliyadasa, A.G.A.W. Alakolanga, H.A.S.L. Jayasinghe and B.A. Samarasinghe

Department of Export Agriculture, Uva Wellassa University, Badulla, Sri Lanka

Tea has an attractive aroma, good taste, and flavor, however; these properties could vary with climatic factors including temperature, sunshine hours and rain fall prevail in different agro-ecological zones in the growing areas. Therefore, this study was conducted to evaluate the chemical composition of Tea (*Camellia sinensis* (L.) O. Kuntze) var. TRI 2025 grown in different agro-ecological zones in Up-country. Fresh tea samples of TRI 2025 (two leaves & bud) were collected from the same aged plants by using stratified sampling technique from 11 regions, viz: WU1, WU2a, WU2b, WU3, IU1, IU2, IU3a, IU3b, IU3c, IU3d, and IU3e in the up country during the onset of rains. The fresh tea leaves were placed on ice immediately after harvesting and transported. The leaves were dried in an oven at 50 °C for 12 hours and dried samples were 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 confirm that chemical properties of tea in up country showed significant ($p < 0.05$) difference among many tea growing agro ecological zones in Up-country of Sri Lanka. Maximum polyphenol, free sugar, total protein contents were recorded in IU3e, WU3 and WU1 respectively. Minimum polyphenol, free sugar, total protein contents were recorded in WU2a, IU3a and IU3c, respectively. This study sets a precedent for the characterization of biochemical profile of all tea growing areas in Up-country of Sri Lanka.

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