

## CORRELATION OF QUALITY RELATED BIOCHEMICALS IN FRESH TEA FLUSH OF SOME TEA CULTIVARS WITH QUALITY OF BLACK TEA

E.A.E.S.S. Jayasekara<sup>1</sup>, A.M.T. Amarakoon<sup>2</sup> and D.I.D.S. Beneragama<sup>1</sup>

<sup>1</sup>*Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka*

<sup>2</sup>*Biochemistry Division, Tea Research Institute, Talawakelle*

Tea (*Camellia sinensis* (L) O. Kuntze) is the most widely used beverage in the world. The usefulness of the tea plant is due to the special composition of its young leaves. Sri Lankan tea is renowned the world over for its intrinsic flavor characteristics. Hence, it gains premium prices at the auctions. The present process of evaluating a new tea cultivar for quality involves the propagation of the plant, harvesting of sufficient leaf for a miniature manufacture experiment and tea tasting by tea tasters. This is a time consuming and a laborious process. Due to that a need has arose to find out an efficient and quick way of evaluating new cultivars. Made tea quality can be predicted using variations of total polyphenols and volatile flavour compounds. Based on that, this study was conducted for some up country tea cultivars to ascertain the contribution of chemical compounds in fresh tender shoots of tea (flush) to overall quality of made tea. The aim was to find reliable correlations with flush components and made tea quality.

This experiment was carried out at St. Coombs Estate, Tea Research Institute, Talawakelle, using three up country tea cultivars. Sampling was done at weekly intervals for eight weeks and each sample consists with two leaves and a bud. Fresh tea flush collected from three cultivars was chemically analyzed for total polyphenols and volatile flavor compounds. The tea flush were manufactured through Environmental Controlled Manufacturing method and total polyphenols, theaflavin, thearubigins and volatile flavor compounds was quantitatively analyzed while organoleptic properties were assessed using tea tasting.

The statistically analyzed data had showed that the most quality cultivar was DT 1 and no significant difference ( $P \leq 0.05$ ) between DN and CY 9 for the analyzed compounds.

Organoleptical assessment proved that there was a significant variation between three cultivars. Results revealed that, there was a correlation between flush total polyphenols and made tea total polyphenols, flush flavour compounds and made tea flavour compounds, and flush total polyphenols and black tea quality parameters.

At certain level, this study is worth pursuing to get an approximate idea of made tea quality of new cultivars at flush level. However, further experiments should be carried out to build up an exact quantitative relationship among flush chemical compounds and made tea quality in order to clearly address the mentioned problem in the future.

*Key words:* Quality, Cultivar, Total polyphenols, Flavour compounds