

## Antioxidant activity of Sri Lankan black tea measured by ABTS, FRAP and ORAC assays

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Tea (*Camellia sinensis*) is a common beverage possessing lots of health benefit properties such as antimicrobial, antioxidant and anticancer potential etc. Antioxidants have gained great attention because of the importance as a panacea for a large number of diseases. Although a large number of studies have been carried out to determine the antioxidant properties of tea in the world, a few researches have been carried out in Sri Lanka. Therefore, objective of this study was to determine and compare the antioxidant activity of tea infusions from three grades of black tea; Dust(I), OPI and Pekoe which were obtained from Tea Research Institute, Sri Lanka using *in vitro* ABTS, FRAP and ORAC assays. Results are expressed as means of triplicates and mg Trolox equivalent per gram tea sample (mg TE/g). Antioxidant activities of the Dust(I), OPI and Pekoe are; FRAP, 149.17, 55.57, 142.83, ABTS, 162.07, 88.31, 168.69 and ORAC, 68.99, 22.46, 61.90 respectively. Although Dust(I) and OPI are considered as the least and highest quality out of three tea samples used, Dust(I) had the highest antioxidant activities. This may be due to the very small particle size of Dust(I) grade. Small particle size may help to extract higher amount of antioxidant compounds into hot water than the other grades. Results of the different assays for three tea samples also had wide differences, e.g. OPI; 55.57 (FRAP), 88.31 (ABTS), 22.46 (ORAC). This may be due to the different mechanisms involved in each assay. This study suggests that tested Sri Lankan black tea infusions had wide range of antioxidant activities. Further studies are necessary confirm whether the black tea infusions could be used as natural antioxidants in the beverage, food and pharmaceutical industries.

**Key words:** Antioxidant activity, Black tea, *in vitro* antioxidant assays.

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