

**ANTIOXIDANT ACTIVITY OF SRI LANKAN BLACK TEA****M.I. Izzadeen<sup>1</sup>, K.G.N.P. Piyasena<sup>2</sup> and W.M.R.S.K. Warnasooriya<sup>1</sup>**

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Tea is a popular beverage derived from tender leaves of Tea plant which is rich in dietary polyphenols. Tea polyphenols including catechin derivatives are responsible for antioxidant activity which is the main causative factor for the health benefits of tea. Present study focused to determine antioxidant activity of Sri Lankan black tea based on tea growing elevations. Random tea samples were obtained from 35 black tea manufacturing factories representing all the tea growing elevations of Sri Lanka including; Western high, Western medium, Uva high, Uva medium and Low grown. Freeze-dried tea brews were prepared to quantify the antioxidant activity of black tea using microtitre plate reader with two antioxidant assays namely; DPPH (2,2-diphenyl-1-picrylhydrazyl) with radical scavenging ability and FRAP (ferric reducing antioxidant power). Total polyphenol content of freeze-dried and non-freeze-dried samples was determined using modified Folin-Ciocalteu method. Results revealed that, total polyphenol content of all freeze-dried tea samples exceed the minimum ISO standard of ISO 14502-1:2005 and were significantly ( $p < 0.05$ ) high. Western high, Western medium, Uva high, and Uva medium had higher total polyphenol content than low grown teas. Both antioxidant assays revealed a significantly ( $p < 0.05$ ) lower antioxidant activity in low grown tea than teas from other elevations. A correlation was observed among the total polyphenol content and the antioxidant activity of Sri Lankan black teas. In conclusion, low grown black tea contain low amount of antioxidant activity compared to high and medium grown teas in Sri Lanka.

**Keywords:** Antioxidant activity, Black Tea, DPPH, FRAP, Polyphenol content