

**ANALYSIS OF ANTIOXIDANT PROPERTIES OF
CRUDE PROTEINS FROM BLACK TEA AND
GREEN TEA OF UVA REGION IN SRI LANKA**

This dissertation is submitted as partial fulfilment of the Bachelor of Tea
Technology and Value Addition

By

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2019

ABSTRACT

The consumption of tea has gained much attention due to its antioxidant potential. Tea polyphenols are believed to be the major contributor. However, proteins can also act as powerful antioxidants and there are few scientific reports on crude tea proteins' antioxidant properties. Tea proteins contribute around 21-28% dry weight of tea. Uva is one of the most top tea growing region in Sri Lanka with distinguishable flavour characteristics. This study was focused on investigation of antioxidant properties of crude tea extract of green and black tea collected from Uva region. Black and green tea samples were collected from selected tea factories representing Uva high and Uva mid regions. Crude extract was obtained using hot water treatment with different temperatures (30°C and 40°C) in 2hrs followed with lyophilisation. Extracted crude was elucidated using 15% SDS-PAGE and quantification was done using Lowry method for proteins. Lyophilized crude extract was tested for antioxidant activity using DPPH and Fe²⁺ chelating assays. According to protein yield analysis, approximately 40% in green tea and 30% in black tea was observed (40°C series) in lyophilised powder. As with the assays Uva teas have maximum of 95.33% inhibition of DPPH radical at 10 mg/ml solution which obtained by 1g of made tea, using water extraction method. It shows significant difference in protein concentration between black and green teas in prepared 30°C and 40°C series ($p < 0.05$). There is no any difference between crude extract powder yield between the temperatures used for the extraction procedure ($p > 0.05$). Uva teas showed antioxidant properties in DPPH assay but negative results in Fe chelating assay. However, there is no significance difference in levels of elevation, type of tea and temperature in % inhibition of DPPH radicals in Uva teas. Further studies need to be done with other antioxidant assays to determine the antioxidant property of Uva tea.

Key wards: Uva tea, Green tea, Black tea, Crude Protein, Antioxidant activity