

## ABSTRACT

Ceylon tea is famous throughout the world for its unique taste. Over 95 % tea produced in Sri Lanka is exported. In recent times many tea importing countries have either changed or in the process of changing their food safety laws, generally resulting in lower limits for heavy metals. Tea is generally regarded as safe (GRAS) and was not included in random monitoring programmes at the point of entries to those countries in the past. However, recently in many countries GRAS food items are also subjected to the random monitoring process. Thus, it is important that base line levels of heavy metals for different types of Sri Lankan black teas are re-established and precautionary measures are taken to ensure that Sri Lankan tea comply with these new regulations. Heavy metals in black tea could change due to various factors and one of the main factors is the Agro-ecological region they grow. There are eleven main Agro-ecological regions and the quality of the made tea produced is different from region to region. In this study, an attempt was made to understand the natural level of heavy metals in black tea produced in different Agro-ecological regions and their variation among regions. Further, metals were analysed to establish base line values.

Thirty five factories were selected from different Agro-ecological regions of Sri Lanka. Black tea (BOP grade) was analysed for the heavy metals namely, copper, nickel, cadmium and iron. Atomic absorption spectrophotometry was used as the analytical technique to analyse the metal content in black tea. AOAC Official Methods of Analysis were followed as the analyzing procedure. Further, compliance of the sample with ISO 3720, specifications for black tea was also verified.

Copper content in black tea was well below the Sri Lankan Limit of 100 ppm in all regions. It was found that copper content was below 40 ppm. Nickel content in black tea was below 8 ppm in all regions. Cadmium content was below 0.2 ppm. The current Sri Lankan Standard is also 0.2 ppm. Iron content in black tea was well below the Sri Lankan Limit of 500 ppm. It was found that iron content was below 300 ppm. Copper, nickel and cadmium content in black tea did not significantly changed with Agro-ecological region. However, iron content in black tea has a significant variation within Agro-ecological regions.