

## Abstract

In vitro analyses of trace element content in biological systems play an increasingly important role in assessing the environmental impact on health. A quantitative study of five trace elements namely Fe, Zn, Cu, Pb and Cd in cut, tear and curl (CTC) black Tea of different grades randomly sampled from four tea growing countries in East Africa, viz., Kenya, Uganda, Rwanda and Tanzania was carried out. The total element content as well as the water extractable content of the tea samples was done by Atomic Absorption Spectroscopy (AAS). Data obtained was analyzed using Graph-pad Prism statistical software for Windows, version 5.0 and  $P < 0.05$  considered to be statistically significant. The significance of the difference between means for black tea and tea infusions was determined by one way ANOVA and the least significant difference test was used for mean separation where significant differences were recorded among group means. It was observed that tea contains the studied elements and only a very small portion of the total element content lixiviates into tea liquor during tea making process. The general extractability pattern of the elements studied was in the order  $Fe > Zn > Cu > Pb > Cd$ , indicating that tea is an important dietary source of Fe, Zn and Cu. Taking into account the high tea to water ratio used in preparing the analysed tea extracts, these data is best regarded as the extractability potential of the tea liquor and does not reflect the actual concentrations contained in the tea liquor that we actually consumed. However, the need to enact safety guidelines with regard to the liquor element composition is imperative.