

**DETERMINATION OF HEAVY METALS (Cu, Zn, Pb)
ACCUMULATION IN TEA SHOOTS AT DIFFERENT
LEVELS OF T200 FERTILIZER MIXTURE AND
GLYPHOSATE APPLICATIONS**

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ABSTRACT

The term "Ceylon Tea" is synonymous with Sri Lanka. Ceylon Tea is renowned for its high quality, aroma, and taste. The comparative advantage of Ceylon tea lies in many factors. Sri Lanka produces the cleanest tea in the world in terms of minimum pesticide residues. To qualify for the special, legal distinction denoted by the words 'Ceylon Tea', and for the famous Lion logo, the tea must conform to strict quality standards laid down by the Sri Lanka Tea Board. According to the latest reveals pesticides and chemical fertilizers might be contained heavy metals. Hence, the application of pesticides and chemical fertilizers for tea lands might be influenced for the accumulation of heavy metals in soil, and then those metals might be absorbed by tea plants. Accumulation of heavy metals in tea shoots has become a problem in the view of food safety regulation and health concern of human being. This study was conducted to assess the uptake level of essential and toxic metals from soil to tea leaves and varying of absorption of heavy metals from tea plants with varying of heavy metals concentrations in tea lands. Also the impact on heavy metals absorption by tea shoots with the level of Glyphosate and T200 tea fertilizer in soil was studied.

Three experiments were conducted to assess the accumulation of Zn, Cu and Pb in tea shoots with the application of heavy metal mixtures, T200 fertilizer and glyphosate. Eighteen months old tea plants were selected and three replications were used for each treatment. Shoots (2 tender leaves and the bud) were plucked. 'Wet Digestion of Plant Tissue' procedure (The Perkin-Elmer Corporation, 1996) was followed to digest tea shoots. Heavy metals concentrations were analyzed using Atomic Absorption Spectroscopy. Heavy metal accumulation in tea shoots show slight increment with increasing the concentration of heavy metal solution applications for Zn, Cu and Pb. Cu, Zn and Pb accumulation in tea shoots at different levels of fertilizer (T200) applications shows an increment of accumulation with increasing the level of fertilizer application. Cu, Zn and Pb accumulation in tea shoots at different levels of glyphosate applications did not show any significant difference. It was not significantly different from the control.

Key Words: accumulation, fertilizer (T200), glyphosate, heavy metals