

**COPPER AND ZINC NUTRIENT STATUS OF COCONUT ESTATES IN
THE COCONUT TRIANGLE OF SRI LANKA**

J.P.C. Jayasinghe¹, D.M.D.I. Wijebandara² and D.M.S.H. Disanayaka¹

¹*Department of Agricultural Engineering and Soil Science , Faculty of Agriculture,
Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka*

²*Soil and Plant Nutrients Division, Coconut Research Institute, Bandirippuwatta,
Lunuwila, Sri Lanka*

Micronutrients play a significant role in nutrition of coconut plants. There are reported incidents of Copper (Cu) and Zinc (Zn) deficiency in the coconut triangle in Sri Lanka. The objective of this study was to determine the Cu and Zn contents in soil and coconut leaves in the coconut triangle. Coconut palms were randomly selected representing wet, intermediate and dry zone and soil samples were collected from both top (0 – 20 cm) and sub soil (20 – 40 cm) of manure circles. Leaf samples were collected from 14th frond of same palms. Available Cu and Zn in soil by Diethylene Triamine Penta-acetic Acid extraction and total Cu and Zn in leaf with HNO₃:HClO₄ (4:1) mixture using wet digestion procedure were determined. Cu and Zn concentrations in soil and leaf extracts were measured using atomic adsorption spectrophotometer. Soil samples were analyzed for pH, electrical conductivity and organic carbon content by using standard analytical methods. The results revealed that, 72.27% and 37.96% soil samples were below the critical Cu level of 0.4 mg/kg and Zn level of 0.5 mg/kg, respectively. Moreover, 68% and 84% leaf samples were below the critical Cu level of 5 mg/kg and Zn level of 30 mg/kg respectively. There was a significant positive correlation ($p < 0.05$) between soil pH and Zn content in top and sub soils. Cu content in top soil showed a significant positive correlation with organic carbon content ($p < 0.05$). Therefore, it can be concluded that Cu and Zn levels in some of the areas in the coconut triangle, are deficient and the availability of these nutrients depend on pH and organic carbon of the soil.

Keywords: Copper, Deficiency, Soil properties, Zinc