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RESPONSE OF RUBBER SEEDLINGS IN THE NURSERY TO APPLICATION OF ZINC

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Experiments were conducted to study the response of rubber seedlings in the nursery to application of zinc through two sources *viz.*, zinc sulphate or zinc oxide. Both the sources significantly improved the availability of zinc in the soil and enhanced the growth of seedlings. Application of 5 kg Zn per ha to zinc deficient soils through either of the sources was effective in improving the growth of rubber plants in the seedling nursery.

Key words: *Hevea brasiliensis*, Micronutrients, Seedling nursery, Zinc.

INTRODUCTION

The red ferruginous soils in which rubber is cultivated in south western India are highly weathered acid soils. In general, the availability of micronutrients *viz.*, iron (Fe), manganese (Mn), zinc (Zn) and copper (Cu) are reported to be high in acid soils. However, depending on the nature of the parent material, there can be deficiency of these nutrients. The total Zn status of the soils will be low in places where the parent material is granite, gneiss or basalt which may result in mild Zn deficiency even though the deficiency symptoms are not expressed. Katyal and Sharma (1991) reported that highly weathered coarse textured laterite and red soils are poor in total Zn. Joseph *et al.* (1995) assessed the DTPA extractable Fe, Mn, Zn and Cu status in the rubber growing soils in the traditional rubber growing belt of India and found that the Zn status ranged from traces to high. A study on the micronutrient status of 9682 surface soil samples covering the entire rubber growing areas of Kerala and Tamil Nadu showed that 41.0 per cent of the survey area was deficient in Zn (NBSS and LUP, 1999).

Widespread deficiency of micronutrients has not been reported from rubber plantations in India or other major rubber growing countries so far. However, occasionally, deficiency of Zn is observed in seedlings and young rubber. There are reports from other crops showing 50 per cent reduction in crop growth due to Zn deficiency without any visual symptoms (Gupta, 1995). Zinc is a cofactor for several enzyme systems that regulate various metabolic activities in plants. It is also a vital element for the oxidation process in plant cells which helps in the transformation of carbohydrates and regulation of sugars in plants (Marshner, 1997). Zn deficiency retards photosynthesis and nitrogen metabolism (Mengel and Kirkby, 1987; Marshner, 1997). The effect of micronutrient application on the growth and yield of

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