

MICRONUTRIENT STATUS AND THE SOIL PHYSICO-CHEMICAL PROPERTIES AFFECTING THEIR AVAILABILITY IN RUBBER GROWING AREAS OF THE NORTH-EAST INDIA

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Two hundred and ten soil samples were collected from the rubber growing areas of Assam, Meghalaya and Tripura. DTPA extractable cations were estimated and their relations with different physico-chemical properties of the soils were studied. Soils varied from sandy loam to clay loam in texture, extreme to moderately acidic in reaction (pH: 3.9 to 6.1) and medium to high organic carbon content (5.50 to 22.50 mg kg⁻¹). Cation exchange capacity of the soil samples ranged from 4.52 to 17.45 cmol (p+) kg⁻¹. DTPA extractable Fe, Mn, Zn and Cu content of the soil samples ranged from 41 to 308 (mean 160.5), 6.1 to 72.0 (mean 29.1), 0.13 to 2.86 (mean 0.84) and 0.50 to 2.46 (mean 1.47) mg kg⁻¹ of soil, respectively. Based on the prescribed critical limit, all the samples were sufficient in DTPA-Fe and Mn. Cu deficiency was observed in 4.11 per cent of the total soil samples collected. About 29 per cent of the soil samples were deficient in DTPA-Zn. Hill Zone of Assam recorded the highest (33.6%) and Garo Hills of Meghalaya recorded the lowest (21.65%) number of Zn-deficient samples. Organic carbon and clay content of the soils were positively and significantly correlated with the DTPA-extractable micronutrients and contributed significant variations towards their availability.

Keywords: DTPA extractable micronutrients, North-East, Physico-chemical properties, Rubber growing soils.

INTRODUCTION

Essentiality of micronutrients and specific deficiency symptoms in rubber were established long back (Shorrocks, 1964). Though micronutrients are present in different forms such as minerals, inorganic complexes, chelates, ions *etc.* in soils, only a small fraction of these micronutrients is

absorbed by plants (Joseph *et al.*, 1995). The absorption of micronutrients by plants depends on various factors such as soil pH, organic carbon content, weathering condition, texture, climate *etc.* Continuous cultivation of rubber with modern high yielding clones and constant use of high analysis fertilizers creates deficiency of micronutrients in soils (Karthikakuttyamma