

SULPHUR STATUS OF RUBBER GROWING SOILS

Sulphur is an essential plant nutrient which along with nitrogen is important in the formation of plant proteins as constituent of the amino acids cysteine, cystine and methionine. Much attention has not been paid on sulphur because of the indirect addition of sulphur through fertilizers insecticides and fungicides.

In rubber plants, deficiency of sulphur causes accumulation of nitrates and amides. Subsequently the uppermost leaves develop uniform pale yellow patches which may be followed by an irregular necrotic scorch and abscission of leaves. Deficiency of sulphur under field conditions are seldom reported in rubber plantations.

Tandon (1986) categorised the soils in Kerala as deficient in sulphur based on a general study of sulphur status of Indian soils. No systematic study of the rubber growing soil was undertaken in India. This study attempts quantification of profile-wise distribution of total and available sulphur in some rubber growing soils of India. Profile soil samples from five major rubber growing regions of India, viz., Kanyakumari (Kulasekharam), Kottayam (Mundakayam), Trichur (Pudukad), Calicut (Kinalur) from the traditional tract and Dapchari (Thane) representing a non-traditional region were collected, dried and analysed for mechanical composition, pH, organic carbon and total nitrogen (Piper, 1950 and Jackson, 1958). Total sulphur was estimated by the method outlined in Norhayati and Mohinder (1980) and available sulphur was determined by the method

of Black (1965). The correlations and regression were worked out (Snedecor and Cochran, 1967).

The physico-chemical properties and the distribution of total and available sulphur in the profile soil samples are given in Table 1. The average total sulphur content varied from 224 ppm in Kanyakumari region to 337 ppm in Dapchari. Yahya (1980) has reported a range of 110-900 ppm of total sulphur in rubber growing soils of Malaysia. Among the samples from traditional area, highest total sulphur was registered in those from Trichur and Calicut regions and the lowest in that from Kanyakumari region. This may be due to the high organic carbon content in soils from the former two regions. Surface horizons registered higher amount of total sulphur in all the regions when compared to lower horizons probably due to the high organic matter content in upper horizons. Significant positive correlations were recorded between organic carbon and total sulphur (0.63) and available sulphur (0.69). A decrease in sulphur content in lower depths were observed in all the profiles. Similar results of decreasing sulphur content down the profile was reported by Tabatabai and Bremnor (1972), Tiwari and Pandey (1990). Karle *et al.*, (1985) attributed the high sulphur status in soils of Maharashtra to the basaltic nature of parent material. The granitic and gneissic nature of parent material of the traditional rubber growing tract as reported by Koshy and Varghese (1972) may be responsible for their lower sulphur status.