MOVEMENT OF APPLIED POTASSIUM IN A SANDY CLAY LOAM SOIL UNDER RUBBER (*HEVEA BRASILIENSIS*) PLANTATION

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Field and laboratory experiments were conducted in a sandy clay loam soil under rubber (*Hevea brasiliensis*) cultivation to study the movement of surface-applied K. The field experiment indicated that the influence of K fertilizer on K availability is reflected only in the 0-10 cm layer of the soil. Higher levels of K application did not influence the available K status. In the laboratory experiment using soil columns, movement of K up to 30 cm depth was observed.

Key words: *Hevea brasiliensis*, Potassium, Soil.

INTRODUCTION

Potassium is one of the essential elements required for growth and productivity of rubber (*Hevea brasiliensis*) besides nitrogen (N) and phosphorus (P). It is more readily lost by leaching than P. The leaching losses of potassium (K) fertilizers vary with the texture of the soil, forms and rates of application and the intensity of rainfall (Soong, 1973; Sivanadyan, 1974). K tended to leach quickly in soils with clay contents less than 41 per cent (Boswell and Anderson, 1968). Pushparajah (1979) reported that in sandy soils, leaching losses were as high as 50 per cent of the added K fertilizer. Best and Drover (1979) observed that majority of the K^+ ions were held in the top one centimeter layer when K fertilizers were applied to the surface of soil columns containing 60 per cent clay. The present study was undertaken to quantify the availability of K at different depths of the soil in a mature rubber plantation, at fixed time intervals after K fertilizer application.

MATERIALS AND METHODS

Column study

Sixteen PVC columns (60 cm long and 8 cm in diameter) were filled with the sandy clay loam soil from a mature rubber plantation (Koney Estate) in Pathanamthitta District, Kerala, under the traditional rubber growing region of India. The soil was sampled depth-wise and filled as per the order of depth into the columns. Muriate of Potash at the rate of 30 kg K_2O per ha (75 mg K_2O per kg soil, equivalent to 125 mg MOP per kg soil, considering 20% of the area as the effective area of fertilizer application) was applied on the surface of the soil column and deionised water was added from the top to maintain the soil moisture at field capacity. Four columns were withdrawn at 5, 10, 15 and 30 days after the fertilizer application. The columns were segmented at every 10 cm and soil samples were collected and processed. The soil samples were extracted with 1N ammonium acetate and

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