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EVALUATION OF TWO EXTRACTANTS FOR THE ESTIMATION OF AVAILABLE POTASSIUM, CALCIUM AND MAGNESIUM IN ACID SOILS UNDER RUBBER

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Two extractants were compared for the estimation of available K, Ca and Mg in acid soils under rubber. Wide variation in soil K, Ca and Mg was recorded between the samples. Numerically higher values were obtained for available K with ammonium acetate extraction. For Ca and Mg more quantity was extracted with Morgan's extractant. Correlations between soil test values and corresponding leaf nutrient concentrations indicated that both extractants are equally good for evaluating the availability of K and Ca. Considering the non-corrodable nature and being the universal extractant, ammonium acetate was found to be the better choice. A better extractant has to be identified for available Mg.

Key words : *Hevea brasiliensis*, Ammonium acetate, Sodium acetate, Exchangeable ions, Available nutrients.

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INTRODUCTION

Soil and plant analyses are two vital guides for assessing the fertilizer requirement of crop plants. Soil testing gives the quantity of nutrients available to the crops, whereas plant analysis indicates the actual uptake of the nutrients from the soil. Different extractants for the estimation of soil nutrient status ranging from water, dilute acids, alkalies and combination of reagents were developed depending on the chemistry of the soil and the nature of the crop. Morgan's reagent (Morgan, 1941) is employed in the laboratories of the RRII for the estimation of K, Ca and Mg with the view that it will give a better indication of the available K status of acid soils. The other extractants for the available K estimations are neutral normal ammonium acetate (Hanway and Heidal, 1952), 0. IN HNO_3 (Ramanathan, 1979) and 1.0N HNO_3 (Wood and Deturk, 1941).

The criteria for assessing the nutritional status of rubber (*Hevea brasiliensis*) based on foliar analysis are detailed by Shorrocks (1962). According to Lace *et al.* (1972) soil K estimated by 6.0N HCl and neutral normal ammonium acetate correlated well with leaf K contents of *Hevea*. The relation between soil Mg and leaf Mg was established, but for Ca the relationship was not understood properly (Pushparajah and Guha, 1969). According to Yew and Pushparajah (1984) good correlation between exchangeable Ca and leaf Ca and 6.0N HCl Mg and leaf Mg were established in three month old Tjir 1 seedlings. Most of the extractants and soil test methods for availability indices were established for annual crops. The present study was un-