Indian J. Nat. Rubb. Res. 4(2) : 118–122, 1991

PHOSPHORUS DISSOLUTION PATTERN OF DIFFERENT ROCK PHOSPHATES AND ITS INFLUENCE ON BIOMASS PRODUCTION AND NODULATION OF *PUERARIA PHASEOLOIDES*

Anna Varghese, M. Karthikakutty Amma and M. Mathew

Anna Varghese, Karthikakutty Amma, M. and Mathew, M. (1991). Phosphorus dissolution pattern of different rock phosphates and its influence on biomass production and nodulation of *Pueraria phaseoloides*. Indian J. Nat. Rubb. Res. 4(2): 118 122.

Dissolution of four indigenous rock phosphates in comparison with an imported (Jordan) material was studied in an acid soil from rubber growing tract under field capacity for a period of ten weeks. Significant increase in Bray Extractable P was obtained for all the treatments. Dissolution of imported (Jordan) rock phosphate was the highest followed by that of Mussoorie rock phosphate. Rock phosphates from different geographical regions differed in their effect on dry matter yield and P uptake of *Pueraira phaseoloides*. Among the Indian sources, Mussoorie rock phosphate was the most effective for *Pueraria phaseoloides* and it was on par with imported rock phosphate. The relative agronomic effectiveness of the different sources of rock phosphates followed the order – Jordan, Mussoorie, partially acidulated Maton, Purulia, Udaipur, Maton.

Key words:- *Pueraria phaseoloides*, Indigenous rock phosphate, Phosphorus dissolution pattern.

Anna Varghese (for correspondence), M. Karthikakutty Amma and M. Mathew, Rubber Research Institute of India, Kottayam-686009, India.

INTRODUCTION

Leguminous crops grown as ground cover in rubber plantations contribute much to the nitrogen requirement of rubber plants (Shorrocks, 1965). The beneficial effect of P application to cover crops have been reported by Mathew *et al.* (1978). Mussoorie rock phosphate is reported as a suitable fertilizer for application in rubber growing soils (Karthikakutty Amma *et al.*, 1978). Most of the phosphorus required to establish cover crops in rubber plantations is supplied as Mussoorie rock phosphate. Recently, large quantities of ground rock phosphate reserves of low grade, unsuitable for use in phosphate industry, have been discovered. Some of the important sources are Udaipur, Maton and Purulia mined from Rajasthan and West Bengal. Laboratory and pot culture studies were undertaken to assess P release characteristics of these rocks and to compare their efficiency.

MATERIALS AND METHODS

Phosphate rocks from Mussoorie (Uttar Pradesh), Maton (Rajasthan), Udaipur (Rajasthan) and Purulia (West Bengal) were utilised for the studies, along with an imported phosphate rock (Jordan). A partially acidulated form of Maton rock phosphate was also employed. Simple super phosphate was also included as one of the treatments for comparison.

The soil selected for incubation study was sandy clay loam, collected from the experi-