POTASSIUM RELEASE POTENTIAL OF RUBBER GROWING SOILS IN NORTH - EAST INDIA

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Studies on potassium (K) release potential of rubber growing soils in three states of North-East (NE) India namely Assam, Meghalaya and Tripura was carried out. Results revealed that rubber growing soils of Meghalaya could supply K to plant at a higher rate than the other two States of NE India as indicated by its higher K releasing parameters *viz*. constant rate K (1.38 $mg100g^{-1}$), step K (101.8 $mg100g^{-1}$) and cumulative K release potential (113.4 $mg100g^{-1}$). Rubber growing soils of Tripura with high content of low active kaolinite clay recorded lower values of various K releasing parameters *vis-à-vis* low plant available K. Significant positive relationship of silt, clay and silt+ clay with K release parameters suggested that finer fractions of soil played an important role in K release. Step K and constant rate K showed positive and significant relationship with exchangeable and non-exchangeable K, whereas, cumulative K showed significant relationship with non-exchangeable pool of K only. Data indicated that K releasing power of soils is the sum of exchangeable and non-exchangeable form of soil K and long term availability of soil K to plants depends mainly upon its non-exchangeable pool. Total K ranged from 0.67 to 1.51 per cent and did not record significant relationship with K releasing parameters indicating that the major share of mineral K is not available for plant uptake. Results also suggested that K supplying power under rubber growing soils of Meghalaya may exhaust quickly due to its higher K releasing parameters which necessitates constant monitoring of K fertility status of these soils.

Keywords: NE India, Potassium-release potential, Potassium availability, Rubber growing soils, Soil properties.

Potassium (K) is one of the essential plant nutrients which play a major role in plant metabolism, growth and yield. It improves the water use efficiency, provides resistance to cold stress, lodging and diseases to plants. Therefore, nutrient supply to plant particularly K need to be monitored continuously in view of the crop needs and the capacity of soils to fulfill such needs (Baruah, 2002). Potassium content of a given soil is largely controlled by the mineralogical make up of soil, as greater proportion of total K is present as an integral part of the crystal structure of various silicate minerals. Again, the rate and amount of K being released from soil are important factors in determining the K status of a given soil.

In rubber plantation, the harvested crop is hydrocarbon, therefore, it was assumed that mineral demand for rubber should be

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