

CHARACTERIZATION OF SRI LANKAN ACID TEA SOILS IN
RELATION TO SOIL K DYNAMICS AND K UPTAKE
BY TEA (CAMELLIA SINENSIS. L)

By

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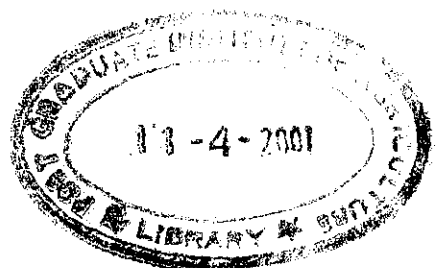
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ABSTRACT

Sri Lankan acid tea soils from 6 different agro-ecological regions were cropped with two sowings of perennial rye grass (*Lolium perenne*) adopting a glasshouse pot experiment without adding any Potassium until growth virtually ceased. Potassium uptake and corresponding changes in initial soil K properties and adsorption/desorption properties were studied as tools for classification of Sri Lankan acid tea soils in relation to K applications.

The K concentrations in the soil solutions of all six soils had dropped to minimum level after 3 months of cropping with rye grass despite the wide range of initial soil solution concentrations.

Intensive cropping reduced the exchangeable K of all soils to a range of 8 to 21 mg kg⁻¹ at the 8th cut compared to initial exchangeable K range of 60 to 116 mg kg⁻¹ soil. The K uptake was correlated with the exchangeable K by the regression.

Tea soils used could be divided into two main groups according to their Potential Buffering Capacities (PBC^K). First group consisting of higher PBC^K values having constant availability of K over a longer period and 2nd group having lower PBC^K values which need frequent fertilizations. Sub-divisions of soils were

which need frequent fertilizations. Sub-divisions of soils were also suggested depending on the presence of K-specific-sites and available K as well.

The curved portions of the Q/I isotherms of soils indicated the presence of some specific sites for K ions in Ratnapura, Hantane and Talawakelle as against the in Passara, Deniyaya and Kottawa soils.

ΔK^0 was poorly correlated with plant K uptake by the regression.

Finally, Sri Lankan acid tea soils were divided into 5 groups according to their K dynamics and plant K uptake. It is worthy to consider these groupings also in arriving at K-recommendations for tea in Sri Lanka.