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FORMS AND DISTRIBUTION OF POTASSIUM IN DEEP SUBTROPICAL SOILS AS INFLUENCED BY VARYING PARENT MATERIALS AND ELEVATION

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ABSTRACT

A study was conducted on some deep subtropical soils occurring in West Bengal and Jharkhand state of India with an objective to examine the effect of varying parent materials and elevation on the distribution of soil potassium fractions with depth of soil. Total potassium (K) content varied widely between 0.017 and 0.770 per cent with pedons mean ranging between 0.024 and 0.44 per cent, while HCl- soluble potassium varied between 0.009 and 0.50 per cent with pedons mean ranging from 0.012 to 0.22 per cent. Water soluble, exchangeable and available potassium in pedons varied between 5.0 and 39.2 ppm, 39.16 and 744.04 ppm and 38.43 and 773.34 ppm respectively. The overall results revealed that irrespective of elevation, exchangeable- K and available-K were higher in soils developed on parent materials 'Basic/Calc-schist' ,'Basic (Deccan trap)' and 'Calc-schist admixed with detrital laterized material' as compared to others. Soils dominant with kaolinite or illite clay mineral were more weathered containing less exchangeable and available – K. Soil on meta-amphibolite parent material exhibited very low total - K and lattice-K. Pedons with higher CEC and clay content showed higher total K content. Further, total - K and lattice-K were largely depended on the stage and degree of weathering of varying parent materials.

KERWORDS: Deep Subtropical Soils, Forms of Potassium, Distribution of Potassium, Varying Parent Materials and Elevation