

Forms and distribution of potassium in particle size fractions on talc overburden soils in Nigeria

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The potassium status of soils developed over talc overburden in a southern Guinea savanna of Nigeria was evaluated using exchangeable, acid extractable, total and residual potassium values in particle-size fractions. Soil samples collected from genetic horizons of six profile pits at Kampe Forest Reserve were separated into sand, silt and clay fractions. Exchangeable K, acid-extractable K, total K and residual K were determined in these fractions. Reserved K values were similar to those of mobile K, but lower than total and residual K, whereas exchangeable K showed the lowest values. Total K was $>25 \text{ cmol kg}^{-1}$ in all the profiles; reserved K ranged from 9.26 to 24.45 cmol kg^{-1} and mobile K ranged from 5.12 to 29.57 cmol kg^{-1} . Exchangeable K accounted for $<1\%$ of total K and ranged from 0.20 to 0.50 cmol kg^{-1} . In most cases, the clay fraction of the soils had the highest values for all potassium forms, followed by the silt fraction, while the sand fraction had the lowest values for these forms of potassium.

Keywords: Total K, Residual K, Exchangeable K, Talc, Nigeria