DISTRIBUTION OF PHOSPHORUS ALONG A TOPOSEQUENCE ON AN ALFISOL IN MINNA, NIGER STATE.

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ABSTRACT
The distribution of various forms of phosphorus was evaluated along a toposequence located in an Alfisol in Teaching and Research Farm of the Federal University of Technology, Minna. The toposequence was delineated into different topographic units (Crest, Upper slope, Middle slope and Lower slope). Soil samples were collected from identified horizons in profile pits in each topographic unit. The soil samples were analyzed for organic, total, available and various active P forms. The results obtained showed that distribution of phosphorus varied widely with each topographic unit. Total P ranged from 102 µg g⁻¹ at the lower slope to 422 µg g⁻¹ at the upper slope, with a mean of 236.95µg g⁻¹. Organic P also ranged from 21 - 132µg g⁻¹ with a mean of 55.8µg g⁻¹. Organic P was highest at the lower slope and lowest at the upper slope. Available P ranged from 0.4 – 5.54µg g⁻¹ with a mean of 2.47µg g⁻¹. The active P forms was in the order of Fe-P > Al-P > Ca-P, with Fe-P varying from 19 - 95µg g⁻¹, Al – P ranged from 1.75 – 22µg g⁻¹ and Ca – P ranged from 1.12- 4.3µg g⁻¹. There was a positive correlation between organic P and clay (r = 0.56*) and between organic P and organic carbon (r = 0.52*). However, organic P correlated negatively with sand (r= -0.49*).Fe – P and Al – P correlated with magnesium (r = 0.51*) and sand (r = 0.45*) respectively. Available P also correlated positively with clay (r = 0.43*) and organic carbon (r = 0.52*).

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