

STUDIES ON THE ADSORPTION OF POTASSIUM, AMMONIUM AND PHOSPHATE IONS ON BORALESGAMUWE KAOLIN

N. Yakandawela, A. M. S. Chandrasekar, S. Perera,
M. I. M. Wazeer, D. T. B. Tennakoon and
R. P. Gunawardene

*(Department of Chemistry University of Sri Lanka,
Peradeniya)*

Potassium and ammonium salts and phosphates are extensively used in agriculture as fertilizers. The retention of K^+ , NH_4^+ and PO_4^{3-} ions in soil becomes important in relation to fertilizer practices. Therefore the adsorption of K^+ , NH_4^+ and PO_4^{3-} ions, from aqueous solution, by kaolinite was studied.

The highest adsorption was observed in the case of the anion PO_4^{3-} (1.15 mol/100g) whilst the corresponding values for K^+ and NH_4^+ were 0.28 mol/100g and 0.59 mol/100g respectively. The adsorption in all cases was seen to be of the langmuir type. Studies at different pH values indicated that the adsorption of PO_4^{3-} by kaolinite was higher at low pH values.

Desorption studies showed that NH_4^+ and PO_4^{3-} could easily be desorbed although a slight hysteresis effect was observed. In the case of K^+ , however, the adsorption appeared to be irreversible; no desorption was observed in distilled water or sodium chloride solutions