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PHOSPHORUS ADSORPTION BY SOME TROPICAL COCONUT SOILS OF SRI LANKA: II. EFFECT OF pH AND CALCIUM

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Phosphorus adsorption by an Ultisol and an Alfisol was studied in the presence of 4 x 10^{-2}M NaCl and 1 x 10^{-2}M $CaCl_2$ at pH values of 4.5 and 6.0, and equilibrium P concentrations of 0.1 to 10μg/ml. The results showed that for Na, P adsorption was higher at pH 4.5 than at 6.0 for all equilibrium P concentrations, whereas for Ca, this holds only at low equilibrium P concentrations while at high concentrations of P, the adsorption is higher at pH 6.0 than at 4.5.

Net surface charge determinations on P-treated and untreated soils at pH values of 3 to 7 and at different concentrations of NaCl and $CaCl_2$ showed that P is specifically adsorbed at all pH values tested. At high pH values the specific adsorption was higher for Ca than Na whereas at low pH values there was hardly any difference between Na and Ca. It is suggested that at high pH values, Ca helps the adsorption of P, probably by forming a bridge between the oxide and hydroxide groups of the soil surface and P.