

ABSTRACT

Phosphorus (P) sorption by some *Madakumbura* and *Madakumbura* soils of the mid country wet zone of Sri Lanka was evaluated under air-dried and flooded conditions.

The reducing conditions imposed by flooding the soils for a period of 14 days before treatment with P, resulted in a marked increase in P sorption in eight of the eleven soils studied. The P sorption behaviour of the other three soils was exceptional in that they showed no appreciable increase following flooding. However, there seemed to be no difference in the P sorption behaviour of the *Madakumbura* and *Madakumbura* soils.

Flooding also resulted in large increases in oxalate-extractable Fe in all the soils.

Langmuir sorption maxima (site I) of both air-dried and flooded soils correlated significantly with clay, organic matter, CEC, and extractable Al. Under flooded conditions, in addition to these factors oxalate-extractable Fe also showed significant correlation with P sorption. The increase observed in P sorption on flooding in a majority of the soils has been attributed mainly to the increase in oxalate-extractable Fe. However, the extent to which P sorption increases on flooding appear to depend on the type and amount of the less crystalline material extracted by the oxalate reagent. This in turn may be governed by the nature and properties of the soil.