

ADSORPTION OF COPPER IN SOME CALCAREOUS SOILS AT LOW EQUILIBRIUM SOLUTION CONCENTRATION

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Copper (Cu) deficiencies are common in calcareous soils. We investigated the adsorption of Cu by a range of Calcareous soils at low solution concentrations. Sorption of Cu at $<0.5 \mu\text{M}$ solution concentrations, was inhibited by the formation of soluble Cu organic complexes in aqueous solution as indicated by S-Curve isotherms. The Calcareous soils with relatively high organic matter and high iron and manganese oxides exhibited lower solution copper activity (Cu^{2+}). At low Cu concentrations organic complexation played a dominant role in regulating the concentration of soluble Cu in calcareous soils. Thus, in calcareous soils it is the Cu^{2+} activity which is more important than total solution Cu, for plant uptake. Further studies are warranted to explore the solution chemistry of copper in calcareous soils.

INTRODUCTION

Adsorption of Cu by soils has received increasing attention in recent years. Several investigators (McLaren and Crawford, 1973; Petruzelli et al., 1978; Galloway and McBride, 1978; Kiekens and Cottenie,

MATERIALS AND METHODS

Five calcareous soils of Ikfield series were selected for copper adsorption studies. These soils were sampled from Churn farm of University of Reading (UK) before wheat sowing. Soils are highly calcare-

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