# P R E F A C E

The contents embodied in the thesis are the findings of research work carried out by the author at the department of Chemistry, North Bengal University, India, under the supervision of Dr. S.K.Chakravarti, Professor, Chemistry Department, North Bengal University.

The present investigation has been undertaken to understand the actual mechanism of interaction of the bivalent metal ions with humic substances isolated from soils of different ecological status. The determination of stability constants of the complexes has also been aimed at. The effects of pH, ionic strength, metal concentration on the interaction as well as on the stability constants have also been studied. Attempts have further been made to compare the results of the natural humic substances with those of synthetic model humic materials. The characterisation of the source materials e.g. soils has been performed with the help of methods already established for the purpose.

The elemental analysis of humic and fulvic acids have been done at Central Drug Research Institute, Lucknow, India. X-ray diffraction studies and Differential Thermal Analysis of Clay-samples have been carried out at Central Glass and Ceramic Research Institute, Jadavpur, India. Estimation of Calcium, Potassium and Phosphorous in soils have been performed at soil testing laboratory, Indo-British Fertilizer Education Project, Siliguri, India. The computational work has been done through the courtesy of Research Service Centre, University of North Bengal, India.