APPENDIX  VI

Analysis of Fe\(^{3+}\) :

Fe\(^{3+}\) in solution was analysed as the orthophenanthroline complex (Black 1965).

Reagents :

Hydroxylamine hydrochloride solution : 10 g of NH\(_2\)OH.HCl (AR BDH) was dissolved in 100 ml water.

Orthophenanthroline reagent : 0.3 g of orthophenanthroline (GR E. Merck) was dissolved in water and diluted to 100 ml.

Standard Fe\(^{3+}\) solution : 100 ppm standard Fe\(^{3+}\) was prepared from FeNH\(_4\)(SO\(_4\))\(_2\)·12H\(_2\)O (AR Pfizer) dissolved in 2.5 ml 12 N HCl and diluted to volume.

Sodium acetate solution : 13.6 g CH\(_3\)COONa·3H\(_2\)O (AR BDH) was dissolved in 100 ml water.

Procedure : Into clean 100 ml volumetric flasks the standard Fe\(^{3+}\) solution was pipetted to give 0-2.0 ppm Fe. Known amounts of sample solution were similarly taken. Then 2 ml of 10\% NH\(_2\)OH.HCl and 3 ml orthophenanthroline reagent were added to each flask. Next, sodium acetate solution was added
dropwise until a bright orange colour developed. Then 3 ml of sodium acetate was added in excess and the solution diluted to volume with distilled water. The absorbance of the solutions was read at 510 mp on a Hitachi Double Beam Spectrophotometer (Model 100-60). From the standard curve (ppm Fe$^{3+}$ versus O.D.), the amounts of Fe$^{3+}$ in the sample solution was calculated.