

DETERMINATION OF THE BINDING CONSTANT OF TRIS-(3, 4, 7, 8- TETRAMETHYL-1, 10-PHENANTHROLINE) IRON (II) SULPHATE WITH SODIUM DODECYL SULPHATE

LATONA D. F¹, SORIYAN O. O² & IGE J³

¹Landmark University, Department of Physical Sciences, PMB, Omu-Aran, Nigeria

^{2,3}Obafemi Awolowo University, Department of Chemistry, Ile-Ife, Nigeria

ABSTRACT

The binding of tris- 3,4,7,8 – tetramethyl- 1,10- phenanthroline)iron(II) sulphate with sodium dodecyl sulphate was done using a unicam UV-Visible spectrophotometer at 25°C and the analyses were done by employing double reciprocal plots. Absorbance were taken at fixed concentration of the metal complex ($1.45 \times 10^{-5} \text{ mol dm}^{-3}$) and the concentration range of sodium dodecyl sulphate was far below the critical micelle concentration of the surfactant (2.00×10^{-5} - $3.50 \times 10^{-4} \text{ mol dm}^{-3}$). The binding study was done as a function of alkaline, acidic, benzoate ion and urea concentration at fixed concentration range of 0.50×10^{-5} – $3.00 \times 10^{-5} \text{ mol dm}^{-3}$. Binding increased at low [H⁺] to reach a maximum at [H⁺] = $2.00 \times 10^{-4} \text{ mol dm}^{-3}$ after which there was a decrease in binding. The binding reaction was retarded in the presence of OH⁻ and urea and enhanced in benzoate ion.

KEYWORDS: Sulphate with, Sodium Dodecyl Sulphate, Li (32.2 M^{-1}), Na (36.9 M^{-1}), K (52.6 M^{-1}), Rb (55.9 M^{-1}) and Cs (54.0 M^{-1})