



Abstract:

In this work, a Schiff base ligand named (E)-2-(((2-hydroxy-4-sulfonaphthalen-1-yl) imino) methyl) benzoic acid was synthesized by the reaction of 4-amino-3-hydroxynaphthalene-1-sulfonic acid and 2-formylbenzoic acid. TLC was performed for the confirmation of product formation. The ligand was characterized by FTIR spectrophotometric analysis and was used for the qualitative and quantitative fluorometric analysis of Fe^{3+} ions. Ligand showed selectivity for Fe^{3+} metal ions in distilled water among the range of metal ions. LOD for Fe^{3+} ions were calculated as $15 \mu\text{M}$ and LOQ was obtained at $65 \mu\text{M}$. Job's plot confirmed 1:1 binding stoichiometry of complex. Association constant was calculated by using the Benesi-Hildebrand plot and it was obtained $2 \times 10^3 \text{ M}^{-1}$. The stern-Volmer plot was used for the study of quenching kinetics and to determine the quenching mechanism