

## Abstract

Regarding the high toxicity of heavy metals in wastewater, a Schiff base fluorescent chemosensor **A1** was synthesized for the efficient detection of  $\text{Cu}^{2+}$  ions. As the ligand **A1** was soluble in DMF solvent hence its crystals were also obtained in DMF which were characterized by XRD while the presence of different functional groups such as carbonyl ( $\text{C}=\text{O}$ ) and imine group ( $\text{N}=\text{C}$ ) was confirmed by FT-IR analysis. Selective response of the **A1** probe was checked by adding different metal cations in ligand solution whereas only  $\text{Cu}^{2+}$  ions showed a remarkable decrease in the emission intensity which was recorded at 348nm. Other metal ions did not show any quenching response. When  $\text{Cu}^{2+}$  ions were added to **A1** solution, the intensity of ligand **A1** decreased from 620 to 177(a.u) along with a sudden color change from yellow to orange yellow. The complexation of **A1**- $\text{Cu}^{2+}$  was also observed by UV-Vis spectrophotometer where the absorption peak of **A1**- $\text{Cu}^{2+}$  was observed at 467nm. The LOD of the ligand **A1** was calculated to be  $1.4 \times 10^{-2}$  M with a binding ratio of 1:1 which was determined by the job plot graph.