

SUPPLEMENTARY INFORMATION

Fabrication of Novel Nano-composite carbon paste sensor based on silica-nanospheres functionalized with isatin thiosemicarbazone for potentiometric monitoring of Cu²⁺ ions in real samples

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Characterizations of isatin thiosemicarbazone (ITC)

FT-IR (KBr, cm⁻¹): 3422, 3299, 3230, 3163, 1697, 1604, 857. **Elemental analysis: Calculated:** C, 49.08; H, 3.66; N, 25.44; S, 14.56. **Found:** C, 49.80; H, 3.68; N, 25.39; S, 14.65. **UV/visible λ (nm):** 351, 281, and 355. **¹H-NMR (DMSO, δ /ppm):** 6.91–7.65 (*m*, 4H, Ar), 8.63, 9.01 (*s*, 2H, NH₂), 11.21 (2, 1H, NH), 12.48 (*s*, 1H, NH). m.p. 239–241 °C.

Job's curve of equimolar solutions of Cu(II) ions and ITC

The Job's curve was obtained using equimolar solutions of Cu(II) ions and ITC. As can be seen from fig. 1, Job's curves displayed a maximum at a mole fraction $X_{\text{metal}} = 0.5$ indicating the formation of complex with 1:1 Cu(II) to ITC ratio.

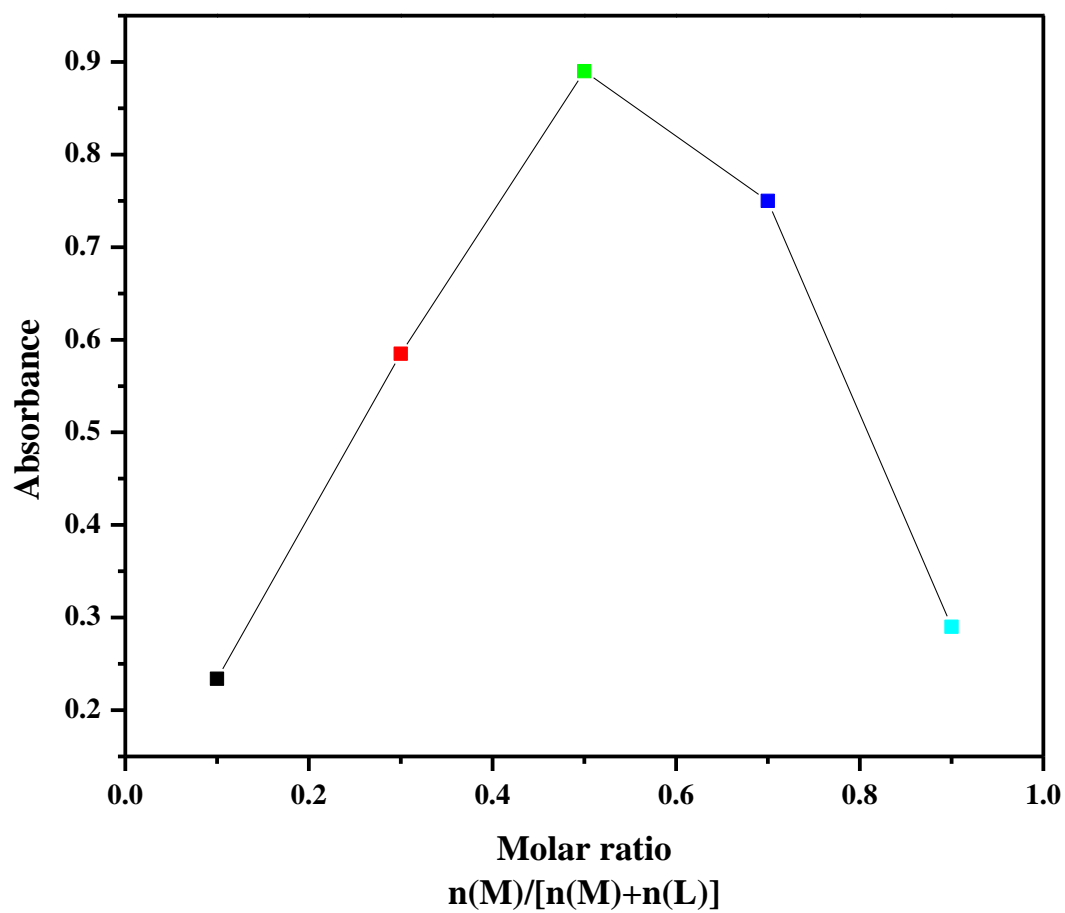


Fig. 1. Job's curve of equimolar solutions of Cu(II) ions and ITC