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A highly selective sensor for Cu^{2+} and Fe^{3+} ions in aqueous medium:

Spectroscopic, computational and cell imaging studies

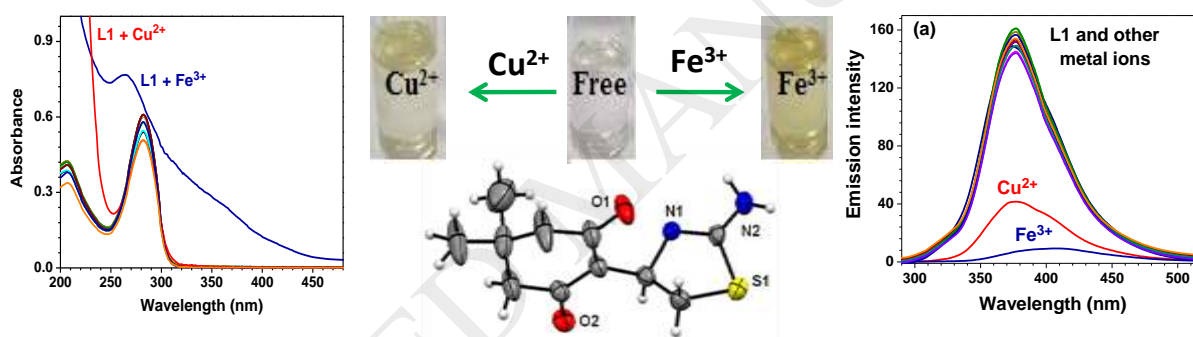
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Graphical abstract

Chemosensor L1 is capable for the detection of biologically important Cu^{2+} and Fe^{3+} ions by absorbance and emission techniques, color visualization, paper strips and fluorescence cell imaging. The actual species responsible for sensing of Cu^{2+} and Fe^{3+} ions were confirmed by spectroscopically and computational studies.



Highlights

- ► L1 exhibits absorbance and emission responses with Cu^{2+} and Fe^{3+} in aqueous medium.
- ► The “by-eye” detection of Cu^{2+} and Fe^{3+} was observed by obvious color change of L1.
- ► L1 serves as reversible sensor for Fe^{3+} using EDTA as restoring agent.
- ► Chemosensor L1 is efficient to detect Fe^{3+} ion in L929 cells.
- ► Complexation was investigated by spectroscopically and computational studies.

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Abstract: A rationally designed chemosensor L1 (2-(2-amino-4,5-dihydrothiazol-4-yl)-5,5-dimethylcyclohexane-1,3-dione) is capable for the detection of biologically important Cu^{2+} and Fe^{3+} ions. The observable change in absorbance and emission in HEPES buffer solution and binding parameters display notable sensing ability of Cu^{2+} and Fe^{3+} ions. From Job's plot and ESI-

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