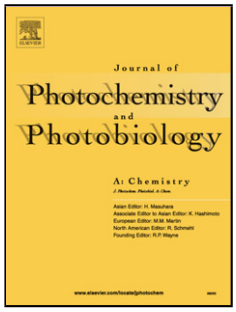


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# A thio-urea based chromogenic and fluorogenic chemosensor for expeditious detection of $Cu^{2+}$, $Hg^{2+}$ and $Ag^{+}$ ions in aqueous medium

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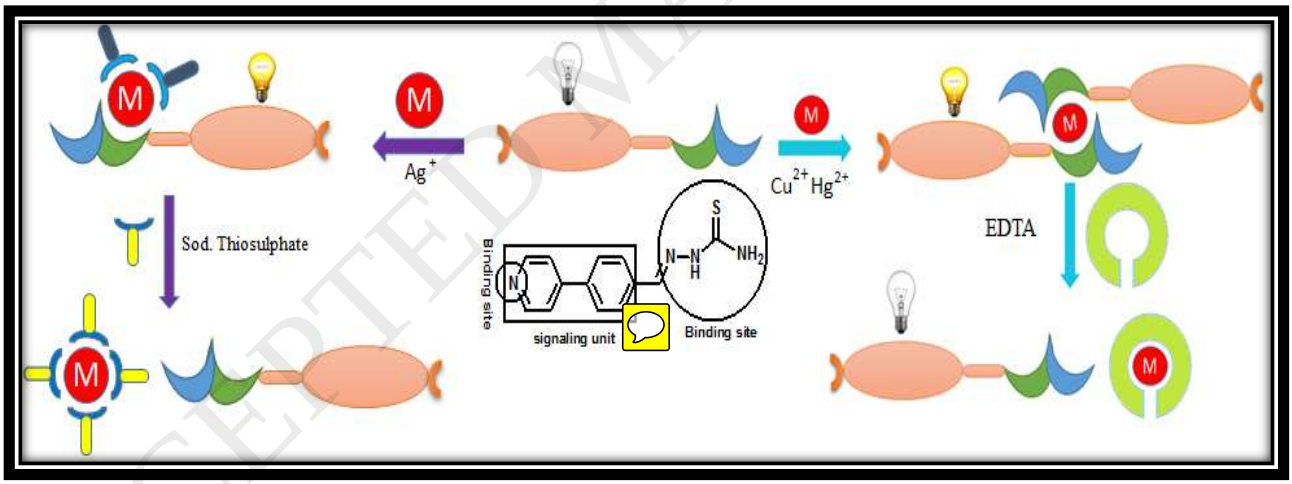
## Graphical abstract

A novelsimple reversible fluorescent and colorimetric multiple metal ions chemosensor, *1-(4-(pyridine-4-yl) benzylidene) thiosemicarbazide* (**L**), based on the thiourea group has been designed and synthesized. The chemosensor **L** successfully detect $Cu^{2+}$, $Hg^{2+}$ and $Ag^{+}$ based on binding site-signalling approach. The detection limit reaches up to 10.67, 11.14 and 8.54 μM for $Cu^{2+}$, $Hg^{2+}$ and $Ag^{+}$ ions respectively. **L** has been successfully applied for the determination of $Cu^{2+}$, $Hg^{2+}$ and $Ag^{+}$ ions in real water samples.




## Highlights

- A novel imino linked thio-urea based chromogenic and fluorogenic chemosensor **L** has been developed
- **L** can recognize $Cu^{2+}$, $Hg^{2+}$ and $Ag^{+}$ ions with obvious absorption, colour and fluorescence change