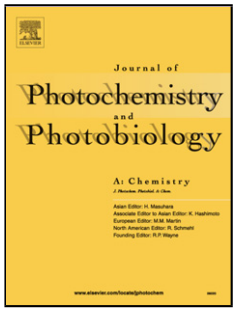

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PII: S1010-6030(18)30929-8
DOI: https://doi.org/10.1016/j.jphotochem.2018.08.018
Reference: JPC 11431

To appear in: *Journal of Photochemistry and Photobiology A: Chemistry*

Received date: 3-7-2018
Revised date: 8-8-2018
Accepted date: 13-8-2018

Please cite this article as: Manna AK, Mondal J, Rout K, Patra GK, A new ICT based Schiff-base chemosensor for colorimetric selective detection of copper and its copper complex for both colorimetric and fluorometric detection of Cysteine, *Journal of Photochemistry and amp; Photobiology, A: Chemistry* (2018), https://doi.org/10.1016/j.jphotochem.2018.08.018

A new ICT based Schiff-base chemosensor for colorimetric selective detection of copper and its copper complex for both colorimetric and fluorometric detection of Cysteine

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Graphical abstract

A novel simple reversible Schiff base chemosensor (E)-N'-(4-(diethylamino)-2-hydroxybenzylidene)-2-(benzamido)benzohydrazide (**L**) has been designed, synthesised and characterised by X-ray single crystal analysis, ^{1}H-NMR, IR spectroscopy, ESI-MS spectrometry and elemental analyses. The receptor **L** is successfully applied for sequential detection of Cu^{2+} ions colorimetrically and cysteine by both colorimetrically and fluorometrically in aqueous medium. The detection limit reaches up to 9.3×10^{-7} M and 5.86×10^{-6} M respectively, which were far lower than those recommended by the WHO guidelines for drinking water. The synthesized chemosensor (**L**) finds application in real sample analysis and formation INHIBIT and IMPLICATION logical devices.