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Title:	Design and synthesis of a novel coumarin-based framework as a potential chemomarker of a neurotoxic insecticide, azamethiphos†
Authors:	Mandal, S.K. (/jspui/browse?type=author&value=Mandal%2C+S.K.)
Keywords:	Copper Fluorescent sensor HEPES buffer
Issue Date:	2020
Publisher:	Royal Society of Chemistry
Citation:	New Journal of Chemistry 44(8), pp. 3341-3349
Abstract:	Selective affinity of a novel coumarin-functionalized fluorescent sensor, 8-((E)-((thiophen-2-yl)methylimino)methyl)-7-hydroxy-4-methyl-2H-chromen-2-one (L), to copper(II) ions via fluorescence quenching in HEPES buffer at pH 7.4 has been demonstrated. This coordination chemistry between the coumarin-based ligand L and copper(II) ions has been subsequently exploited for the generation of a unique chemical ensemble, L·Cu ²⁺ , which qualifies the former as a sensitive and selective fluorogenic sensor for the toxic organophosphate pesticide azamethiphos in aqueous medium. The sequestering of the native fluorescence of receptor probe L upon entrapment of copper(II) within the former was altered upon sequential administration of azamethiphos into the environment of the host complex, L·Cu ²⁺ . The physico-chemical interactions between the sensor complex L·Cu ²⁺ and azamethiphos, as corroborated by ³¹ P NMR studies and fluorescence spectroscopy, serve as the basis for ideal chemical discrimination of azamethiphos, amongst a pool of several ecotoxic organophosphate pesticides.
Description:	Only IISERM authors are available in the record.
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