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4-(4,5-Diphenyl-1*H*-imidazole-2-yl)-*N,N*-dimethylaniline-Cu(II) complex, a highly selective probe for glutathione sensing in water-acetonitrile mixtures

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1 **4-(4,5-Diphenyl-1*H*-imidazol-2-yl)-*N,N*-dimethylaniline-Cu(II)**
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16
17 **Abstract**

18 The imidazole derivative 4-(4,5-diphenyl-1*H*-imidazol-2-yl)-*N,N*-dimethylaniline (probe **1**) formed
19 a highly coloured and non-emissive 1:1 stoichiometry complex with Cu(II) in water-acetonitrile
20 1:1 (v/v) solutions. Among all the amino acids (Lys, Val, Gln, Leu, His, Thr, Trp, Gly, Phe, Arg,
21 Ile, Met, Ser, Ala, Pro, Tyr, Gly, Asn, Asp, Glu, Cys and Hcy) and tripeptides (GSH) tested only
22 GSH induced the bleaching of the 1·Cu(II) solution together with a marked emission
23 enhancement at 411 nm (excitation at 320 nm). These chromo-fluorogenic changes were
24 ascribed to a selective GSH-induced demetallation of the 1·Cu(II) complex that resulted in a
25 recovery of the spectroscopic features of probe **1**. In addition to the remarkable selectivity of
26 1·Cu(II) complex toward GSH a competitive limit of detection as low as 2 µM was determined
27 using fluorescence measurements.

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