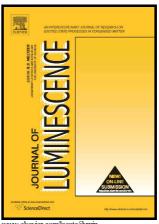
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Benzidine based fluorescent probe for the sensitive detection of heavy metal ions via Chelation Enhanced Fluorescence mechanism—A multiplexed sensing platform

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Benzidine based fluorescent probe for the sensitive detection of heavy metal

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sensing platform

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Abstract

Herein, a novel benzidine based fluorescent chemosensor was developed to detect two important

heavy metal ions viz. Sn^{2+} and Pb^{2+} in microheterogenous medium (DMSO-water,1:9 v/v).

Benzidine based fluorescent coordination compound (BCc) was found to be an excellent receptor

for the aforementioned ions via significant fluorescent enhancement which may be attributed to

the inhibition of charge transfer process and an efficient chelation enhanced fluorescence

(CHEF) effect. A good linear relationship between fluorescence intensity and concentrations of

Sn²⁺ and Pb²⁺ ions was obtained in the range of 0 to 120 μM with the detection limit of 0.37μM

and 0.32µM respectively. Interestingly, no interference was observed for 18 other tested metal

ions making it highly selective probe for the detection of Sn²⁺ and Pb²⁺ ions. The multiplexed

sensing ability coupled with prompt metal ion recognizing power, make this sensor specifically

attractive for environmental toxicology and biomedical applications.

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