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Styryl-Functionalized BODIPY as Fluorescent Probe For Metal Ions Detection in Aqueous Media

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Fluorescent-based sensors have received extensive attention due to its highly sensitive and rapid sensing ability to detect metal ions. In this study, we have developed a new BODIPY derivative, **mTBODdiSalic** for detection of metal ions in aqueous media. The probe has been synthesized from 2,4-dimethylpyrrole and 5-formylsalicylic acid in 4 steps and fully characterized with NMR and Mass spectrometry. **mTBODdiSalic** displays a maximum absorption and emission at wavelength 642 and 662 nm which appear as blue color in daylight and pink under fluorescent black light, respectively. Among 19 various metal ions, **mTBODdiSalic**'s emission was selectively quenched by the addition of Cu^{2+} and Al^{3+} ions. Moreover, **mTBODdiSalic** could react with Au^{3+} to afford maximum absorption wavelength shift from 642 into 573 nm (purple color) along with maximum emission wavelength shift from 662 into 596 nm (orange fluorescence). Therefore, **mTBODdiSalic** could be used to visually discriminate between Au^{3+} over other cations in aqueous solution under a UV-vis lamp.

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