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Novel of quinoline derivatives containing 5-membered heterocycles for Zinc ions detection

Fluorescent probes based on 8-aminoquinoline and 8-hydroxyquinoline containing 5-membered heterocyclic aromatic and nonaromatic rings are synthesized and evaluated as a chemosensor for metal ions. One of 8-aminoquinoline derivatives bearing L-proline exhibits a turn-on fluorescence response to Zn2+ in aqueous media by showing strong emission peak at 505 nm. The limit of detection for Zn2+ is in the 4.83 nM. On the other hand, the derivatives containing 5-membered aromatic ring show relatively low and less selective fluorescence responses to metal ions in aqueous media. The lone pair electrons of the heteroatoms in the aromatic rings are weaker binder to the metal ion in comparison with the that in the non-aromatic proline ring.

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