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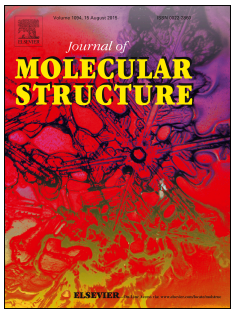

Benzimidazole-based polyheterocycles from ninhydrin: Synthesis, X-ray crystal structure and photophysical property

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Benzimidazole-based polyheterocycles from ninhydrin: Synthesis, X-ray crystal structure and photophysical property

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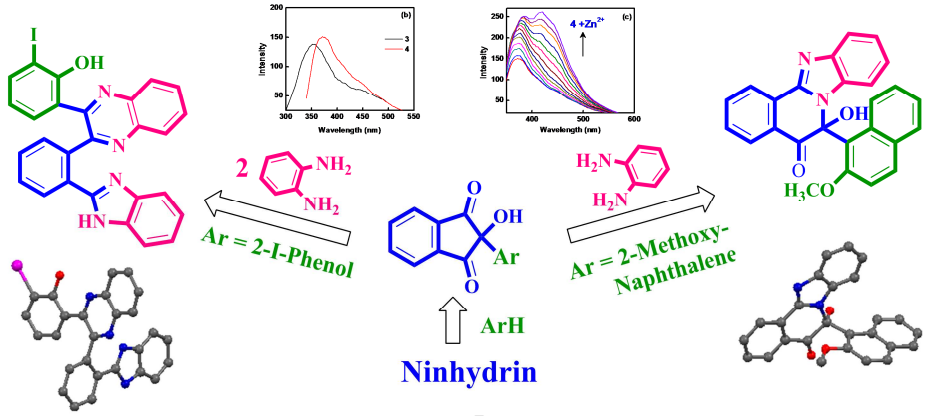

Abstract:

Ninhydrin was successfully employed to develop two different benzimidazole-embedded heterocyclic skeletons via reaction of arylated ninhydrin and *o*-phenylenediamine under acidic condition. While ninhydrin adduct of 2-iodophenol consumed two equivalent of *o*-phenylenediamine to furnish benzimidazole linked quinoxaline skeleton, under same reaction conditions corresponding 2-methoxynaphthalene adduct afforded benzimidazo[2,1-*a*]isoquinolinone framework. The hybrid heterocycles were identified as 2-(3-(2-(1*H*-benzo[d]imidazol-2-yl)phenyl)quinoxalin-2-yl)-6-iodophenol **3** and 6-hydroxy-6-(2-methoxynaphthalen-1-yl)benzo[4,5]imidazo[2,1-*a*]isoquinolin-5(6*H*)-one **4** by IR, NMR and single crystal X-ray diffraction studies. Fluorescence measurements reveal that compound **3** and **4** display differential fluorescence behaviour, particularly towards the presence of Zn^{2+} ion.

Keywords: Ninhydrin, Heterocycles, Benzimidazole, X-ray diffraction, Fluorescence