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Tandem and transition metal-free synthesis of novel benzoimidazo-quinazoline as highly selective Hg2+ sensors

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Abstract

A one-pot procedure for the synthesis of novel planar aza-heterocycles possessing good fluorescence potencies was described. These benzo-imidazopyrimido[4,5-b]quinolone derivatives came from the reaction of 2-chloroquinoline-3-carboxaldehydes and 2-aminobenzimidazole using K2CO3 in DMF. The fluorescence study of these conjugated systems was also considered, which revealed that they have highly selective sensing of mercury. Consequently, to investigate another aspect of the reaction, a three-component reaction was developed by adding malononitrile to the aforementioned starting materials in the presence of L-proline under reflux condition in H2O/EtOH to provide amino-quinolin-3-yl-dihydrobenzo-imidazo-pyrimidine-3-carbonitriles in good yields.

Keywords: One-pot synthesis, Transition metal-free, Fluorescent, 2-Aminobenzimidazole, 2-Aminobenzimidazole