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# A New Isoindoline–based Highly Selective “Turn-On” Fluorescent Chemodosimeter for Detection of Mercury Ion

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## Abstract

A new isoindoline–based highly efficient turn-on Fluorescent chemodosimeter **S** with a thioamide functionality as a binding site for selective detection of  $\text{Hg}^{2+}$  ion has been developed. The chemodosimeter **S** showed an extreme selectivity for detection of  $\text{Hg}^{2+}$  ion among various two and three-valent metal ions in acetonitrile/water (70/30, v/v). It was found that, in the presence of  $\text{Hg}^{2+}$  ion the non-fluorescent chemodosimeter **S** was efficiently and rapidly desulfurized to the corresponding highly fluorescent amide **1**. A good linear relationship was shown between the fluorescence intensity and the concentration of  $\text{Hg}^{2+}$  within the range of 0–1  $\mu\text{M}$ , with a detection limit of  $2.03 \times 10^{-8}$  M.

## Keywords

Fluorescent

Chemodosimeter

Mercury Ion

Thioamide

## 1. Introduction

Recently, Fluorescent chemosensors and chemodosimeters have been attracted substantial attentions for detection of toxic heavy metal ions due to their simplicity, instantaneous response and high detection limit [1-2], when compared with other detection methods such as atomic absorption spectrometry [3-4], potentiometric ion-selective electrode [5], and inductively

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