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Colorimetric Sensor for the Selective Detection of Co(II) with Biological Studies

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Abstract

A Novel chemosensor derived from 2,4-diamino-6-hydroxypyrimidine and pyridine-2-carbaldehyde was synthesized by conventional method. It was characterized by FT-IR, ¹H-NMR and HR-LCMS mass spectrum. By colorimetric technique, the specific selectivity in sensing of Co²⁺ was effectively studied. The chemosensor display a promising selectivity towards sensing of Co²⁺. The mechanism of sensing is based on Intra molecular Charge Transfer. When Co²⁺ binds with ligand gets inhibited there by giving a new peak in absorbance spectrum with high intensity and CHEF takes place due to the binding of Cu²⁺ with ligand. The detection limit was found out to be 0.05 μM. Real sample analysis was performed for the practical applicability of in the environment.

Keywords: Hydroxypyrimidine, Selective Co²⁺sensing, Colorimetric, Real Sample Analysis