

Exploiting the INH Pharmacophore: Synthesis and Study of its Transition Metal Complexes for Biological Applications

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Abstract: A novel Schiff base ligand incorporating the isoniazid (INH) pharmacophore was synthesized and utilized to prepare a series of paramagnetic transition metal complexes, characterized using spectroscopic techniques (IR, UV-Vis, ¹H NMR, ¹³C NMR). Potentiometric studies revealed the stability constant order: Zn(II) > Co(II) > Ni(II) > Mn(II) > Cu(II). Biological evaluation demonstrated that the synthesized metal complexes exhibited superior antimicrobial and antifungal activity compared to the organic ligand, with the Nickel(II) complex showing promise as an antifungal agent. These findings underscore the synergistic potential of metal coordination in enhancing the pharmacological applications of the INH pharmacophore.

Keywords: INH pharmacophore, potentiometric complexation, stability constant, antifungal

