

Synthesis and Biocidal Activity of Co (II) and Zn (II) Complexes of Sulfa Drug Schiff Bases

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Abstract: Schiff bases are the most widely used organic compounds. They have been shown to exhibit a broad range of biological activities, including antifungal, antibacterial, antimalarial, antiproliferative, anti-inflammatory, antiviral, and antipyretic properties. The synthesized complexes were screened/tested for their antimicrobial activity against pathogenic bacterial strains i.e. *E. coli*, *Staphylococcus aureus* strain I, *Staphylococcus aureus* strain II, *Staphylococcus aureus* strain III, *Vibrio cholera*, Gram positive Cocci, Gram positive *Bacillus*, Gram negative *Bacillus*, *Bacillus subtilis* and *Salmonella typhimurium*. It was found that metal complexes have more antimicrobial activity than their parent Schiff bases. A series of new Schiff base compounds derived from substituted 3-aminopyrazoles and dialdehydes were synthesized and characterized by ¹H, ¹³C nuclear magnetic resonance, Fourier-transform infrared, ultraviolet-visible, gas chromatography-mass spectrometry and high-resolution mass spectrometry. Furthermore, the Schiff complexes were a tetrahedral in complexes Ni(II), Zn(II), Cd(II), and Hg(II), octahedral Pt(II), and square planer complex Pd(II). Additionally, density functional theory (DFT) was applied for calculations of both spectroscopic properties and electronic structure of prepared Schiff bases.

Keywords: Schiff Bases; Metal Complexes; Antibacterial; Biological Activities, Cytotoxic Activity, sulfamethoxazole, sulfamerazine

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