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Two Novel Triaza Quinoline Schiff base Ligands and Their Metal Complexes as Antibacterial Compounds: Synthesis, Characterization, structural elucidation and Thermodynamic Studies

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In this project, two new tridentate Schiff base ligand and their Zinc(II) and Nickel(II) complexes have been synthesized and characterized using various spectroscopic techniques such as elemental analysis, magnetic susceptibility, conductivity,^{1}HNMR, IR, UV-Vis spectra, Mass spectrometry powder XRD and EDX. Then their antibacterial effects are described.

These new ligands behave as tridentate triaza through quinolone moiety nitrogen, azomethine nitrogen and amine nitrogen. The SQUAD program [1, 2] explained the trend of complex formation of metal complexes $Zn^{2+} > Ni^{2+}$ and sequence $[ML^{1}] > [ML^{2}]$. The metal (II) complexes show more potent activities than their free ligands. The stability constant and Gibbs free energy calculations show that the tetradentate Schiff base complexes of this series are more stable than the tridentate Schiff base complexes[3].

All the synthesized compounds were tested for their antibacterial activity in vitro against the Gram positive bacteria and Gram negative bacteria indicate that the metal complexes are more biologically active than the ligands.

Keywords: Quinoline Triaza Schiff Base Complexes, Thermodynamic Studies, Antibacterial Compounds

References

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