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Synthesis, characterization and antimicrobial activity of Schiff base ligand and metal complexes

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This study describes the synthesis of a new Quinoline Schiff base by condensation of 3-formyl-2-hydroxyquinoline-5-carbonitrile and 1-tosylhydrazine. After preparing Schiff base, metal complexes are formed using Cu(II), Ni(II), and Co(II). FT-IR, ¹H NMR, ¹³C NMR, ESI-MS, UV-Visible, XRD spectroscopy have all been able to demonstrate the full synthesis of Schiff base and associated metal complexes. Preparations of compounds with low conductivity have been found to be non-electrolytic. The ligand has O, N, and O binding sites, according to the FT-IR data. According to the magnetic moment of the compounds, the metal complexes of Cu(II), Ni(II), and Co(II) are paramagnetic. The compounds have been tested for their properties against *Bacillus subtilis*, *Escherichia coli*, and *Candida albicans*. It has been found that metal (II) complexes have potent antibacterial and antifungal action in comparison to ciprofloxacin and ketoconazole.

Keywords: Quinoline Schiff base, Spectral properties, Antimicrobial activities