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Co(II), Ni(II), and Cu(II) complexes with heterocyclic ligand and their biological applications

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In this work are described methods for generating and characterizing mononuclear, heterocyclic ligated Co(II), Ni(II), and Cu(II) and their complexes. The heterocyclic derivative Schiff base (E)-2-(4-bromobenzylideneamino)butanoic acid is produced by reacting 4-bromobenzaldehyde with 2-aminobutanoic acid. Experimental evidence has shown that the Schiff base forms four coordinated mononuclear complexes with the aforementioned metal ions at a 1:2 (metal:ligand) stoichiometry. FT-IR, UV-Vis, ^{1}H and ^{13}C NMR, and mass spectrometry are used to examine the structural modifications of the complexes. Additionally, the Schiff base and its complexes are evaluated for their antibacterial properties, and the findings are explained in detail. Antibacterial and antifungal activity of the metal (II) complexes have been shown to be very high and compared with ciprofloxacin andfluconazole.

Keywords: Analytical data, Schiff base, Antimicrobial activities