

Synthesis, Characterization and Antimicrobial Activity of Mixed Ligand Complexes of 1-{(E)-[(5-fluoro-2-methoxyphenyl)imino]methyl}naphthalen-2-ol and 4-bromo-2-{(E)-[(4-methoxy-2-methylphenyl)imino]methyl}phenol with Co(II), Ni(II), Cu(II) and Zn(II) ions.

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Abstract: The mixed ligand complexes of Co(II), Ni(II), Cu(II) and Zn(II) with Schiff bases 1-{(E)-[(5-fluoro-2-methoxyphenyl)imino]methyl} naphthalen-2-ol (L^1H) and 4-bromo-2-{(E)-[(4-methoxy-2-methylphenyl) imino]methyl} phenol (L^2H) have been synthesized and characterized. The resulting complexes were characterized by elemental analysis, thermogravimetric analysis, magnetic moment measurements, conductivity measurements, IR, UV-visible and ESR spectral studies. The Schiff bases acts as bidentate monobasic ligands, coordinating through deprotonated phenolic oxygen and azomethine nitrogen atoms. The complexes are non-electrolytic in DMSO. The presence of the two coordinated water molecules in these complexes was indicated by IR spectra and thermogravimetric analysis of the complexes. From the analytical and spectral data the stoichiometry of these complexes have been found to be $[M(L^1)(L^2)(H_2O)_2]$ {where $M = Co(II)$, $Ni(II)$, $Cu(II)$ and $Zn(II)$ }. It is found that Co(II), Ni(II), Cu(II) and Zn(II) complexes exhibited octahedral geometry. The antimicrobial activities of ligands and their mixed ligand complexes were screened by Disc Diffusion method. It was found that the metal complexes have higher antimicrobial activity than the free ligand.

Keywords: Schiff bases, Mixed ligand, Metal complexes, Antimicrobial activity.