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Synthesis, characterisation and antimicrobial activity of Mannich base derived from pyridine-2-carboxaldehyde and its metal complexes

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Abstract : The present study deals with the synthesis, characterization and antimicrobial properties of Mannich base N-[1-piperidino(pyridine-2-carboxyl)]acetamide (**PPCA**) and its metal [Cu(II), Co(II), Ni(II) and Zn(II)] complexes. The ligand forms 1:1 (metal:ligand) type of complexes with Cu(II), Co(II), Ni(II) and Zn(II) metal salts. The structural features have been arrived from their microanalytical, IR, UV-Vis., CV, EPR spectral data. The electrolytic behaviour of the chelates was assessed from their molar conductance data. The magnetic susceptibility measurements suggested that all the complexes were paramagnetic except Ni and Zn, which were diamagnetic, and the magnitude of magnetic moment values were useful to find out the number of unpaired electrons which in turn were useful to further support the geometry suggested by electronic spectral data. The magnetic susceptibility and electronic absorption spectra of copper complex indicates an octahedral geometry around the central metal ion while cobalt, zinc complexes exhibit tetrahedral geometry and nickel complex shows square-planar structure. Both the ligand and its metal complexes were tested against some microorganisms for their antimicrobial activity. It has been found that all the complexes have higher activity than the free ligand and the standard.

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