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Synthesis, Characterization and Antimicrobial Activities of New N_4-donor Ligands and their Co(II), Ni(II), Cu(II) and Zn(II) Complexes

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ABSTRACT

Two new N_4-donors, N,N'-(ethane-1,2-diyl)bis(2-prop-1-eneaminobenzamide) [EBEAB] and N,N'-(propane-1,3-diyl)bis(2-prop-1-eneaminobenzamide) [PBEAB] have been prepared and characterized. Their complexes with Co(II), Ni(II), Cu(II) and Zn(II) are obtained by reaction with metal salts in methanol. The physicochemical and spectral studies reveal that the complexes have the formula, $[MLX_2].n\ H_2O$, where M = Co, Ni, Cu, L = EBEAB or PBEAB, X = Cl and n = 1; and M = Zn, X = CH_3COO^- and n = 0. The antibacterial activity of the ligands and the metal complexes against four gram-negative and two gram-positive bacterial strains have been evaluated using disc diffusion method. The complexes are found to be more active than the ligands and among the metal complexes, the Cu(II) complexes exhibited better activity and comparable with the activity of the standard, amoxicillin.

Keywords: N_4-ligands, Metal complexes, Antibacterial activity, Spectral studies of metal complexes.