



Synthesis and Structural analysis of N₄-donor ligands and their complexes with some bivalent transition metal ions

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ABSTRACT

N,N'-(propane-1,3-diyl)bis(2-aminobenzamide) [PBAB] and N,N'-(propane-1,3-diyl) bis(2-pyrrolidin-1-yl)benzamide [PPB] have been prepared and characterized using spectroscopic methods. The structure of the compound PPB was obtained by single crystal X-ray diffraction method. PPB crystallizes in monoclinic crystal system of space group P21/c with $a = 10.0035(12)$, $b = 13.6893(17)$, $c = 16.2941(22)$ Å, and $\alpha = 90^\circ$, $\beta = 91.388(12)^\circ$ and $\gamma = 90^\circ$; $Z=4$, $\rho = 1.25 \text{ g cm}^{-3}$ and cell volume of $2230.67(8)$ Å³. Bivalent transition metal complexes of PBAB and PPB have been prepared and characterized using elemental analyses, conductance and magnetic susceptibility measurements and spectral studies (mass, IR, electronic, ESR, and NMR). The complexes prepared are found to have formula $[MLCl_2] \cdot H_2O$ $\{M = Co(II), Ni(II), Cu(II); L = PBAB \text{ or } PPB\}$ and $[M'L(CH_3COO)_2]$ $\{M' = Zn(II) \text{ or } Cd(II); L = PBAB \text{ or } PPB\}$.

Keywords: N₄-donors, X-ray structures, Transition metal complexes, Spectral properties of metal complexes, Characterization of complexes.
