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Synthesis and Characterization of Co(II) and Ni(II) complexes of Schiff base derived from Ninhydrin and Valine

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Abstract : In this study, Complexes of Co (II) and Ni (II) ions with Ruhmann's purple (ligand) were successfully synthesized and characterized. The complexes of $NiL_2$and CoL_2were synthesized by using template condensation synthesis method and characterized by melting point, solubility, elemental analysis, and molar conductance, and magnetic susceptibility, infrared and electronic spectral studies. The complexes, $NiL_2$and CoL_2 are soluble in ethanol, partially soluble in Diethyl ether and chloroform and insoluble in hexane and petroleum ether. The complexes, $NiL_2$and CoL_2 neither melt nor decompose up to 420^0C. The molar conductance of $NiL_2$and CoL_2 was 42 Scm^2/mol and 46Scm^2/mol in respectively. The molar magnetic susceptibility of two complexes was 1.74 BM for NiL_2 and 2.76 BM for CoL_2. The metal to ligand ratio of both metal complexes was 1:2; both metal complexes are non-electrolytes in ethanol and are paramagnetic at 21^0C. Based on the spectral data and other analytical data, monobasic ONO donor behavior of the ligand (Ruhmann's purple) generates octahedral geometry for the pink-green colored Ni (II) complex and green colored Co (II) complex.
Keywords : Co(II) & Ni(II) Complex, Ninhydrin, Ruhmann's purple Schiff base.

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