Synthesis and Characterization of Resorcinol based Schiff Base Ligand and Its Complexes of CO(III), NI(II), CU(II) and ZN(II) Metal Ions

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Abstract : A hitherto new resorcinol based acyclic ligand (L) was synthesized by Schiff base condensation reaction. The ligand was synthesized by microwaveassisted method at enhanced yield and drastically reduced reaction time. The new ligand was completely characterized. A series of Cobalt (III), Nickel(II), Copper (II) and Zinc(II) complexes of the unreported ligand(L) has been synthesized by the direct reaction of the preformed ligand(L) with Cobalt (III), Nickel(II), Copper(II) and Zinc (II) salts in 1:1 mole ratio in ethanol. The free ligand is neutral, but on complexation with metal ions, it tend to lose both the phenolic hydrogen and coordinates with Cobalt (III), Nickel(II) and Copper(II) and Zinc (II) metal ions as dianionic moiety. The ligand(L) being tetradentate in nature coordinates through its two nitrogen donors and two oxygen donors in the equatorial positions, the ligand serves as dianionictetradentatedioxadiaza moiety. The perchlorate complexes of the ligand were isolated and characterized thoroughly, using elemental analysis, electronic spectroscopy, infrared, molar conductivity measurements, magnetic susceptibility, ^{1}H NMR and cyclic voltammetry studies. The complexes formed were of mononuclear in nature.

Key words: Resorcinol based ligand, tetradentate ligand, dioxadiaza ligand, resorcinol, Schiff base condensation, dianionic ligand, transition metal complexes.

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