



Synthesis, Characterization of Mixed-Ligand Copper (II) Complexes Involving Diethylenetriamine, 2,6-Pyridinedicarboxylic Acid and Pyrazine in Dimethylsulfoxide

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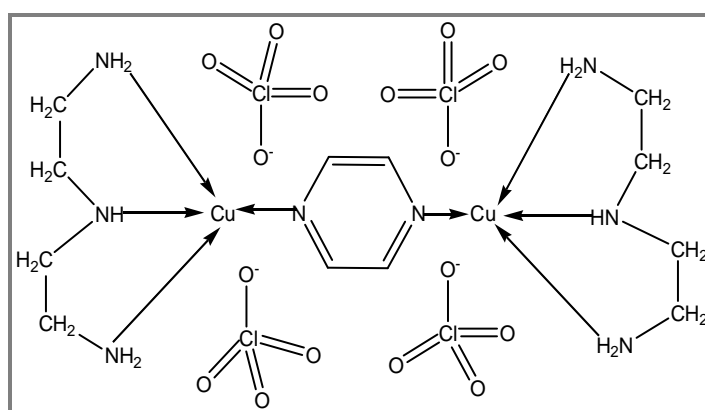
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ABSTRACT

The mixed ligand copper (II) complexes involving diethylenetriamine with 2,6-pyridinedicarboxylic acid and pyrazine were synthesized complexes $[Cu(dien)(pdc)(H_2O)]$ and $[Cu_2(dien)_2(pyz)](ClO_4)_4$ and characterized by elemental analyses (C,H,N), UV-Visible, FT-IR and TGA methods. The electrochemical behaviors of both the complexes were studied in dimethylsulfoxide (DMSO) containing 0.2M Sodium perchlorate ($NaClO_4$) as supporting electrolyte at a glassy carbon disc working electrode using cyclic voltammetry. It should be mentioned that the cyclic voltammograms of the mixed ligand complexes (1) and (2) in DMSO showed a quasireversible redox couple corresponding to Cu^{2+}/Cu^+ with formal potentials $E^0' = -204$ mV and $E^0' = 274.5$ mV vs Ag/AgCl, at the scan rate of 25 mV/s in the potential ranges +800 to -500 V and +800 to -750 V respectively. The UV-Visible spectra of the mixed ligand complexes were also studied in DMSO at room temperature.

Graphical Abstract



Structure of Complex (2) $[Cu_2(dien)_2(pyz)](ClO_4)_4$.

Keywords: Electrochemistry, UV-Visible spectra, IR Spectra, TGA, Copper, Diethylenetriamine, 2,6-pyridinedicarboxylic Acid, Pyrazine