

Poster Presentation

New [CoX₂(dmdphphen)] Complexes and their CT-DNA Binding Affinity

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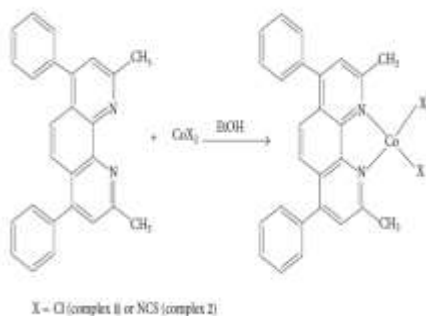
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Abstract

1,10-Phenanthroline ligands and their derivatives are very attractive in metal complexes [1–3]. Two new neutral mixed-ligand cobalt(II) complexes, [CoCl₂(dmdphphen)] 1 and [Co(NCS)₂(dmdphphen)] 2, where dmdphphen is 2,9-dimethyl-4,7-diphenyl-1,10-phenanthroline were made available in very good yields and simple way, as in Scheme 1.



Scheme-1: Synthesis of Co(II) complexes.

These complexes were characterized by an elemental analysis, UV-Vis, IR, TG/DTA, cyclic voltammetry CV, and single X-ray diffraction. Complex 2 crystallized as monoclinic with a space group P21/c. Co(II) ions are located in a distorted tetrahedral environment as in Fig. 1.

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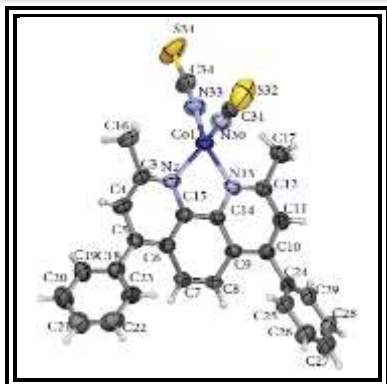


Fig. 1. The ORTEP generated diagram of 2.

TG/DTA result shows that these complexes are very stable and decomposed through one-step reaction. The two complexes exhibit a quasireversible one-electron response at -550 and 580 mV. Absorption spectral studies reveal that such complexes exhibit

hypochromicity during their interaction with CT-DNA as seen in Fig. 2.

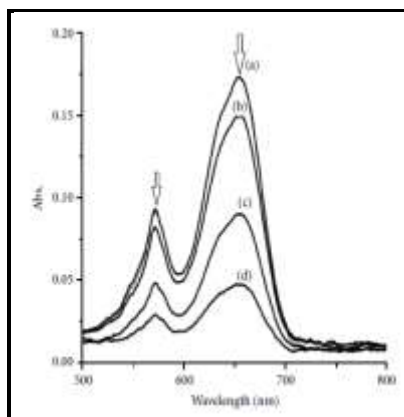


Fig.2: Visible spectra of 1.5×10^{-4} mol/L of complex 1 interacting with (a) 0, (b) 1.0×10^{-4} , (c) 5×10^{-4} , and (d) 1×10^{-3} mol/L CT-DNA at RT.

References

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