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Spectroscopic and thermodynamic studies of charge transfer interactions between a new water-soluble cobalt (II) Schiff base complex and imidazole derivatives

Mehdi ebrahimpour[a], Mahdi Behzad[a,*]
[a] Faculty of science, department of chemistry, Semnan University, Semnan, Iran.
(e-mail: mbehzad@semnan.ac.ir)

Water-soluble cobalt(II) tetradentate Schiff base complexes have been shown to form charge transfer (CT) complexes with a series of donors including imidazole and 1-methylimidazole. The investigated water-soluble cobalt(II) Schiff base complex, in this study, is derived from disodium[bis(5-sulfo-salicylaldehyde)-1,8-Diamino-3,6-dioxaoctan]. The formation constants and thermodynamic parameters for charge transfer complex formation between water-soluble cobalt(II) Schiff base complexes and imidazole derivatives were determined by UV-Vis spectroscopy in aqueous solutions at constant ionic strength (I = 0.2 mol dm^{-3} KNO3) at pH 7.0 and various temperatures between 288 and 308 K. all the products were characterized by elemental analysis, IR, UV-vis, ^{1}H NMR spectra.

Keywords: imidazole derivatives; Water-soluble cobalt Schiff base complexes; Charge transfer complexes; Formation constant; Thermodynamic parameters

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Synthesis and Characterization of Two Organic-Inorganic Hybrids Obtained from Reaction of Keggin-typPolyoxometallates with 2-Amino-4-methyl pyridine and 2-Aminopyrimidine Spacers

Shima Edalatkar Moghadam[a,*], Hossein Eshtiagh-Hosseini[b], Masoud Mirzaei[b]
[a]Faculty of Chemistry, Islamic Azad University, Shahre rey Tehran Branch, Tehran, Iran
[b]Department of Chemistry, School of Sciences, Ferdowsi University of Mashhad, Mashhad, Iran
(e-mail: sh_moghadam.chemi@yahoo.com)

Polyoxometallate constitute a fascinating class of metal-oxygen cluster-compounds with definite size and shape. They have been found to be extremely versatile inorganic building blocks in view of their potential applications in catalysis, medicine, theoretical studies, and materials science. Herein, two new organic-inorganic hybrids Materials based on Polyoxometallate, have been successfully synthesized and characterized by elemental analyses, IR, NMR spectroscopies. According to the obtained results these two hydrated hybrids may be formulated as (2-aminopyrimidinium)$_4$($SiO_4W_{12}O_{36}$) and (2-amino,4-methyl pyridinium)$_3$($PO_4W_{12}O_{36}$). In these cases, Keggin anions act as electron accepting species which leading to unique features for synthesized hybrids.

Keywords: Polyoxometallates;Organic-inorganic hybrid material;2-Amino,4-methyl pyridine;2-Aminopyrimidine