



J. Indian Chem. Soc.,  
Vol. 96, August 2019, pp. 1029-1036

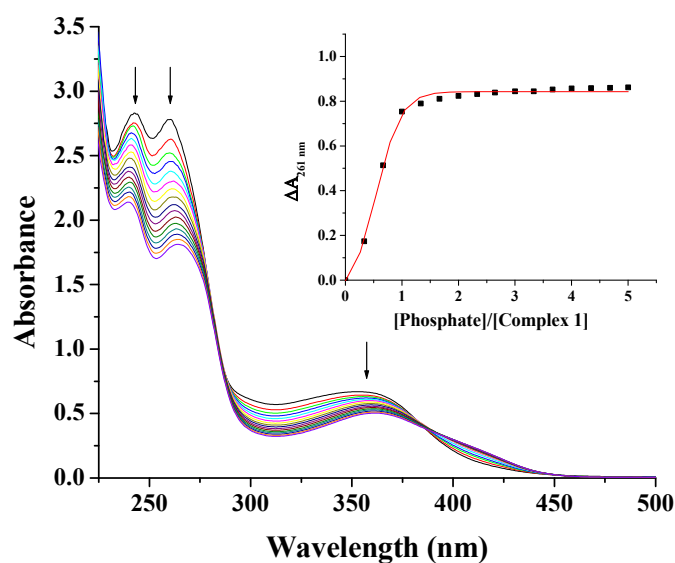
## Schiff base ligand containing copper(II) complexes: Synthesis, characterization and binding properties with phosphate

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Manuscript received online 08 May 2019, revised and accepted 04 July 2019



Two mononuclear copper(II) complexes of a phenol-based Schiff base ligand, 2-[(2-dimethylaminoethylimino)-methyl]-phenol (HL) have been synthesized and characterized. In methanol, the reaction of stoichiometric amounts of  $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$ ,  $\text{Cu}(\text{OAc})_2 \cdot \text{H}_2\text{O}$  and the ligand HL in the presence of  $\text{Et}_3\text{N}$  at ambient temperature afforded mononuclear copper(II) complexes,  $[\text{Cu}(\text{L})(\text{H}_2\text{O})\text{Cl}]$  (**1**) and  $[\text{Cu}(\text{L})(\text{H}_2\text{O})(\text{OAc})]$  (**2**), respectively. Complexes **1** and **2** have been characterized by elemental analysis, molar electrical conductivity, FTIR, UV-Vis and mass spectrometry. DFT calculation has been performed to optimize molecular structures of **1** and **2** to find the structural parameters and overall geometry around the copper centers. Both complexes **1** and **2** are investigated for their binding affinity towards the phosphate ion in aqueous-methanol (3:1; v/v) solution at pH  $\sim 7.5$  using UV-Vis spectroscopy. The phosphate ion binds to the metal complexes in 1:1 molar ratio. The binding constants of the phosphate-bound mononuclear copper(II) complexes have been determined from UV-Vis titration experiments.

Keywords: Schiff base ligand, copper(II) complex, phosphate binding, UV-Vis titration.