



## Electrochemical and Spectral Behavior of Some Copper(II) Mixed Ligand Complexes involving Pyridine-3,5-dicarboxylic acid and Diimines in Dimethylsulfoxide

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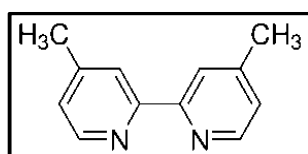
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Accepted on 29<sup>th</sup> October, 2018

### ABSTRACT

Electrochemical behaviour of copper in its mixed ligand complexes of pyridine-3, 5-dicarboxylic acid(3,5-pdc)with diimines {where diimines =1, 10- Phenanthroline(phen)**1**; 2, 2'-bipyridyl(bipy)**2**;4, 4'-dimethyl 2, 2'-bipyridyl(4,4'-Me<sub>2</sub>bipy)**3**;5, 5'-dimethyl 2, 2'-bipyridyl(5,5'-Me<sub>2</sub>bipy )**4**}[Cu<sup>2+</sup> (diimine) 3,5-pdc] in 2:1:1 metal to ligand molar ratio have been studied in dimethylsulfoxide (DMSO) containing 0.2 M sodium perchlorate (NaClO<sub>4</sub>) as a supporting electrolyte at a glassy carbon disc working electrode using cyclic voltammetry. It should be mentioned that the complexes displayed a single quasi reversible redox couple (Cu<sup>2+/+</sup>).It is observed that the cathodic peak potential shift more negatively and anodic peak potential shifts more positively with increasing scan rate. Anodic to cathodic peak potential difference, ΔE<sub>p</sub> values are more than 60 mV, clearly showing the quasi reversible nature of redox process. The UV-visible electronic spectra of the above Cu(II) complexes were also studied in DMSO at room temperature.

### Graphical Abstract



4, 4'-dimethyl- 2, 2'-bipyridyl  
(4, 4'-Me<sub>2</sub>bipy)

### Highlights:

- Mixed ligand copper (II) complexes with pyridine-3, 5-dicarboxylic acid and diimines in DMSO are investigated by electrochemical and spectral studies.
- All the complexes show single quasi reversible redox couple.
- UV-visible studies indicate the presence of distorted octahedral six coordinated copper (II) complex species in DMSO.

**Keywords:** Cu (II) complexes, diimines, pyridine-3, 5-dicarboxylic acid, cyclic voltammetry, UV-Visible spectra.