

Synthesis, X-ray crystal structures and photophysical studies of Cu(I) complex containing diimine and diphosphine ligands

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Abstract:

In this study, we focus on the synthesis and characterization of novel copper(I) complexes containing bibenzimidazole ligands. The structural elucidation of these complexes is achieved through X-ray crystallography, providing detailed insights into their molecular geometry and shows H-bond forming capability which can be tuned by ligand substitution pattern. The unique coordination environment provided by the bibenzimidazole ligands enhances the electronic properties of the copper centers, thereby improving their photophysical properties. The absorption spectra of these copper(I) complexes were successfully tuned towards visible light activity and MLCT based emission has been detected. The combination of detailed structural analysis and photophysical evaluation highlights the potential of these complexes in facilitating efficient photocatalytic activities.

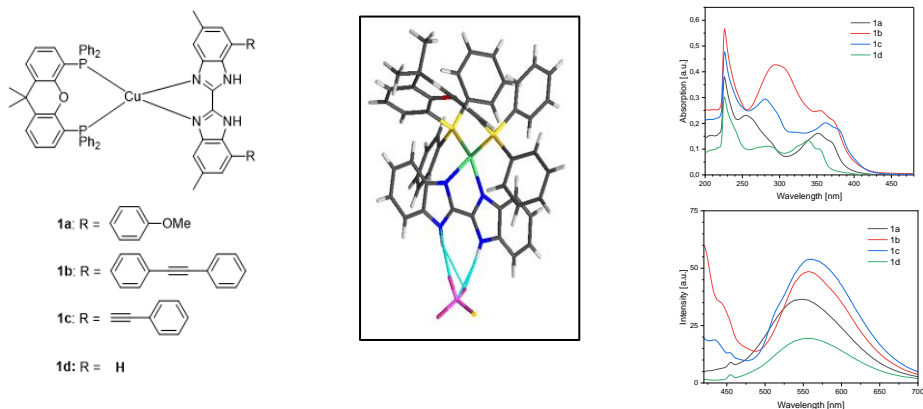


Figure 1: Novel copper based PS with bibenzimidazole ligands, X-ray structure of 1d, UV-vis and emission spectroscopic data.

References:

- [1] Huang TH *et al.*, Journal of Luminescence. 2020 Nov 1;227:117530.
- [2] Yasui Y *et al.*, Organic Letters. 2006 Oct 26;8(22):4989-92.