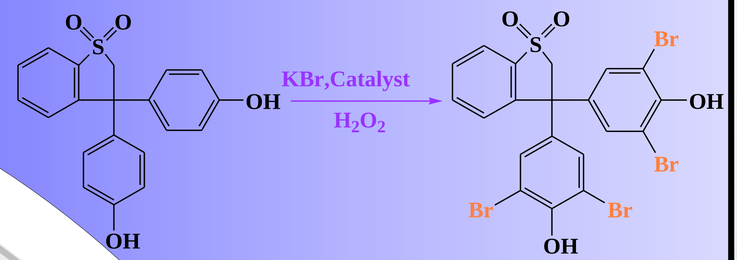
sciforum-090343

ECP 2024 Conference
The 3rd International Electronic Conference on Processes
29–31 May 2024 | Online

INTRODUCTION

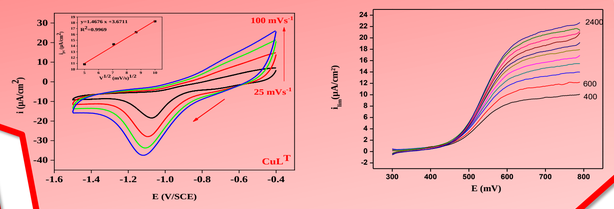
- Schiff base complexes are good candidat in catalysis oxidation reactions [1].
- Copper has received a great deal of attention due to significant roles in biochemical and catalytic properties, such as haloperoxidation, nitrogen fixation, and metalloproteins [2] [3].
- Vanadium haloperoxidases (V-HPOs) which are found in marine algae are able to accelerate the oxidative halogenation of organic compounds [4].

FUNCTIONAL MIMICS OF THE V-HPOs

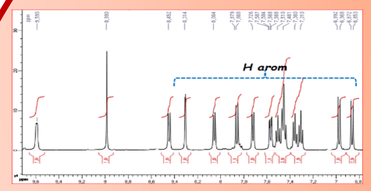


Scheme. Reactive process of the bromination reaction for the complex.

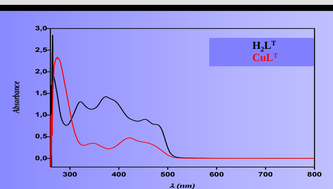
ELECTROCHEMICAL STUDY



Cyclic and Linear voltammograms of CuL^T in DMF



^1H NMR spectrum of H_2L^T in DMSO-d_6/TMS (500MHz)



IR spectra of H_2L^T and CuL^T

Crystal structure, Spectroscopic Studies, DFT Calculations, Cyclic Voltammetry and Catalytic Activity of a Copper Schiff Base Complex.

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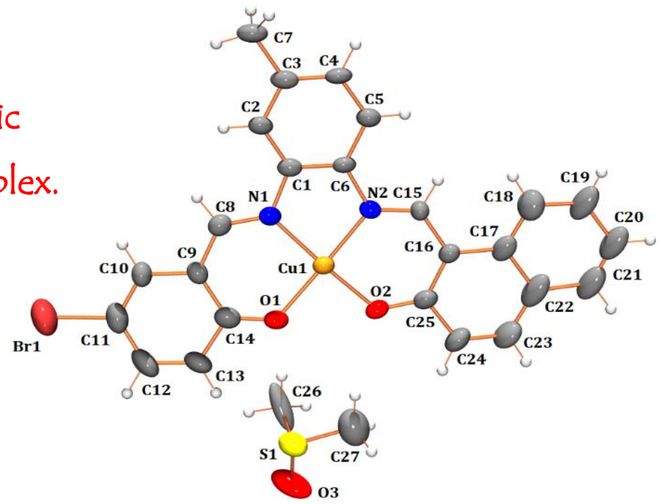
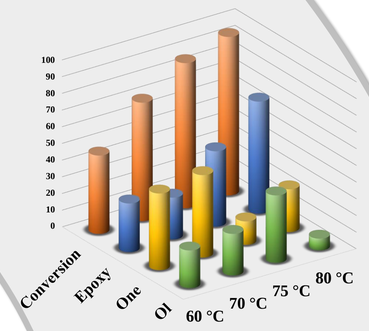


EPOXYDATION OF CYCLOHEXENE

Effect of Temperatue



T_{opt} = 80°C

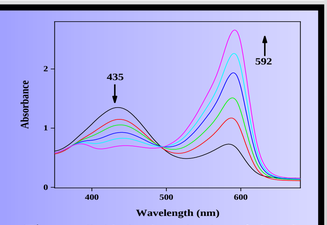


Figure. Oxidative bromination of phenol red catalyzed by CuL^T. Spectral changes at 10 min intervals.

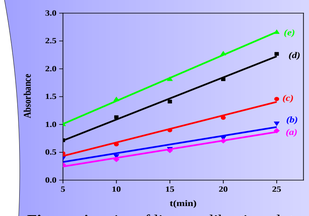


Figure. A series of linear calibration plots of the absorbance at 592 nm dependence of time for different concentration of CuL^T.

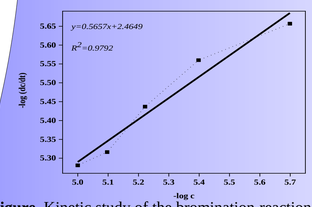
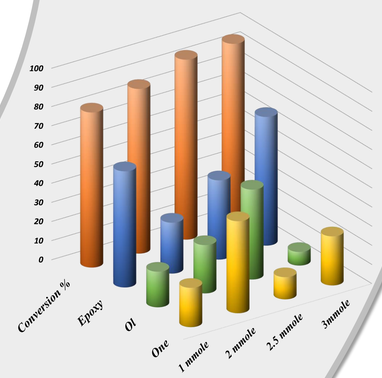


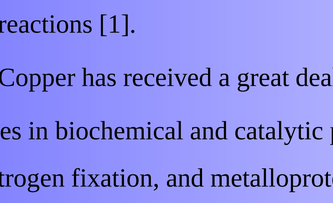
Figure. Kinetic study of the bromination reaction

$k = 0.227 \times 10^3 (M\ l^{-1})^{-2} s^{-1}$

Oxydant Effect

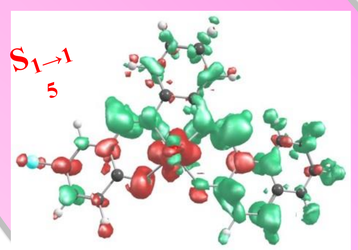


$Rap._{opt}$ =1/3



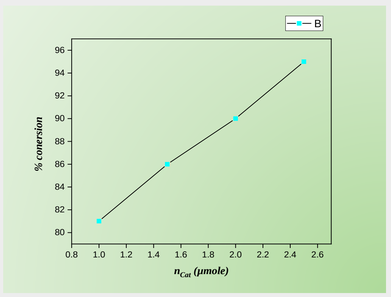
UV-Vis specta of H_2L^T and CuL^T

DFT STUDY



q^{CT} = 0,999 t=-1,373

Catalyst Effect



$Cat._{opt}$ =1.3 mg

CONCLUSION

- The work described in this paper involves the synthesis and structural characterization of an Copper complex with a tetradentate diazomethine ligand .
- The study of the electrochemical behavior shows that the electronic transfer is controlled by diffusion .
- The objective of this work is to evaluate catalytic performances of the oxovanadium complex in bromination of phenol red and in epoxidation of cyclohexene.

REFERENCES

[1] : K.C. Gupta, A.K. Sutar, C.-C. Lin, Coord. Chem. Rev. 253 (2009) 1926

[2] : A.M.A. Alaghaz, B.A. El-Sayed, A.A. El-Henawy, R.A.A. Ammar, J. Mol. Struct. 1035 (2013) 83.

[3] : A. Gennaro, A.A. Isse, F. Maran, J. Electroanal. Chem. 507 (2001) 124.

[4] :C.P. Horwitz, R.W. Murray, Mol. Cryst. Liq. Cryst. 160 (1988) 389.

SCAN ME

D.BOUCHERABINE