

# SYNTHESIS, CHARACTERIZATION AND CATALYTIC PERFORMANCE OF MONONUCLEAR COPPER (II): OXIDATION OF CYCLOHEXENE

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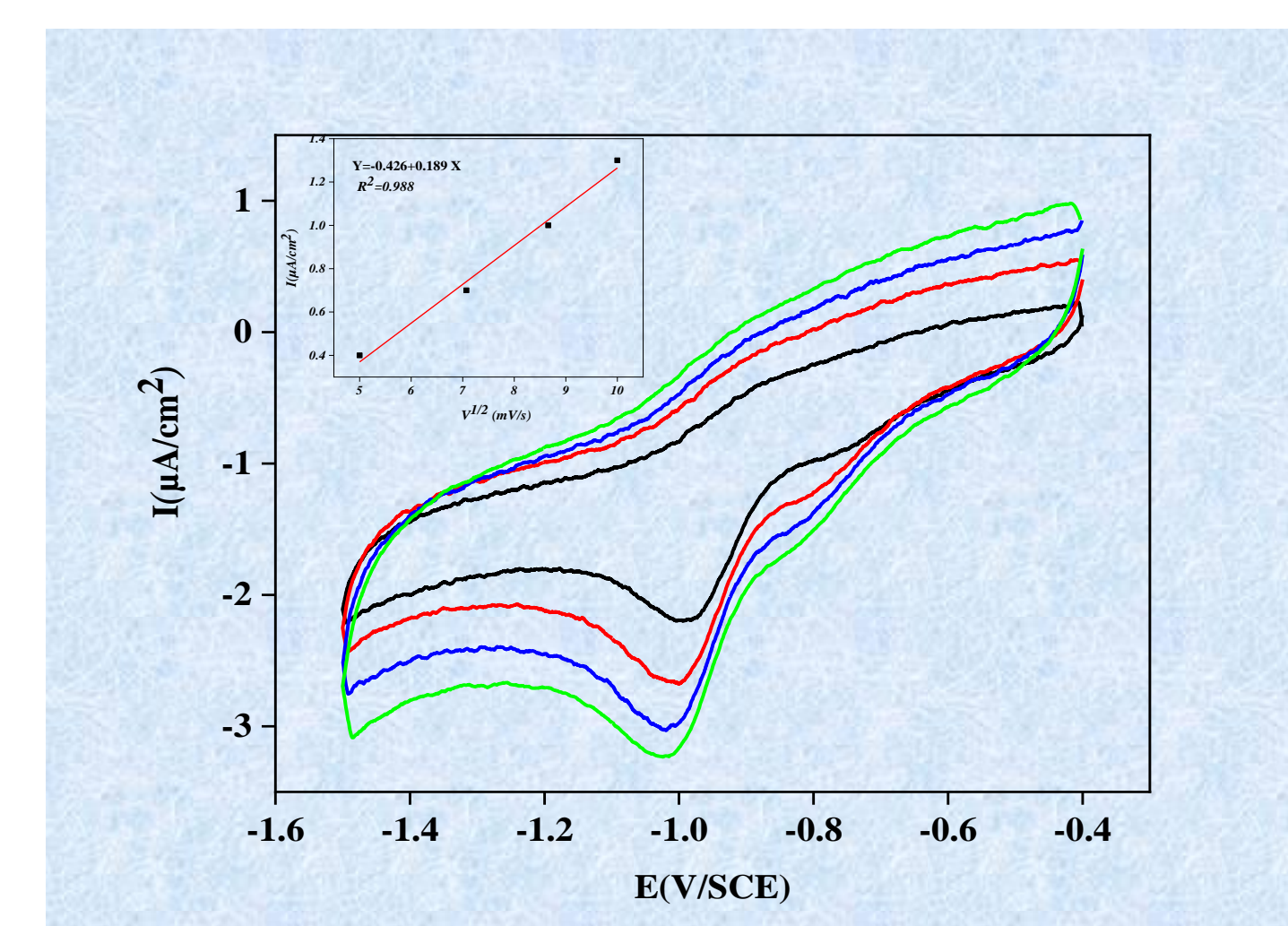


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## INTRODUCTION

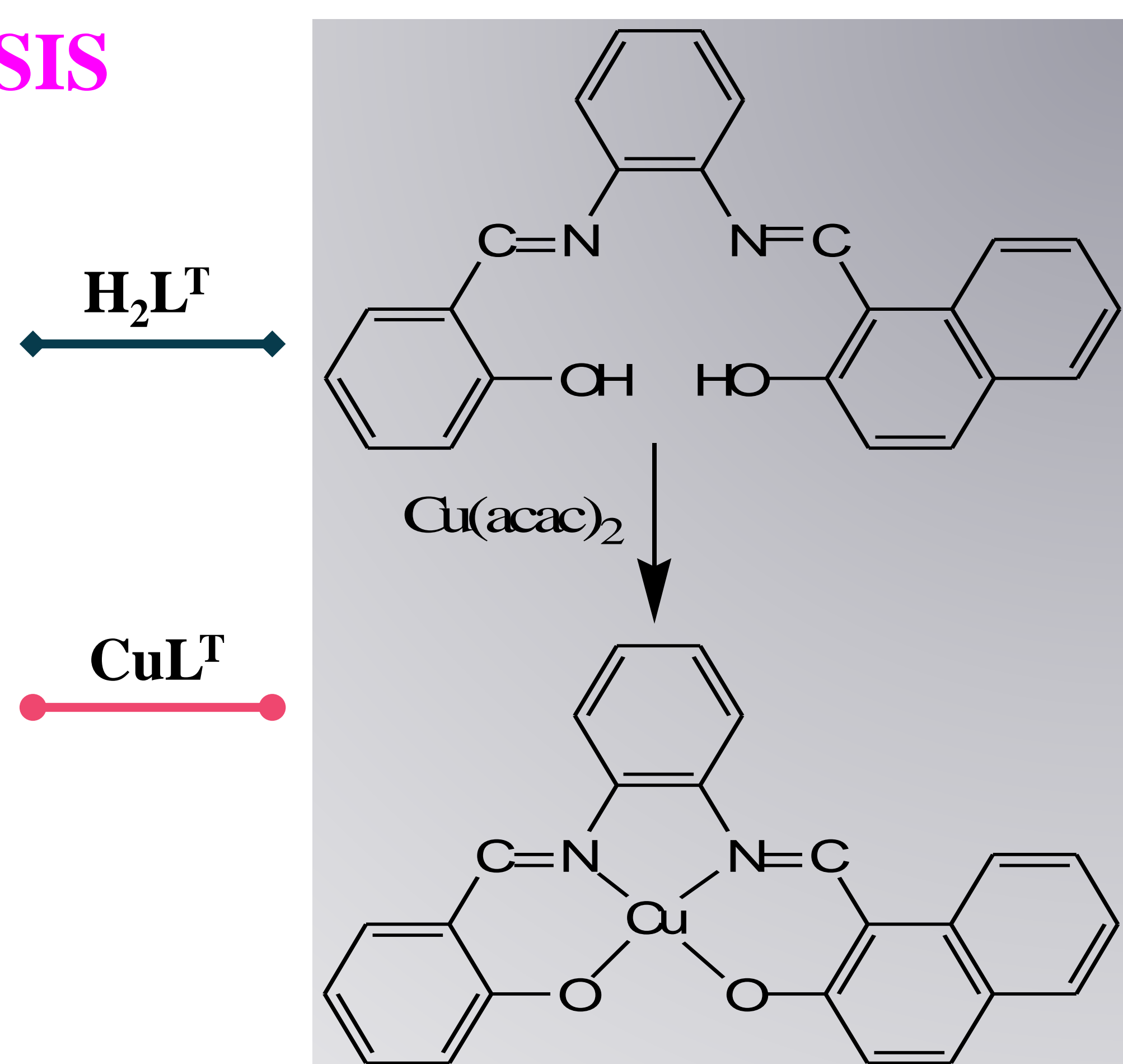
- The catalytic oxidation of organic substrates by transition metal complexes is a topical area. Organic compounds such as porphyrins, phthalocyanines and Schiff bases have been widely used in the development of coordination chemistry to be efficient systems for the oxidation of hydrocarbons. Chiral complexes of manganese and iron Schiff base have emerged as promising catalysts.
- The oxidation of cyclohexane to cyclohexanol and cyclohexanone is a low yielding industrial chemical process. However, because of the importance of oxidation products of cyclohexane giving raw materials for adipic synthesis, these compounds are therefore precursors of nylon 6 and nylon 66.
- As a result This industrial process is very important from an economic and environmental point of view.

## 3-ELECTROCHEMICAL STUDIES

Cyclic voltammogram of CuL<sup>T</sup> complex in DMF

## RESULTS AND DISCUSSION

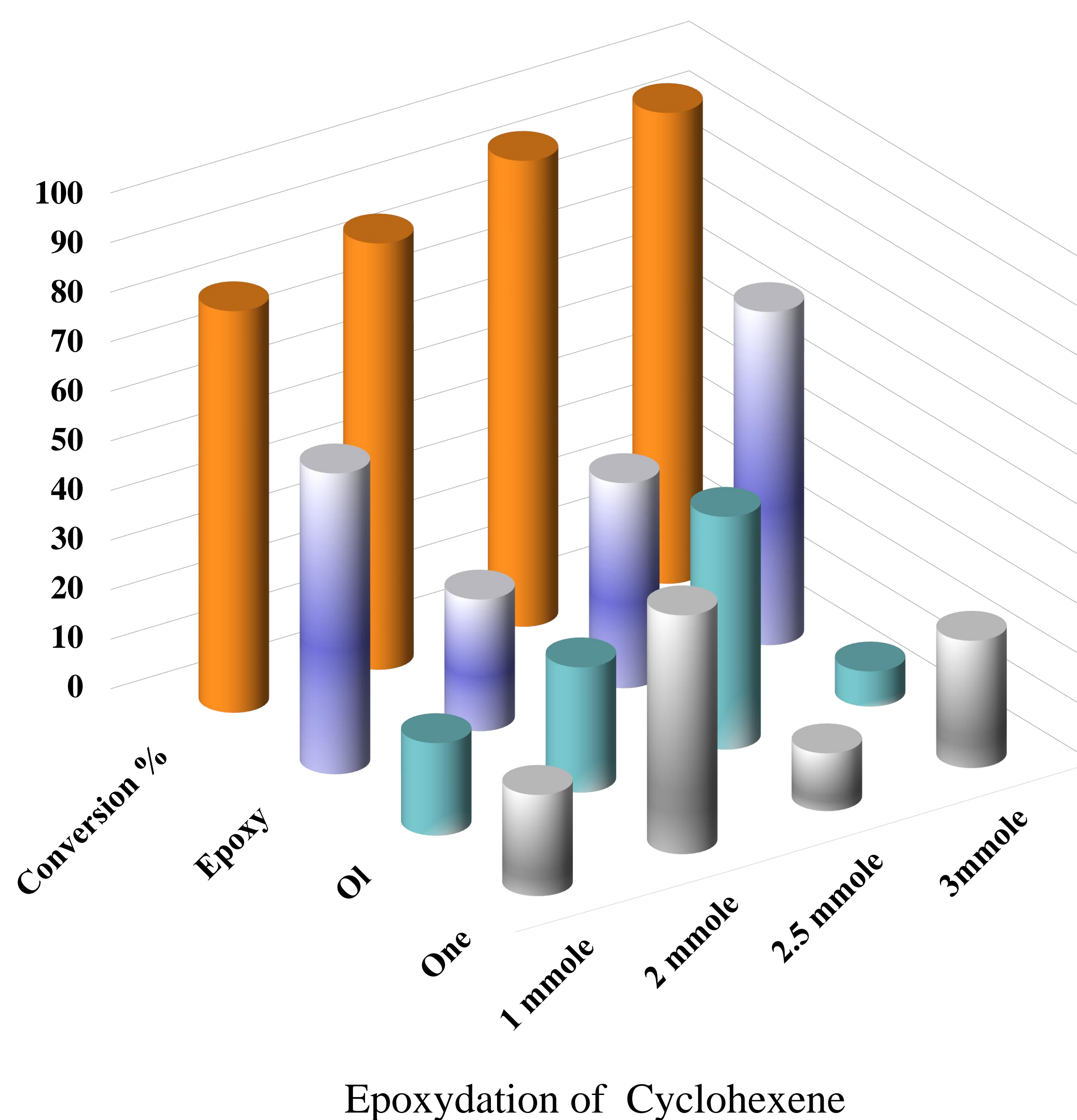
### 1-SYNTHESIS



### PHYSICAL PROPERTIES

Compound	Color	Yeld(%)	Rf(%)	Tf(°C)	Λ (S cm <sup>2</sup> /mol)
H <sub>2</sub> L <sup>T</sup>	Yellow	82	60	166	1,73
CuL <sup>T</sup>	Brown	79,8	48	>260	3.37

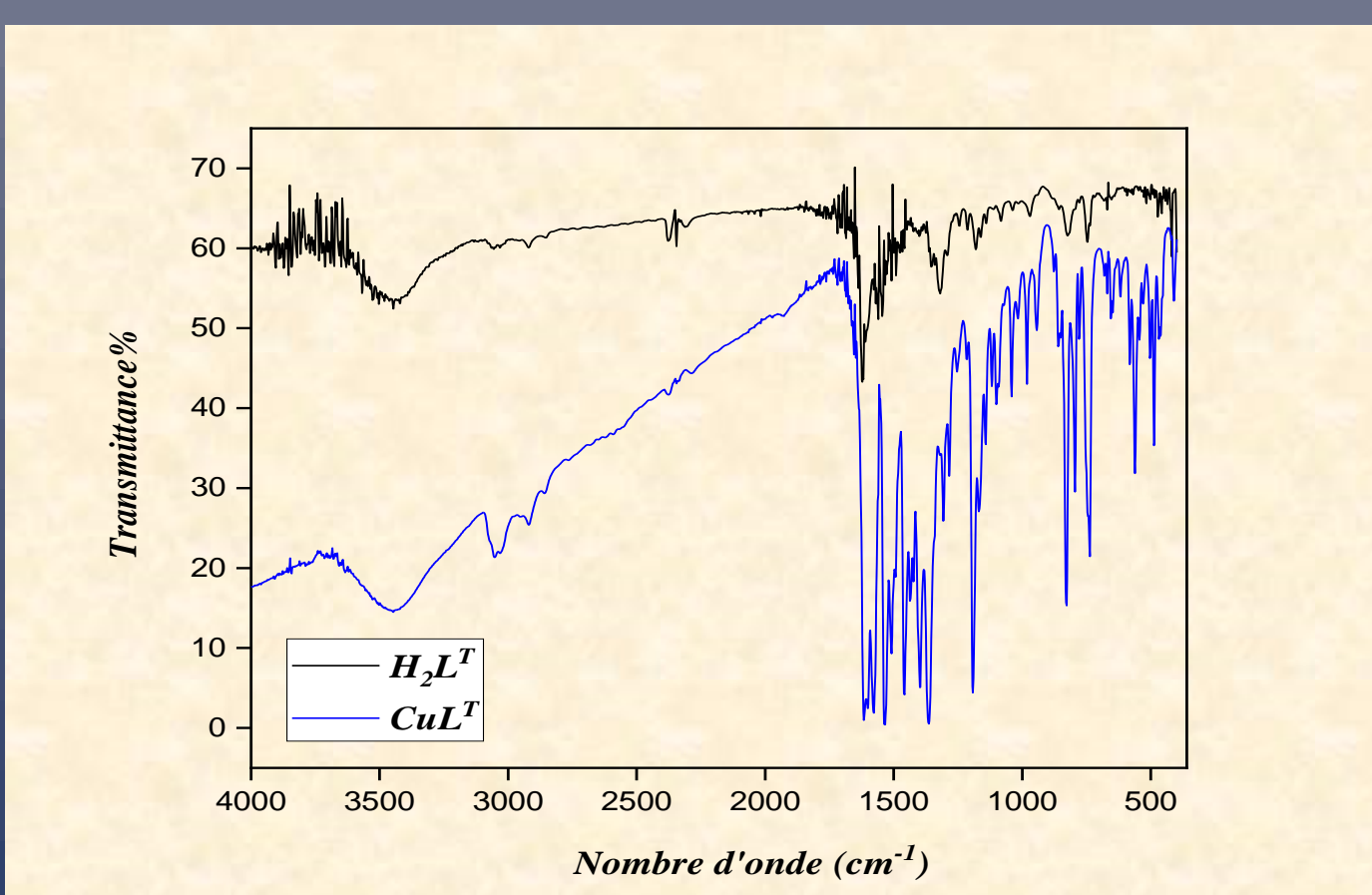
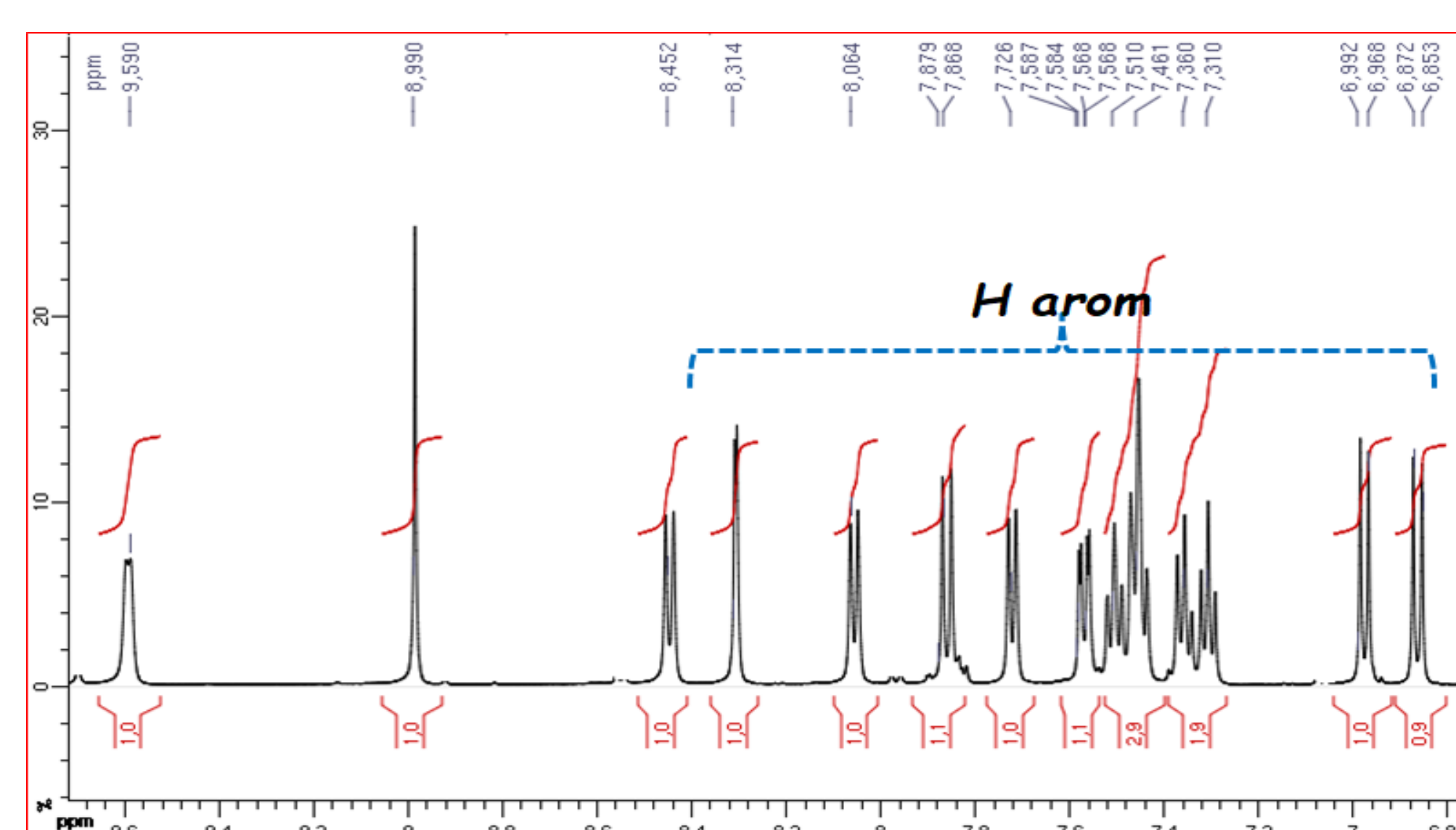
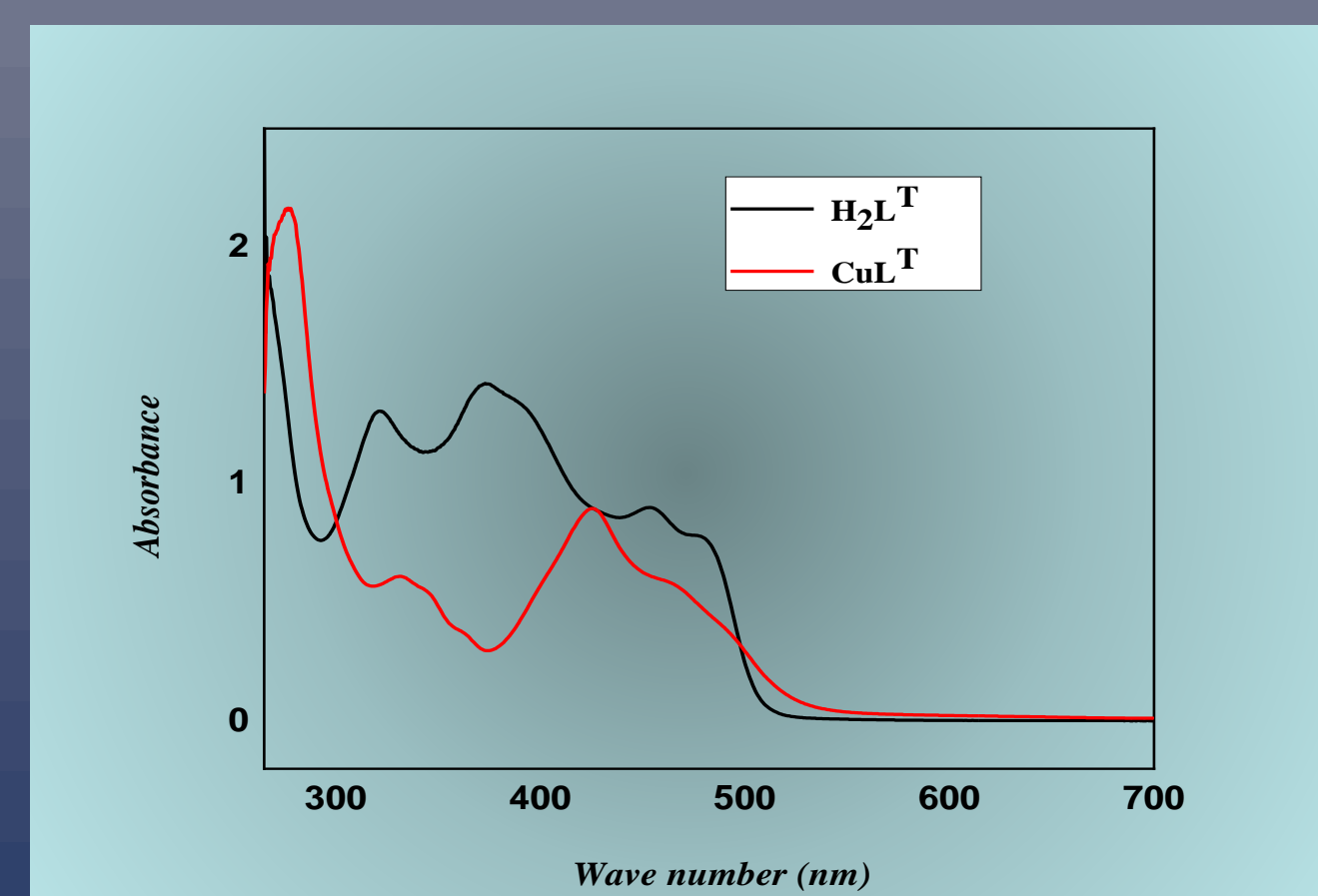
## 4-CATALYTIC ACTIVITY



Epoxydation of Cyclohexene

## 2-CHARACTERIZATION

<sup>1</sup>H NMR spectrum of H<sub>2</sub>L<sup>T</sup> in CDCl<sub>3</sub> (300MHz)

IR spectra of H<sub>2</sub>L<sup>T</sup> and CuL<sup>T</sup>UV-Vis spectra of H<sub>2</sub>L<sup>T</sup> and CuL<sup>T</sup>

## CONCLUSION

- The work described in this paper involved the synthesis and structural characterization of 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 evaluating catalytic performances of the copper complex in cyclohexene epoxidation in homogeneous conditions .

## BIBLIOGRAPHY

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