CHAPTER 1 INTRODUCTION

Copper(II) cinnamate (CC) is an example of coordination compound expected to be a better electronic material than copper(II) benzoate [1] due to higher degree of conjugation from carbon-carbon double bond and aromatic ring in the cinnamate ligand, and reduced steric hindrance in the oligomeric chain.

The present research is focussed on the structure and conductivity of CC, the effect of different amount of iodine dopant and annealing on its structure and conductivity, and its mechanism of electronic transport. The structural study employs Fourier Transform Infrared Spectroscopy (FTIR).

The thesis present reviews of molecular electronics, namely Theoretical Background of Molecular Electronics, FTIR, Theory of Charge Carrier Transport In Organic Molecular Crystal and CC in Chapter 2. The theory of FTIR and electronic transport models are also presented in this chapter.

The experimental techniques are described in Chapter 3. It includes synthesis of CC and CC doped with different amounts of iodine, preparation of potassium bromide disc for FTIR measurement, and annealing and conductivity measurements.

The experimental results and discussion are presented in Chapter 4. The discussion covers the structural information deduced from FTIR, and the conductivity of CC, CC doped with different amount of iodine, and CC annealed at 50°C to 200°C. Various theories to ascertain the conduction mechanism of the materials are also presented.

Chapter 5 contains the conclusion of the research and suggestion for further works.

REFERENCES

[1] Unpublished Results