PREPARATION AND CHARACTERIZATION OF NAPHTHOQUINONE DERIVATIVES AND ISOMERS

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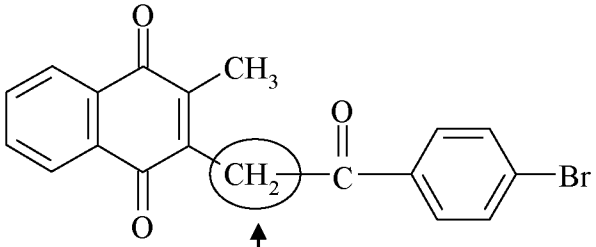
ABSTRACT

PREPARATION AND CHARACTERIZATION OF NAPHTHOQUINONE DERIVATIVES AND ISOMERS

Naphthoquinone and its derivatives were found to have good antimicrobial and other biological activities. In this study, bromobenzene as '**R**'group was used to attach to the bromoketone. The bromoketone (2,4-dibromoacetophenoe) was treated with pyridine to form pyridinium salts. The percentage yield of pyridinium salts obtained was 66.38%. Substituted quinone, compound **33** was obtained by reacting 2-methyl-1,4 naphtoquinone or menadione with pyridinium salts and percentage yield obtained was 82.219%. This compound **33** gave two colors, red compound and yellow compound.Mixture of both compounds gave same results from NMR and IR analysis from previous study compared to NMR and IR analysis of pure yellow compound obtained. The problem is only the pure yellow compound was obtained whereas the red compound cannot be purified due to the time constraint. The possible stereoisomers for compound **33** based on the mechanism of reaction, as the product structure shown below.



Possible stereoisomer exist at α-carbon of the compound **33**

CHAPTER 1

INTRODUCTION

1.1 What is an Antibiotic?

An antibiotic is a medicine that kills or inhibits the growth of microbe, such as bacteria and fungi. The term "antibiotics" originally referred to natural compound produced by fungus or other micro-organism that kills bacteria which cause disease in humans or animals. Some antibiotics can also be produced synthetically. The term "antimicrobial agent" refers to both natural and synthetic compounds; however, the word "antibiotic" refers to both. (Rendell, 2005). An antibiotic is a term used for a drug that kills or inhibits bacteria; where antiviral kills or inhibits viruses and antifungal kills or inhibits the growth of yeast or fungi. (Foster & Smith, 2007)

Antibiotics have huge importance in human and animals' health. It is also useful in plant protection. For human health, antibiotics can be used to prevent the body from any diseases that disturb the immune system. In agricultural, antibiotics being mixed into livestock feed to help animals grow faster and to prevent diseases. In recent years, the need for active compounds as antibiotics has rise dramatically. The Union of Concerned Scientists (UCS) estimated that human use approximately 4.5 million pounds of antibiotics annually for medical treatment and in topical creams, soaps, and disinfectants. Meanwhile, estimated