

**SYNTHESIS OF NAPHTHOQUINONE DERIVATIVES WITH
SOME STUDY ON PERCENTAGE RATE OF FORMATION
FOR PYRIDINIUM SALT**

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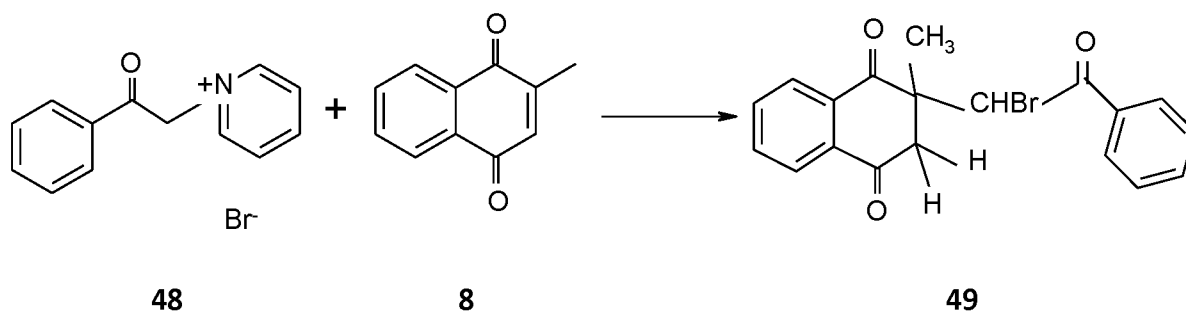
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ABSTRACT

SYNTHESIS OF NAPHTHOQUINONE DERIVATIVES WITH SOME STUDY ON PERCENTAGE RATE OF FORMATION FOR PYRIDINIUM SALT

The focus of this study was to synthesize naphthoquinone derivatives, **49** via pyridinium salt of phenacyl bromide, **48** and also study on percentage rate of formation for pyridinium salt. Phenacyl bromide and pyridine were refluxed for five days to form pyridinium salt, **48**. The percentage yield of pyridinium salt obtained was 99.3%. The salt, **48** then reacted with 2-methyl-1,4-naphthoquinone, **8** by stirring overnight. Then, followed by filtration, extraction of solvent, recrystallization and lastly the product obtained separated by column chromatography to separate the optical isomers which were yellow and red. The percentage yields of products, **49** were 49.5% in form of mixture yellow and red isomers. Then, the two isomers were analysed with NMR, FTIR, and melting point analysis.



CHAPTER 1

INTRODUCTION

1.1 Quinone

Quinone is the family name of dioxo derivative of dihydroaromatic rings with molecular formula $C_6H_4O_2$ (Kawasaki Kasei Chemicals LTD., 2005). Quinone exists as yellow crystals with a sharp odor similar to chlorine bleach (Yang *et al.*, 2004). Quinone is used as a chemical intermediate of complex reactions, an inhibitor of polymerization, a photographic chemical, an oxidizing agent and a tanning agent. Quinone consists of mainly 1,4-benzoquinones **1**, 1,4-naphthoquinones **2** and 9,10-anthraquinones **3** as shown in Figure 1.1. Quinone, particularly 1,4-naphthoquinone, are widely used in nature and this naphthoquinone was reported to exhibit diverse pharmacological properties like antiviral, antibacterial, antifungal, anti-inflammatory and antipyretic properties including anticancer activity (Kim *et al.*, 2006).

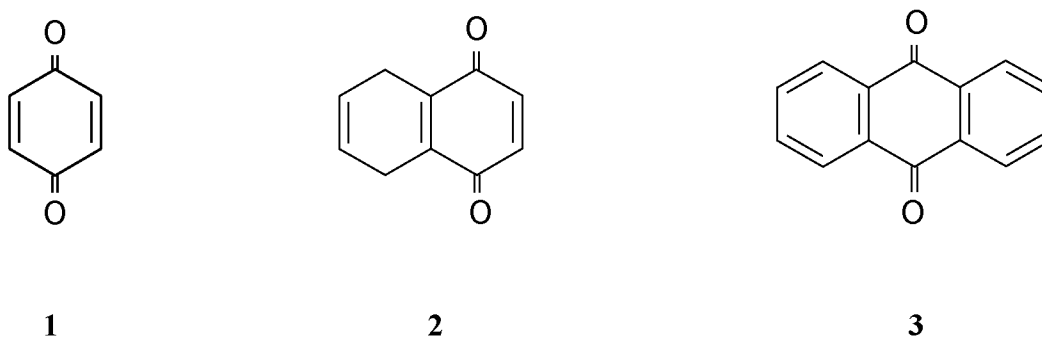


Figure 1.1 The structures of some common quinone.

1.2 Naphthoquinone derivatives