UNIVERSITI TEKNOLOGI MARA

HECK REACTION IN IONIC LIQUID ACCELERATED BY MICROWAVE IRRADIATION

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ABSTRACT

This research aims at investigating Heck reaction in ionic liquid accelerated by microwave irradiation. Five different conditions have been utilized in order to accomplish this research study. Three of the conditions utililized Heck reaction in ionic liquids and other two conditions utilized heck reaction in ionic liquids accelerated by microwave irradiation. When Heck reaction in ionic liquids, the desired stilbene able to produced with the yield 26.3% (with 4-iodoanisole as starting materials for 12 hours) and 33.85% (with 4-Iodophenylbenzyl ether as starting materials for 12 hours) and 7.98% (with 4-iodoanisole as starting materials leave for 21hour).While when Heck reaction accelerated by microwave irradiation, the desired stilbene able to produced with the yield 61.35% (with the ionic liquids) and 68.27% (with DMF). Preparative TLC were used to confirm the desired product.

CHAPTER 1

INTRODUCTION

1.1. Briefing

Stilbenoid and their derivatives were claimed to have many potential therapeutic value and beneficial to human. Resveratrol is one of the naturally occurring stilbene analogue which was effective to reduce cardiovascular disease and also have antioxidative, anti mutagenic, antifungal, cytotoxic, anti inflammatory, antivirus and antibacterial activities (Karine, F. *et al.*, 2004).

Heck reaction is palladium- catalyzed reaction had been discovered by Richard Heck in the early 1970s.The Heck reaction is catalyzed by either Pd (0) or Pd(II) complexes in solution, usually in the presence of stoichiometric amount of a base (Karine, F. *et al.*, 2004)

Ionic liquids made of organic cations and appropriate anions have attracted much recent attention as solvents for chemistry because the fact that they have melting points close