

UNIVERSITI TEKNOLOGI MARA

**SYNTHESIS OF 4-ACETOXY-12-
BENZOYLOXYSTILBENE**

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ABSTRACT

This research project aims to synthesize a stilbene analogue, 4-acetoxy-12-benzoyloxystilbene **2** via series of reactions. This study was carried out in four established reactions. Firstly, starting from 4-iodophenol, the substance undergo protection of hydroxyl group into 4-iodophenylbenzoate. Then another starting material, 4-hydroxybenzaldehyde was protected by adding the acetoxy group to produce 4-acetoxybenzaldehyde followed by the Wittig reaction to develop 4-acetoxystyrene. The product from the Wittig reaction and 4-iodophenylbenzoate is utilized to synthesize the desired compound, 4-acetoxy-12-benzoyloxystilbene **2** by Heck reaction that involves the use of palladium (II) catalyst, triphenylphosphine ligand, argentic nitrate, potassium acetate and dimethylformamide solvent. The products were purified by chromatographic technique by the use of thin layer chromatography plate. UV spectrophotometer and NMR characterization also had been used in the determination of the structure. However, the expected compound to be synthesized were not successfully obtained. Instead an almost structurally identical compound has been synthesized in small amount (18.8%).

CHAPTER 1

INTRODUCTION

Natural products from plants have been utilized widely as medicines for thousands of years and they were known to be use for particular ailments since those ancient times. The specific plants used and the methods of applications were passed down from generations through oral history. In more recent history and until today, numerous researches have been actively investigating for new drug discovery from medicinal plants in view of their potential health benefits.

Stilbene derivatives are widely distributed in nature, which are thought to be phytoalexins. Phytoalexins are defense compounds that plants, remarkably grapevines, synthesize in response to pathogen agents. There is a growing interest in stilbene derivatives because many biological activities have been observed in some of the naturally occurring as well as some of the synthetic stilbenes. Although stilbene itself (1, 2-diphenylethene **1**) is not a natural product, a large number of its derivatives have been isolated from various plant species.

4-acetoxy-12-benzoyloxystilbene **2** is a substituted stilbene, has not been obtained from plant but it can only be obtained synthetically. Numerous structural variations of stilbene derivatives have been identified, depending on the configuration of the carbon-carbon