

**UNIVERSITI TEKNOLOGI MARA**

**SYNTHESIS OF BENZIMIDAZOLE DERIVATIVES  
WITH POTENTIAL ANTIOXIDANT ACTIVITIES**

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## ABSTRACT

Anti-oxidant is considered as potential drug because of their ability to delay or prevent oxidation of cellular oxidizable substrate thus it may help in prevent progression of disease and also help in treating disease by condition by minimizing oxidative stress and eventually prevent lipid peroxidation. Benzimidazole with varying substituent have certain biological activities, therefore benzimidazole with aldehyde in its nucleus may possess anti-oxidant activities. In this study, 26 novels of benzimidazole derivatives were synthesis in order to study their anti-oxidant potential. All of the synthesized compounds were undergone Thin Layer Chromatography and Nuclear Magnetic Resonance to study their structure. The synthesized compound activity is not reviewed yet, it will be further studied for their anti-oxidant potential.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 BACKGROUND STUDY

Benzimidazole is a fused aromatic ring system where a benzene ring is fused to the 4 and 5 position of an imidazole ring. Benzimidazole also known as 1,3-benzodiazole(Ingle & Magar, 2011). Benzimidazole is a bicyclic compound having imidazole ring containing two nitrogen O atoms at non adjacent position. Benzimidazole has both acidic and basic characteristics .The NH group that is present is relatively strongly acidic and also weakly basic. Benzimidazoles also have ability to form salt. In 1990, various benzimidazole derivatives were synthesized with substitution of fluorine, propylene, tetrahydroquinoline and cyclised compound which resulted in compound with increased stability and provide significant activity(Goswami & Singh, 2012)

There is growing interest over the past years for the synthesis of benzimidazole-based heterocycles due to the crucial role of the benzimidazole unit in the function of biologically important molecules(Nofal & Soliman, 2011) Benzimidazole derivative which is 5,6-dimethyl benzimidazole is one of the constituent of vitamin B12. Benzimidazole ring display an important pharmacophore in drug discovery. These