UNIVERSITI TEKNOLOGI MARA

EFFECT OF CHEMICAL REACTIONS ON UNSATURATED CONTENT IN PALM OIL

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ABSTRACT

The palm oil is originated from South Africa and widely use in various applications including producing glycoside from palm oil. However, the unsaturated content should remain same throughout the reduction process. Therefore, the unsaturated content can be determined using some method. There are three methods were employed in this study, one using wet experiment which is iodine titration to find iodine value (also known as Wijs method) and other two method is using analytical instrument which is Nuclear Magnetic Resonance (NMR) and Gas Chromatography-Mass Spectrometry (GCMS). For iodine titration, the iodine value for both palm oil and reduced palm oil was the same. For NMR, the unsaturated content can be determined based on oleic acid (also known as C18:1) peaks by looking at the peak integration. For GCMS, the unsaturated content can be determined based on oleic acid peaks in the GC chromatogram. In conclusion, the unsaturated content is not affected by the reduction process.

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CHAPTER ONE
INTRODUCTION

1.1 Research Background

Oil palm is a monocotyledon that come from a species called *Elaeis* and can produce an oil that contain reasonable amount of unsaturated content which is 45 % of the overall oil content while the other remaining is 55% saturated content (Sambanthamurthi *et al.*, 2000). In this research, we need to study the unsaturated content in palm oil at every stage for the reaction of glycosylation of palm oil. Process flow were described from the Figures 1.0 below;

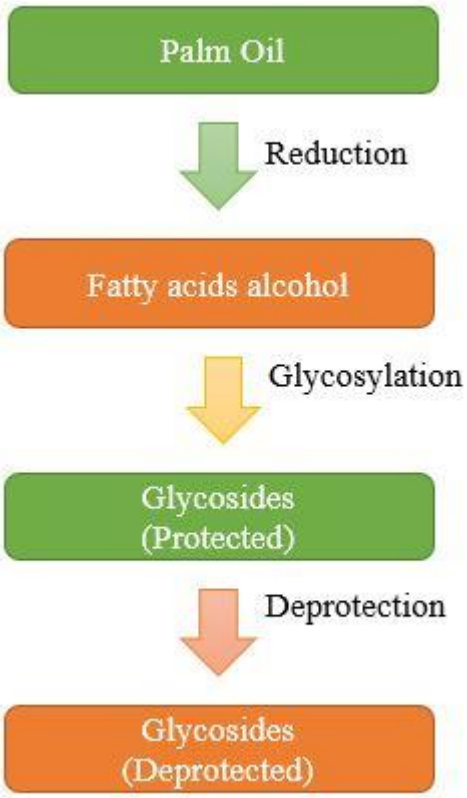

Figure 1.0: Process flowchart of producing glycoside from palm oil

Glycoside were formed when anomeric also called as hemiacetal or hemi-ketal (Bhagavan, 2002). Therefore, if glucose that provide the hemiacetal group, it will then called glucoside, if galactose is the one that provide the hemiacetal group, it will called as galactoside . If glycolipid is the one that provide the hemiacetal group it will called