



UNIVERSITI TEKNOLOGI MARA

EFFECTS OF LOW GLYCEMIC INDEX PRE-INGESTION ON
COMBINATION AEROBIC AND ANAEROBIC PERFORMANCE

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ABSTRACT

Introduction: Stingless bee honey is categorized as of low glycemic index and contained the carbohydrates, minerals and antioxidants that are easy to digest. *Purpose:* The aim of this study was to investigate the effects of low glycemic index of pre-exercise ingestion on combination of anaerobic and aerobic performance among footballers. *Methods:* A group of thirty-six (N=36) footballers were recruited by using the convenience sampling method. The subjects were attending the familiarization phase 3 days before the pre-test was conducted and filled in the consent form and PAR-Q. The subject was assessed through a beeping test and 20m dash test and given 1 week as a wash-out period. The subjects were given stingless bee honey 1g/kg body weight. *Results:* The current finding shows that there was a significant effect for both aerobic and anaerobic tests. The improvement can be seen in both results as there was an increase in score mean on post-test for both aerobic and anaerobic tests ($p < 0.05$). *Conclusion:* Ingestion of low glycemic index stingless bee honey before the exercise gave benefits on combination aerobic and anaerobic performance.

Keywords: Stingless bee, Honey, Aerobic, Anaerobic,

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Carbohydrates are the main source of human body (Clark,2014). It is also known as an organic compound which attach with carbon (C), hydrogen (H) and oxygen (O) which its atom chain combine and become $C_6H_{12}O_6$ (Clark,2014). Carbohydrates can be utilized, digested and absorbed to become energy. Carbohydrates are classified into two which are simple and complex (Clark,2014).

Simple carbohydrates can be determine as one or two sugar molecules attached together and for the complex carbohydrates is determine by the longer and more complex sugar molecules chain (Heather, 2006). Simple sugar also contain of two things which is monosaccharaides and disaccharides. Single chain of molecule sugar is called monosaccharaides (Gordon, 2009). Disaccharides made up by two simple sugar and consider as simple carbohydrates also (Heather, 2006). Monosaccharaides contain sugar molecules which is glucose, fructose and galactose(Gordon, 2009). Disaccharides contain three sugar molecules which is sucrose, lactose and maltose (Heather, 2006). Our body cannot digest all types of carbohydrates with the same rate, thus previous study establish the low glycemic index carbohydrates, moderate glycemic index and high glycemic index of carbohydrates with the scale for low glycemic index (<60), moderate glycemic index (60-85) and for high glycemic index (>85) (Donalson, 2010). This is to classify the carbohydrates based on classification (Donalson, 2010).

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION OF HONEY

Honey is a natural sweet fluid produced by honey bees from the nectar from flower of plant or from the nectar of blossoms which honeybees collect and transform by combining with their salivary secretions, and dehydrate and keep in the honey comb to be wait until matured (A. Rebiai & Lanez, 2014; Adenekan, Amusa, Lawal, & Okpeze, 2010).

In general, honeys were categorized as or polyfloral or monofloral. Monofloral honey was made by species of one plant containing predominantly is nectar with minor nectar contributions from other botanical origins. On the other hand, spora from flower were collected from flower petal were used by the stingless bee to collect honey. In real terms it can be considered as a blend of several monofloral honeys with significant nectar or honeydew contribution from different plants (Gasic et al., 2014).

Some of honey elements are essential for human life such as sugars, complex mixture of sugar in which fructose and glucose are the main ingredient and these two element are about 85% - 95% carbohydrates and a little remaining are sucrose, protein, organic acid, vitamin and mineral (Alqarni et al, 2012). Apart from the major elements of honey were almost the same in all honey sample, the precise chemical composition and physical properties of natural honey differ following to the plant species on which the bee's forage (Buba et al., 2013). Meanwhile, the quality of honeys depends on the climate and environmental condition around the foraging area