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ANTIOXIDANT ACTIVITIES OF KOMBUCHA

MUHAMMAD NOOR IKRAM BIN ZAHARI

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ABSTRACT

Kombucha tea is said to have good antioxidant properties and benefits such as anti-athritis and the enhance immune system. Study on kombucha have widely done in other countries. In this study the antioxidant properties which give the benefits to a local kombucha is investigated. The antioxidant properties are related to the chemical composition in the tea that changes throughout time. Flavonoids are said to have anti-oxidative properties thus the total flavonoid and phenolic contents in the tea were determined using colorimetric method. Colorimetric method is the easiest and convenient method that only using a certain reagent. For example, total phenolic content use folin-ciocalteu reagent that react with phenolic compound when mixed with sodium carbonate that change the colour from colourless to dark purple colour. Total flavonoid content use aluminium chloride when mixed with sample the colour will change from colourless to pale yellow. The absorbance of total phenolic and flavonoid contents were measured using spectrophometer. The antioxidant activities was measured using DPPH assay. DPPH assay works by reducing the radical compound DPPH that have a violet purple colour and antioxidant compound will neutralized them and change the purple colour to colourless.

From this study, kombucha tea is shown to have good antioxidant activities depending on the time. The highest inhibition percentage of DPPH was seen on day 10 at 81%. This can be related to the conversion of flavonoids to other potent compounds by the bacteria and fungus that are present in the tea throughout the fermentation period.

CHAPTER 1

INTRODUCTION

1.1 Background of study

Kombucha tea have been said to have a healing effect in many human diseases and beneficial to human health. Vast amount of information has been published due to this healing effect. Kombucha tea have been consumed by many people across the world for a very long time. It is known under a number of trivial names, such as red tea fungus, *champignon de longue vie*, *ling zhi*, *kocha kinoko*, *chainii grib*, *chainii kvass* and many others (Hartmann *et al*, 2000).

Kombucha is a symbiosis of several yeast strains and acetic acid bacteria. This bacteria and fungi helps each other to convert the tea compound. *Acetobacter Xylinum* is the most dominant bacteria in the culture, while the yeasts belong to the genera *Zygosaccharomyces sp.*, *Schizosaccharomyces sp.*, *Saccharomyces sp.*, *Saccharomycodes sp.*, *Candida sp.*, *Pichia sp.*, *Brettanomyces sp.* and *Torulopsis sp.* (Dufresne & Farnworth, 2000; Teoh *et al*, 2004). The microbial composititon will vary from every culture because of the way of preparation whether in a hygiene condition or not and the origin of the culture.