UNIVERSITI TEKNOLOGI MARA

# EFFECTS OF *MORINGA OLEIFERA* IN IMPROVING THE MEMORY OF AGING RATS

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# ABSTRACT

*Moringa oleifera* is used to treat various types of diseases due to its outstanding proportion of medicinal properties. One of the medicinal properties exhibited by this herb is an antioxidant. It helps in neutralization of the oxidative stress and prevent free radicals. Excessive free radicals in the brain can interrupt the processing of memory along with cognitive functions. In this project, effects of *Moringa oleifera* in enhancing memory of aging rats were studied. Rats were divided into 8 groups consist of 6 rats per group; normal, galactose, galactose+corn oil, galactose+tocotrienol, galactose+tocopherol, galactose+P100, galactose+P250 and galactose+P500. These rats were administrated with 3 different concentrations of *Moringa oleifera* extract. Behavioural study using Morris water maze experiment was conducted within five days; four days of continuous training and last day for the test. Results showed that groups treated with *Moringa oleifera* extract showed the highest number of entries to the platform zone and had the lowest latency to first entry to the platform zone. In conclusion, *Moringa oleifera* managed to improve the memory of rats induced with D-galactose.

# CHAPTER 1

# INTRODUCTION

## 1.1 Background of Study

*Moringa oleifera* is used to treat various types of diseases due to its outstanding proportion of medicinal properties. One of the medicinal properties exhibited by this herb is an antioxidant (Farooq *et al.*, 2012). Antioxidants play important role in oxidative stress. Oxidative stress is a result of an imbalance production of free radicals. Thus, in order to neutralize the oxidative stress, antioxidants are believed to prevent the formation of free radicals. Excessive free radicals interact with other molecules within cells and cause cell damage. For instance, excessive free radicals in the brain can interrupt the processing of memory along with cognitive functions (Rahal *et al.*, 2014).

Antioxidants also inhibit some of the harmful actions of reactive oxygen species (ROS). At higher concentration, ROS can damage cellular lipids, proteins and DNA by inhibiting their normal functions. ROS cause harm to cellular macromolecules and impaired the mitochondrial function with age, and leading to a decline in cellular energy production (Anand *et al.*, 2012).