UNIVERSITI TEKNOLOGI MARA

NEURONAL TOXICITY OF D-GALACTOSE AND ALUMINIUM: IMPAIRMENT OF MEMORY AND MITOCHONDRIAL RESPIRATORY ENZYME

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ABSTRACT

Alzheimer`s disease (AD) is commonly diagnosed in the older generation although there are cases of this disease occurring in middle age generations. D-galactose is a substance that can induce the process of aging with the formation of neuronal damage and also with the excessive formation of reactive oxygen species. Aluminium (Al) is a metal that is highly used and lead to AD due to the formation of neurofibrillary tangles and senile plaques. Results of the study revealed that the excessive administration of Al and D-galactose will impair to memory function by Morris Water Maze method and also cause impairment to mitochondrial respiratory enzymes. Therefore the results suggest that the administration of D-galactose with the combination of Al can induce higher impairment of memory and cognitive disorders.

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

1.1.1 Definition of Aging

Aging is a term that is usually described for a group of person aged of 60 and above. Aging is defined as a fundamental biological change due to increasing in age that causes the human body function to reduce and more likely to die (Mohajeri, Troesch, & Weber, 2014). Aging also can be related to the changes of the brain region which is frontal and parietal region that will affect the functional connectivity (Hafkemeijer, van der Grond, & Rombouts, 2012). The changes of these areas will affect of personality, behavior and also a few abilities. Aging that affects the brain will cause many common diseases, including Alzheimer`s disease and Parkinson`s disease (Wikipedia).

1.1.2 Aging, Dementia and Alzheimer`s Disease

Aging basically can be divided into two different categories which are normal healthy aging and abnormal aging. Normal aging can be characterized by an inability to perform difficult and unfamiliar activities while for abnormal aging, it shows the inability to do simple tasks such as dressing up appropriately, going to familiar places and engaging in a conversation. Alzheimer`s disease (AD) can be characterized with