UNIVERSITI TEKNOLOGI MARA

THE EFFECT OF *COSMOS CAUDATUS* ON CHRONIC REPETITIVE FORCED SWIMMING STRESS

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Faculty of Medicine

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CONFIRMATION BY PANEL OF EXAMINERS

I certify that a Panel of Examiners has met on 28th January 2012 to conduct the final examination of Muhammad Idris Bin Ibrahim on his Master of Science thesis entitled "The Effect of *Cosmos caudatus* on Chronic Repetitive Forced Swimming Stress" in accordance with Universiti Teknologi MARA Act 1976 (Akta 173). The Panel of Examiners recommends that the student be awarded the relevant degree. The panel of Examiners was as follows:

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, University Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Chronic stress has been identified as the major pathophysiological etiology for numerous of diseases. One of the underlying detrimental mechanism induced by stress is caused by oxidative stress. The redox imbalanced due to oxidative stress is found to be reversible by the action of antioxidant. The present study focused on the effect of *Cosmos caudatus* (*C. caudatus*) towards biological stress markers. Male Sprague-Dawley rats were randomly divided into 5 groups, treated with methanolic extract of *C. caudatus* leaves (100 & 200 mg/kg), quercetin (100 & 200 mg/kg) and saline (control) respectively for 21 days prior and throughout the 13 days of experiment. The rats were then subjected to forced swimming stress and bloods were withdrawn at 6 different days (Basal, Day 1 and every 2 days continuously). The blood analysis revealed that treatment with *C. caudatus* able to reduce plasma corticosterone level significantly ($p<0.005$) compared to the control group, reduced plasma malondialdehyde level ($p<0.005$) and increased plasma total antioxidant capacity level ($p<0.005$) in the rats following stress exposure. *C. caudatus* was also found to have a preservation effect on the plasma dehydroepiandrosterone-sulphate level by inhibiting the fluctuation (increment and reduction) in its level following stress exposure. Based on these observations, it is concluded that *C. caudatus* act as an anti-stress agent through the action of antioxidant activities in modulating stress response mechanisms and serve as a protective agent towards the pathological effect induced by stress.

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