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WATERMELON JUICE MIXTURES IMPROVE EXERCISE PERFORMANCE AND REDUCE MUSCLE SORENESS: AN *IN VIVO* STUDY

BY

NURUL ATILAH BINTI MOHD GHAZALI

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Author's declaration

I declare that this thesis entitled "Watermelon Juice Mixtures Improve Exercise Performance And Reduce Muscle Soreness: An *In Vivo* Study" is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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Nurul Atilah Mohd Ghazali

Student I/D: 2013225128

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Table of content

Abstract

Lactate and ammonia act as an indicator for a muscle injury. The composition of L-citrulline in watermelon had played an important role to reduce the injury. This study was focusing on finding that the assessment of watermelon juice supplementation effect on the exercise performance and reduction of muscle soreness through the evaluation of blood lactate and ammonia. Ethical approval was applied from Laboratory Of Animal Facilities Faculty Of Pharmacy and UiTM CARE. Six weeks Wistar rats were acclimatize for 14 days by providing normal diet pellet and tap water in a control condition. The animal then divided into 4-supplemented group and given supplemented with watermelon juice, filtered tap water and L-citrulline for 14 days. After 14 days, the rats were assigned for swimming exercise for 3 days. After 3 days, the rats were euthanized and blood sample were collected for further analysis of plasma lactate and ammonia concentrations. The mean concentration of lactate for Control (CX), L-citrulline (Lcit), and mixture of flesh and rind (Mx) were 5.194 ± 0.89, 4.86 ± 0.53, and 3.203 ± 0.43 mmol/L respectively. Concentrations of ammonia for Cx, L cit and Mx were 3.08 ± 0.05, 2.64 ± 0.16, and 2.92 ± 0.18 mM respectively. The non-supplemented group became exhausted after 12.44 ± 0.44 minutes after swimming exercise. The Lcit supplemented group show a slightly decrease of swimming period, which is 11.67 ± 0.65 minutes. As for the watermelon supplemented group, shows prolongation of exercise time, which is 17.96 ± 0.68 min for Mx. It can be postulate that the consumption of watermelon juice might cause the reduction of plasma lactate and ammonia and lengthen the time to exhaustion following swimming exercise.

Keywords: L Citrulline;Watermelon;Muscle Soreness;Lactate;Ammonia