Effects of Tualang Honey Intake on Spatial Memory of Adult Rat

Mohd. Amiruddin Kamarulzaidi¹, M.Y. Zulkifli Mohd. Yusoff², and Durriyyah Sharifah Hasan Adli³

¹Institute of Graduate Studies, ²Academy of Islamic Studies, ³Faculty of Science, Universiti Malaya, 50603 Kuala Lumpur, Malaysia.

Corresponding author: mohd_amiruddin@siswa.um.edu.my

Honey intake is traditionally practised for it is widely believed to have varied positive effects on health. Recent studies reported that it is a natural antioxidant source that is good for health. Tualang honey is one of the commonly consumed local honey. This Malaysian honey is produced by wild bees that are nesting on the Tualang trees. The current study aimed to investigate the effects of Tualang honey on spatial memory performance (SMP) through behavioral test and using male adult rats as the experimental animals. Experiment involved 20 Sprague-Dawley rats (7-8 weeks old) force-fed daily for 12 weeks with 1ml/100g of body weight of honey (n=8) or 0.9% saline as control (n=12). Radial arm maze (RAM) test was conducted once a week to evaluate SMP of rats, which was distinguished into working and reference memory components of spatial memory. On Day 5 of treatments, rats were trained in RAM and starved on the following day. This would make the rats more motivated to find food (rewards) during the test session conducted on Day 7. During each SMP session, the tested rat was placed in the center of RAM and allowed to explore the whole RAM for 3 minutes to find the food placed in four specific arms. Quantitative analysis of SMP was divided into three phases: Phase 1 (week 1-3), Phase 2 (week 4-6), Phase 3 (week 7-9) and Phase 4 (week 10-12). Results showed that treatment group (honey) exhibited a significant decrease in the total number of errors compared to the control group (saline). Reference and working memory errors were significantly higher in control group. Therefore, this study demonstrated the positive effects of the intake of Tualang honey on spatial memory by the enhancement of reference and working memory components.