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The Impact of Tualang Honey on Liver Weight, Adipose Tissue, and Obesity Index in High Cholesterol Diet-induced Obese Rats

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PURPOSE: This research aimed to investigate the effect of Tualang honey (TH) supplementation on the liver and adipose tissue weight and to evaluate the Lee Obesity Index (LOI) in 12% high cholesterol diet (HCD) induced obese rats.

METHODS: Forty male Sprague-Dawley rats were assigned to 5 groups; Group 1 (normal diet), Group 2 (normal diet and TH 3.0g/kg), Group 3 (12% HCD), Group 4 (12% HCD and TH 3.0 g/kg) and Group 5 (12% HCD and Orlistat 10 mg/kg). They were given their diet for 12 weeks followed by treatment for 6 weeks. Their body weight and length were measured once weekly. At the end of the study, the liver and adipose tissue were harvested and weighed.

RESULTS: There was a significantly lower liver weight of Group 4 compared to Group 3 (19.05±1.34 g vs 27.41±1.71 g, p<0.001). In normal diet groups, Group 2, have significantly lower liver weight compared to Group 1 (15.46±1.50 g vs 20.53±1.08 g, p<0.001). Supplementation of TH also significantly reduced the accumulation of adipose tissue in Group 4 compared to Group 3 (11.09±1.74 g vs 19.82±2.22 g, p<0.001). LOI in Group 4 is significantly lower compared to Group 3 (302.75±8.21 vs 335.25±11.27, p<0.001) and there is no significant difference in LOI between Group 4 with Group 5 (302.75±8.21 vs 308.38±7.37, p>0.05).

CONCLUSION: TH supplementation has been shown to reduce the liver and adipose tissue weight and improve the LOI in the 12% HCD-induced obese rats.

Keywords: Obesity, Tualang honey, High cholesterol diet, Lee's Obesity Index, Liver and adipose tissue