

## HYPOCHOLESTEROLEMIC AND ANTI-INFLAMMATORY EFFECTS OF TRIHONEY IN HYPERCHOLESTEROLEMIC RABBIT MODEL

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### ABSTRACT

Inflammation is a well-established consequence of hypercholesterolemia. Acute inflammation is transient and beneficial body response whereas, chronic inflammation is persistent and may progress to various diseases. This study aims to investigate the hypocholesterolemic and the anti-inflammatory effects of a novel Trihoney (a mixture of Trigona, Mellifera and Tualang honey) in hypercholesterolemic rabbits and compare its effects with atorvastatin. Thirty-six male New Zealand white rabbits were randomly assigned into six groups (n=6). Two groups were fed commercial rabbit pellet and 0 and 0.6 g/kg/day of Trihoney while the other four groups were fed 1% cholesterol diet and 0, 0.3, 0.6 g/kg/day of Trihoney and 2 mg/kg/day of atorvastatin. After 12 weeks of consumption, each rabbit was anaesthetised, and blood was collected from the central ear artery for the analysis of lipid profile and proinflammatory cytokines. Administration of 1% cholesterol diet markedly increased serum total cholesterol (TC) (p<0.001) and low-density lipoprotein cholesterol (LDL-c) (p<0.001). Treatment with atorvastatin resulted in a significant reduction of serum TC (p<0.05) and LDL-c (p<0.05). Likewise, Trihoney, particularly at the dose of 0.6 g/kg/day, significantly reduced serum TC (p<0.01) and LDL-c (p<0.01). Feeding of rabbits on 1% cholesterol diet significantly increased serum interleukin-1 $\beta$  (IL-1 $\beta$ ) (p<0.001) and tumour necrosis factor-alpha (TNF- $\alpha$ ) (p<0.05) with a nonsignificant increase of interleukin-6 (IL-6) (p>0.05). Atorvastatin received group expressed a significant reduction of IL-1 $\beta$  (p<0.01) and TNF- $\alpha$  (p<0.01) with a nonsignificant reduction of IL-6 (p>0.05). On the other hand, Trihoney supplementation significantly reduced serum TNF- $\alpha$  (p<0.001), IL-1 $\beta$  (p<0.01) and IL-6 (p<0.05). Trihoney offers its potential health benefits as lipid-lowering and anti-inflammatory agent.

**Keywords:** Hypercholesterolemia, Inflammation, Trihoney, Atorvastatin.

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