

## **The Effects Of Tualang Honey On Sperm Profile In High Cholesterol Diet Induction Animal Model**

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**Background:** Hypercholesterolaemia and obesity are recognized factors associated with male infertility. They have been shown to reduce the semen quality, change the sperm proteomes and also contribute to erectile dysfunction. However, currently there is limited therapy available. Tualang honey (TH) is a type of Malaysian polyfloral wild honey produced by the rock bee (*Apis dorsata*) proven to exert both anti-inflammatory and anti-oxidative effects.

**Objective:** This study aimed to determine the effects of TH on the sperm profile of animal model with chronic exposure to high cholesterol diet.

**Methodology:** Thirty male Sprague Dawley rats 2 weeks of age weighing 200 - 250 gm were divided into two groups, the high (12%) cholesterol diet (12% CD; n= 24) and standard diet (SD; n=6) and were fed for 16 weeks. At 16 weeks, the rats in the 12% CD group were subsequently divided into four groups. The first group was continued with only 12% CD while the other 3 groups in addition to the 12% CD, they were given TH supplement at different doses (1.2, 2.4 and 3.0 g/kg/day) for 4 weeks. Sperm profile analysis from the caudal epididymis was performed for all groups at the end of the 4 weeks.

**Results:** At 16 weeks of 12% CD, the sperm concentration, the percentage of total sperm motility, progressive motility and viability reduced significantly compared to the SD group ( $p < 0.001$ ). On the contrary, all TH supplemented groups demonstrated significant improvement in the sperm concentration, percentage of sperm viability, total sperm motility and progressive motility ( $p < 0.001$ ).

**Conclusion:** TH supplementation of animal model with chronic exposure to high cholesterol diet improved the sperm profile parameters. Based on our findings, there is a need to further explore the potential TH in improving male infertility associated with hypercholesterolaemia and obesity.

**(Keywords: High cholesterol diet, Tualang honey, sperm profile)**