

Histopathological Analysis of Uterine Tissue in Rats Post Honey Supplementation

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Structured Abstract

Background: Uterus is a female reproductive organ that may undergo atrophy. Typically, atrophy of endometrium appears in menopausal females and in cases of reduced hormone secretion in healthy normal individuals. Honey has been known for its antioxidants and anti-inflammatory components which are flavonoids and phenolic acids, that may serve as nutraceutical treatments for reproductive organ. Past studies have also shown that honey can help with health maintenance and reproduction in terms of female reproductive health. This study was conducted in order to determine the potential benefits of honey in improving the structure of uterus after honey supplementation.

Methods: In this study, uterus organs were received from by Gamete Research Group, Department of Physiology, Faculty of Medicine, Universiti Kebangsaan Malaysia (UKM). Rats were divided into three groups: normal rat (control) and honey-treated rats, low dose Gelam Honey (GHL, 0.2 g GH/kg body weight) and high dose Gelam Honey (GHH, 2.0 g GH/kg body weight). Administration of Gelam honey to rats were given for 14 days across all groups. Organs underwent standard histological processing procedure including fixation, pre-embedding, embedding, sectioning and histological staining using Hematoxylin & Eosin. The thickness of the uterus epithelia was observed under a light microscope (Leica compound microscope with digital camera) using a 20X objective lens. Images were processed using Image J software.

Results: The results showed that there were effects of honey on uterus morphology and uterus epithelial thickness with lumen diameters in group GHH are thinner and in tortuous shape compared to GHL. Uterus epithelial thickness are thickest in group control with ($17.53 \pm 0.38\mu\text{m}$). In treated group, uterus epithelial thickness was significantly thicker in GHH than in GHL with ($7.15 \pm 0.29\mu\text{m}$) and ($4.94 \pm 0.07\mu\text{m}$) respectively.

Conclusion: Findings from this study revealed an appropriate high dosage which is 2.0 g GH/kg body weight of Gelam Honey administered to the uterus of Sprague Dawley rats had the potential to be beneficial and showed protective effects on reproductive organ, uterus. It has been shown that Gelam Honey can prevent uterus atrophy by its mechanism.

Keywords: Uterus tissue; Gelam Honey; uterine epithelia; histopathology; uterine thickness

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