

Effects of Kelulut Honey on Oestrus Cycle Regulation and Histomorphological Changes in Letrozole-Induced Polycystic Ovary Syndrome Rats: A Preliminary Study

ABSTRACT

Polycystic ovary syndrome (PCOS) is a complex reproductive, metabolic, and endocrine disorder that affects women of reproductive age. Kelulut honey is stingless bee honey that possesses anti-inflammatory, anti-cancer, anti-diabetic, and potent antioxidative activities in most conditions. However, its value in improving PCOS remains to be elucidated. Thus, this preliminary study aimed to determine the effective dose of Kelulut honey in oestrus cycle regulation and ovarian histomorphological changes in letrozole-induced PCOS rats. PCOS was induced in all-female Sprague Dawley (SD) rats with 1 mg/kg/day of letrozole except for the control group for 21 days. Kelulut honey was then orally administered to the PCOS rats at the dose of 0.5, 1, or 2 g/kg/day, respectively, for 35 days. The oestrous cycle was determined through vaginal smears, while ovarian histomorphological changes were observed by haematoxylin and eosin (H&E) staining. The untreated PCOS rats were characterised by irregular oestrous cyclicity, hyperglycaemia, and aberrant ovarian histology. In this study, Kelulut honey (1 g/kg/day) increased the number of corpus luteum and antral follicles ($p < 0.05$), improved the cystic follicle, and normalised the oestrus cycle ($p < 0.05$). This preliminary study demonstrated that Kelulut honey, particularly at a dose of 1 g/kg/day, has the potential to alleviate oestrus cycle dysregulation and ovarian histomorphological changes occurring in PCOS.