



Beneficial Effects of *Teucrium polium* Hydroalcoholic Extract On Letrozole-Induced Polycystic Ovary Syndrome (PCOS) in Rat Model

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Abstract

Background and objectives: Polycystic ovary syndrome (PCOS) is an endocrine disorder that disrupts the menstrual cycle and infertility. Due to the increasing approach to the use of medicinal plants, the present study was designed to evaluate the effect *Teucrium polium* L. on letrozole induced PCOS in female rats. **Methods:** Six groups of rats (n=7) were evaluated; the control group (received carboxy methyl cellulose 1% as a vehicle) and the five other groups (received letrozole 1 mg/kg orally for 21 days). After induction of PCOS, rats were orally administered with *T.polium* extract (50,100,200 mg/kg) or metformin (200 mg/kg) for 28 days. Moreover, body and ovarian weights as well as FSH, LH, estradiol, progesterone, and testosterone, were measured. Finally, ovarian tissues were isolated for histological examination. **Results:** The results showed no significant changes in weekly body weight in all groups. After 21 days of letrozole administration, induction of PCOS was confirmed by the irregularities in estrous cycles and an increase in LH and testosterone levels. After the treatments with the hydroalcoholic extract of *T.polium*, testosterone and LH levels were significantly reduced in all groups (P< 0.05). Histological studies of metformin and *T.polium* groups exhibited normal follicular development with fewer and smaller cystic follicles compared to the PCOS group. **Conclusion:** Hydroalcoholic extract of *T.polium* improved serum levels of sex hormones, recovered the ovarian morphology in PCOS-induced rats, and could be a good candidate for further clinical trials.

Keywords: Polycystic Ovarian Syndrome, Letrozole, *Teucrium polium*