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[Avicenna J Phytomed.](#) 2021 May-Jun;11(3):292-301.

Effect of *Vitex agnus-castus* ethanolic extract on hypothalamic *KISS-1* gene expression in a rat model of polycystic ovary syndrome

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Abstract

Objective: Polycystic ovary syndrome (PCOS) is an endocrine system disruption that affects 6-10% of women. Some studies have reported the effect of *Vitex agnus-castus* (Vitagnus) on the hypothalamic-pituitary-gonad axis (HPG). This study was conducted to investigate Vitagnus effect on the expression of kisspeptin gene in a rat model of PCOS.

Materials and methods: Thirty-two female rats were distributed into: control, Vitagnus-treatment (365 mg/kg for 30 days), PCOS (Letrozole for 28 days) and PCOS animals treated with Vitagnus (30 days of Vitagnus after PCOS induction). At the end of the treatments, serum and ovaries were collected for analysis. Expression level of *KISS-1* gene in the hypothalamus was investigated, using Real-Time-PCR.

Results: In the PCOS group compared to control, FSH, progesterone and estradiol levels were decreased, whereas testosterone and LH levels were significantly increased. No significant changes were observed in the Vitagnus-treated animals in compare to control. However, Vitagnus treatment in the PCOS group, resulted in a raise in progesterone, estrogen and FSH levels and a reduction in the levels of testosterone and LH. Quantitative gene expression analysis showed that PCOS induction resulted in over-expression of *KISS-1* gene, however, Vitagnus treatment reduced this up-regulated expression to normal level.

Conclusion: In conclusion, our results indicated that Vitagnus extract inhibited downregulation of *KISS-1* gene in the hypothalamus of PCOS rats. Because of the master role of kisspeptin in adjusting the HPG axis, Vitagnus is likely to show beneficial effects in the treatment of PCOS via regulation of kisspeptin expression. This finding indicates a new aspect of Vitagnus effect and may be considered in its clinical applications.

Keywords: Hypothalamus; Kisspeptins; Ovarian follicles; Polycystic ovarian syndrome; *Vitex agnuscastus* extract.

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Figures

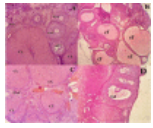


Figure 1 Histologic analysis of ovaries in letrozole-treated...

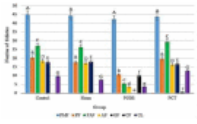


Figure 2 Count of different follicular types...

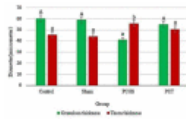


Figure 3 Thickness of the theca and...

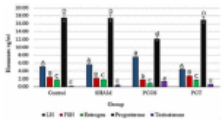


Figure 4 Levels of LH, FSH, testosterone,...

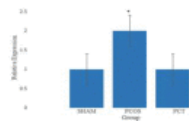


Figure 5 The relative gene expression of...

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