

Effect of hydro-ethanolic extract of fennel (*Foeniculum vulgare* Mill) on increase sex ratio in female rats

A. Amirzargar^{1,*}, M. Afzalzadeh², W. Kooti³, S. Afzalzadeh¹, N. Jalali³, N. Moradi³

¹Department of Physiology, School of Medicine, Ahwaz Jundishapur University of medical sciences and Student Research Committee Vice-Chancellor for Research Affairs, Ahwaz Jundishapur University of medical Sciences, Ahwaz, Iran

²Faculty of Veterinary Medicine, Ahwaz Shahid Chamran University, Ahwaz, Iran

³School of Paramedical Sciences, Ahwaz Jundishapur University, Ahwaz, Iran

Background and Aims: Humans at the many centuries has much more efforts to determined the sex ratio of breeds, and also many differential theories and hypothesis has presented, such as theory of ions variation effect on serum, effect of environmental pH of gonadal cells at the zygotis time and effect of feeding. But experimental article about effect of fennel on increased sex ratio in female rats was not available, so the aim of this study was investigation effect of hydro-ethanolic (70%) seeds extract of fennel on sex ratio in adult female rats.

Methods: 45 colony of adult healthy rats (15 male and 30 female), (170-220g) was prepared, then divided into 3 groups: control, low dose and high dose. Control group received 1ml propylene glycol and treatment groups received 1ml hydro-ethanolic extract of fennel in two doses; 500 and 1000 mg/kg/BW were administered by gavage at 30 consecutive days. Then each male rat mated to females (1:2), after delivery the number of babies and sex ratio determined. Data were analyzed by analyses of variance (ANOVAs) followed, where appropriate, by independent t tests.

Results: The results showed a significantly increased in sex ratio of babies at low and high doses of extract (8.8 ± 2.09 and 8.6 ± 1.4 , respectively) vs control (7.0 ± 2.58), $P < 0.05$. Also this results was dose dependent increased significantly at the meaning of male/female percent of babies was raised (male: 61.62%, female: 38.38%), $P < 0.05$.

Conclusions: To consideration this results, this extract maybe caused to decreased FSH and testosterone in male rats, and or caused to different hormonal activities in female rats, and or affected on ions variation in serum. So its suggested to do more investigations at the future about this study and determine main substance(s) to influence on sex ratio and percent of it.

Keywords: Fennel; Female rat; Sex ratio