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**Abstract of the DVM thesis No 28565, Faculty of Veterinary Medicine, Urmia University .**

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**Title of thesis:** *In vitro* study of ovicidal effect of Selenium nanoparticles on *Fasciola hepatica*

### **Abstract**

Fasciolosis is of considerable economic and public health importance worldwide. In disease control, anthelmintics drugs may be effective. In the present study, the effectiveness of the Selenium nanoparticles (Se-NPs) on the eggs and adult *Fasciola hepatica* was investigated. *Fasciola hepatica* eggs and adult forms were collected from the gall bladders of naturally infected sheep at Urmia slaughterhouse. The eggs were exposed to various concentrations of nanoparticle (1, 4, 8, 12, 16 ppm) for 24, 48 and 72 h. To investigate the effect of the nanoparticles on the adult form, the treated *F. hepatica* were incubated with various concentrations of the nanoparticle (1, 4, 8, 12, 16 ppm) for 24 hours. The ovicidal effect of Se-NPs at concentration of 1 ppm in 24h, 48h, and 72h was 38.46%, 59.67% and 80.52%, respectively. One hundred percent ovicidal efficacy was obtained through application of Se-NPs at concentrations of 4 and 8 ppm in 72 h and 48h, respectively. The mobility decreased and the mortality increased in a concentration and time dependent pattern. The results indicated that *F. hepatica* were susceptible to the Se-NPs. *In-vitro* ovicidal effect of the Se-NPs was satisfactory in this study, however, *in-vivo* efficacy of this nanoparticle, recommended for further studies.

**Keywords:** *In-vitro* , Selenium nanoparticles, *Fasciola hepatica*