

**Abstract of DVM thesis, Urmia University**

**Academic year: 2020-2021**

**Author: Araz Ostadi**

**Title of thesis:**

**Effect of Thymol on Experimental Autoimmune Orchitis-induced Apoptosis in Testicular Tissue of BALB/c Mice**

Autoimmune orchitis as a chronic inflammation induces apoptosis in testicular germ cells leading to marked tissue damages. This study was carried out to scrutinize protective activity of thymol (TML) against experimental autoimmune orchitis (EAO)-induced apoptosis in mice testicular tissue. In this experimental study, 36 adult male mice were randomly divided to six equal groups including untreated, TML (100 mgkg<sup>-1</sup>BW/day; orally for 5 weeks), antigen (100 µl; subcutaneously) and *Bordetella pertussis* (10<sup>9</sup> bacteria at the day of antigen injection and 48 hours later; intraperitoneally) control groups, EAO and EAO + TML. The EAO was induced through testicular homogenate plus complete Freund's adjuvant plus *B. pertussis* injection. All animals were euthanized after 5 weeks and testicular caspase 3 and bcl2 levels through immunohistochemical evaluations as well as testicular total anti-oxidant capacity (TTAC) were analyzed. The EAO respectively caused significant elevation and reduction in testicular caspase 3 and bcl2 levels along with notable decrease in TTAC compared to control, TML, antigen and *B. pertussis* groups. While, TML co-administration resulted in considerable amelioration of EAO-induced reproductive disorders. These findings revealed that TML has a significant protective activity against EAO-related apoptotic alterations in mice testicular tissue.

**Keywords:** Apoptosis, Autoimmune, Mouse, Orchitis, Thymol