

Summary of the Ph.D thesis No., **18817**. . **Immunology**, Faculty of Veterinary Medicine, Urmia University.

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Title: Effects of caffeic acid in the formation of immune responses in Balb/C mice

Abstract:

Caffeic acid is one of the herbal compounds with strong pharmacological effects. Recent research has shown that the phenolic compound of caffeic acid has anti-inflammatory and antioxidant properties. However, no research has been done on the immunomodulatory effects. The main aim of this study was to investigate the immunomodulatory effects of caffeic acid on cellular and humoral immune responses in Balb/c mice immunized with ovalbumin. Animals treated with OVA received different oral doses of caffeic acid (0, 10, 20, and 40 mg/kg) orally from two days before immunization to 28 days after immunization. Based on the results It was found that the oral intake of caffeic acid in a non-dose-dependent manner decreased the response of specific lymphocyte proliferation to ovalbumin in immunized mice. The expression of T-bet gene in the spleen cells of immunized mice after treatment with doses of 20 and 40 mg/kg caffeic acid. There was a significant decrease. The expression of GATA3 and ROR- γ T genes showed a significant decrease after treatment with caffeic acid in a dose independent manner and in a dose dependent manner, respectively, in a dose-dependent manner. Meanwhile, the expression of Foxp3 gene was increased in a dose-dependent manner in the groups receiving caffeic acid. At the same time, the findings obtained in this research indicated a decrease in the intensity of DTH reaction specific to ovalbumin after receiving caffeic acid in a dose-dependent manner. Overall, it seems that caffeic acid caused the deviation of antigen-specific immune responses from Th1, Th17, and Th2 towards regulatory cells. Therefore, it is possible that caffeic acid is useful in controlling some immunopathological conditions.

Keywords: Caffeic acid, Immune response, Balb/C mice