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• **The Effect of R100 Fraction of The *Sumbucus ebulus L.* on the Macrophage Viability and NO Production**

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Background: The plant *Sumbucus ebulus L.* is one of the invaluable herbal medicine growing in north Iran as well. it is traditionally used in Iran and other parts of the world in treating and preventing infectious and inflammation diseases, such as arthritis rheumatoid, and sore throat. Traditional consumption of this plant shows that one of its effects is immunomodulation. Macrophages are the one of important cells in inflammation. In this study, we explore the effect of R100 fraction of the extract of the plant *Sumbucus ebulus L.* on the macrophages cell viability and it's NO producing in an in vitro condition. **Materials and Methods:** Peritoneal exudate cells were obtained from inbred Balb/c mice aged 8_10 weeks obtained from the animal laboratory, Shahed University. The plant extract was obtained in water and alcohol forms, and its R100 was separated by ultra-filtration method. Then the effect of R100 fraction was measured on the viability of macrophages using MTT method upon 24 hours and NO production using NO test following 16 hours from the time of culturing. **Results:** The viability of macrophages treated with R100 fraction isolated from *Sumbucus ebulus L.* in dilutions 1/2, 1/10, and 1/1000 has significantly increased in comparison to the control group, and enhanced significantly subsequent to R100 fraction of the alcohol extract in dilutions 1/2, 1/10, and 1/100 comparison to the control group. As the results show, cells that treated with R100 fraction of plant's water extract in dilutions 1/10, 1/1000 has significantly increased in NO production in comparison to the control group, and enhanced significantly in NO production subsequent to treated with R100 fraction of the alcohol extract in dilutions 1/10, 1/100, and 1/1000 comparison the control group. **Conclusion:** The obtained results suggest that the substances over 100 KD separated from the water and alcohol extracts of *Sumbucus ebulus L.* have had anti- inflammatory effects dose dependently, and even had increasing cell viability and NO production in low dose. It is recommended that further studies on other fractions containing substances with lower molecular weight be carried out.

Keyword: *Sumbucus ebulus L.*; cell viability; macrophage; NO production; herbal medicines