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Macrophage cell viability after treatment with some *Allium* species from Iran

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Introduction: Identification and application of immuno-modulators in natural ingredients can be effective in immune regulation. Macrophages are the cell components of innate immune system. In the present study, the aqueous extract effects of selective *Allium* species on the viability of these cells were examined. Materials and Methods: Fresh bulbs of seven wild *Allium* species were collected from their natural habitats and the bulbs of cultivated *A. sativum* were supplied from a field in Hamadan. Aqueous extracts of the fresh bulbs were prepared. Macrophages were isolated from mice peritoneum. The acquired cell pellet was cultured in RPMI/FBS. Different concentrations of aqueous extracts were added to the cell cultures and cell viability was measured by MTT assay. **Results:** Based on the obtained results, significant differences ($P < 0.05$) were observed among the aqueous extracts of *Allium* species in some concentrations on viability of macrophages. The results showed that bulb extracts of *A. sativum* at 1, *A. Jesdianum* at 0.1, *A. Iranicum* at 1 and 0.01, *A. lenkoranicum* at 0.1, *A. elburzens* at 0.01 and 0.001, *A. asarense* at 0.001 and 0.0001, *A. scaberriscapum* at 0.0001 had stimulatory effects and *A. elburzens* at 1 and *A. stipitatum* at 0.1 mg/mL had inhibitory effects on viability of macrophages. **Conclusion:** Our findings approved that the bulb extracts of all the examined *Allium* species had stimulatory or inhibitory effects on viability of macrophages in different concentrations, among them the best stimulatory results were obtained for *A. elburzens*, followed by *A. asarense* and *A. Iranicum* in low concentrations.

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Evaluation of the Cytotoxic Activity of *Malva sylvestris* Flower and Leaf against Murine Breast Cancer Cell Line (4T1)

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Introduction: Breast cancer is the leading cause of death in women worldwide. The majority of drug candidates, currently used in clinical cancer chemotherapy, have been originally derived from plants. *Malva sylvestris*, as a medicinal plant, is commonly used in Iran as a vegetable, namely Panirak. The cytotoxic activity of the aqueous extracts of this plant was evaluated against murine breast cancer cell line (4T1) by the MTT assay. **Materials and Methods:** Air-dried plant flowers and leaves were separately weighted (1g) and extracted by boiling and brewing in 50 mL PBS. 4T1 cell line was cultured in RPMI medium supplemented with 10% FBS. The diluted aqueous extracts were added, and after 24h and 48h incubation, the MTT test was performed. The extracts were also tested for peripheral blood mononuclear cells. **Results:** The results showed that *M. sylvestris* had significant cytotoxic effect with 30% viability on the 4T1 cell line. Flower extract showed better cytotoxicity than leaf extract. Furthermore, boiled extract of flower had higher cytotoxic effect than brewed extract. The viability of normal cells was under 50%. **Conclusion:** Although *M. sylvestris* had significant cytotoxic effect against 4T1 compared to the normal cells, the range of normal cells viability was not acceptable according to the standards; therefore, did no clinical trial was performed. More research is needed about the extraction of the plant and alteration of its chemical structure.