



## Neuroprotective activity of *Leontice leontopetalum* extract against H<sub>2</sub>O<sub>2</sub>-stimulated oxidative stress in PC12 cells

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**Background and objectives:** Neuronal toxicity can be induced by oxidative stress via free radicals production. In recent years, great interest has been expressed to the traditional and herbal medicines. The purpose of this study was to elucidate the neuroprotective activity of *Leontice leontopetalum* methanol extract against H<sub>2</sub>O<sub>2</sub>-stimulated oxidative stress in PC12 cells. **Methods:** The plant *Leontice leontopetalum* was selected based on the ethnobotanical approach, which is used traditionally for the treatment of diseases related to inflammation and pain in Turkmen Sahra, Iran. Cytotoxicity of different concentrations of the methanol extract against PC12 cells was evaluated by MTT assay. Then PC12 cells were exposed to H<sub>2</sub>O<sub>2</sub> in the presence or absence of the extract. In the next step, the total protein concentration was measured via Bradford assay and cyclooxygenase inhibition was determined by a screening assay kit. Nitrite accumulated in culture medium of supernatant was measured by Griess reaction. **Results:** Our results indicated that the methanol extract of *Leontice leontopetalum* significantly inhibited cyclooxygenase activity in the presence of H<sub>2</sub>O<sub>2</sub>; however, it was not able to inhibit nitric oxide generation in the stimulated PC12 cells. **Conclusion:** The results suggested that *Leontice leontopetalum* may be useful in reducing risk of neurodegenerative related diseases such as Alzheimer Disease.

**Keywords:** cyclooxygenase 2, neuroprotective, nitric oxide, PC12, traditional medicine

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