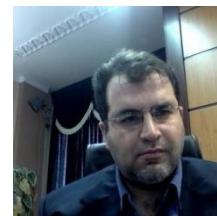


## Evaluation of antiparkinsonism effects of total extract of fruits and aerial parts of *Sambucus ebulus* Lin 6-OH dopamine model of Parkinson in neuroblastoma cell culture



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### Abstract

**Background and Aim:** Parkinson's disease is the second most common neurodegenerative disorder which affecting the senile population with manifestation of motor disability and cognitive impairment. *Sambucus ebulus* is a plant with traditional uses which might confer neuroprotective effects most probably according to its anti-oxidative stress activity but there are no studies around its role in Parkinson diseases so far. Hence, this study has aimed to investigate the neuroprotective effect of total extract of fruits and aerial parts of *Sambucus ebulus* in a neurotoxin-induced model of Parkinson.

**Methods:** In vitro model of Parkinson disease has generated by exposing SH-SY5Y neuroblastoma cells to neurotoxin: 6-hydroxydopamine (6-OHDA) 100 $\mu$ M/well. Total extract of fruits and aerial parts of *Sambucus ebulus* extracted by tow solvents of methanol and ethyl- acetate by maceration method. Cytotprotective effect of methanol and ethyl acetate extracts in five concentrations on cell viability by using MTT assay. Apoptotic assay was done with route of Annexin V-propidium iodide method by flow cytometry

**Results:** According to MTT assay analysis, both methanol and ethyl acetate extracts have shown protective effect against 6-OHDA induced cytotoxicity in SH-SY5Y neuroblastoma cells especially at concentrations of 30 and 60  $\mu$ g/ml  $P < 0.05$  but apoptotic analysis has shown at IC<sub>50</sub> Conct, only methanolic extract of the heeb had anti-apoptotic effect  $P < 0.05$ .

**Conclusion:** We can introduce aerial parts of *Sambucus ebulus* extract as a cytoprotective co-treatment in Parkinson disease but complementary studies especially in in vivo and clinical trials are necessary.

**Keywords:** *Sambucus ebulus*, Apoptosis, SH-SY5Y, 6-OHDA, Neurodegenerative disorder, Parkinson's disease, Neuroprotection.

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### Speaker Publications:

1. "Curcumin exerts neuroprotective effects against homocysteine intracerebroventricular injection-induced cognitive impairment and oxidative stress in rat brain"; Journal of medicinal food, 2010, Volume 13, Issue 4, pages 821 – 826.
2. "Antioxidant and free radical scavenging activities of curcumin"; Asian J Chem, 2013, Volume 25, Issue 13, pages 7593 – 5.
3. "Polyphenolic antioxidants and neuronal regeneration"; Basic and Clinical Neuroscience, 2016, Volume 7, Issue 2, Pages 81.

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### Biography:

Ramin Ataei has received PhD in pharmacology from Tehran University of Medical Sciences in 2009. He has worked at Researcher of Institute Pasteur, Amol Branch 2000-2012. He is an assistant professor of pharmacology MUMS 2012. He has