Effects of *Pinus Edarica* extract on oxidative damage in pentylenetetrazole-induced seizures in rats

[1] Fereshteh Asgharzadeh*
[2] Rahimeh Bargi
[3] Farimah Beheshti
[4] Seyed Mojtaba Mousavi
[5] Hasan Rakhshandeh
[6] Mahmoud Hoseini

1- Neurogenic Inflammation Research Center, School of Medicine, Mashhad University of Medical Sciences, Iran
2,3,6- Neurocognitive Research Center, School of Medicine, Mashhad University of Medical Sciences, , Iran
4- Department of Physiology, School of Medicine, Mashhad University of Medical Sciences, Iran
5- Pharmacological Research Center of Medicinal Plants, School of Medicine, Mashhad University of Medical Sciences, Iran

** Neurogenic Inflammation Research Center, School of Medicine, Mashhad University of Medical Sciences, Iran*
Email: asgharzadehf931@mums.ac.ir

Abstract

Introduction: An important role for oxidative stress, as a consequence of epileptic seizures has been suggested. Regarding the antioxidant effects of *Pinus Eldarica*, the effects of the plant extract on the brain tissues oxidative damages following seizures induced by pentylenetetrazole (PTZ) was investigated.

Methods: The rats were divided into 6 groups and treated: (1) Control(saline), (2) PTZ (120 mg/kg, i.p.), (4-6) four doses (20, 50, 200 and 500 mg/kg) of Suxhlet extract of *Pinus Eldarica* 30 min before PTZ injection. Latencies to the first minimal clonic seizure (MCS) and the first generalized tonic-clonic seizures (GTCS) were recorded. The brains were then removed for biochemical measurements.

Results: There was no significant differences between the groups in MCS and GTCS latencies. The seizure induced by PTZ increased the MDA while, reduced the thiol contents of the brain tissues compare to the control group. Both 20 and 200 mg/kg of the extract decreased the MDA levels in the cortical tissues while, only 200 mg/kg of decreased MDA level in the hippocampal tissues compared to PTZ group. Both 50 and 200 mg/kg of the extract increased thiol contents in the hippocampal tissues. Treatment with 500 mg/kg of the extract increased thiol concentration in the cortical tissues.

Conclusion: The present study showed that the extract of *Pinus Eldarica* possess significant antioxidant effects in the brain tissues but have no anticonvulsant activities.

Key words: *Pinus Eldarica*, Pentylenetetrazole, Seizures, Oxidative stress, Brain