

EVALUATION OF ANTICONVULSANT AND ANALGESIC PROPERTIES OF ETHANOLIC EXTRACT OF *ELETTARIA CARDAMOMUM* SEEDS IN WISTAR ALBINO RATS

Abstract

Background: Central and peripheral oxidative stress are important factors implicated in the pathogenesis of convulsions and pain respectively. Antioxidant potential of *Elettaria cardamomum* (cardamom) seeds has been proven by several studies. Phytochemical analysis of cardamom seeds have revealed the presence of phenolic compounds like flavonoids and tannins which are effective hydrogen donors capable of reducing oxidative stress.

Aims and objectives: To evaluate the anticonvulsant and analgesic properties of ethanolic extract of *Elettaria cardamomum* seeds in Wistar albino rats.

Materials and methods: A total of 72 healthy Wistar albino rats (180-250 g) of either sex were included in the study and divided into 12 groups consisting of 6 animals each. The ethanolic extract of *Elettaria cardamomum* seeds was prepared using cold maceration method and was tested at two graded doses (200 mg/kg BW and 400 mg/kg BW) given orally. Anticonvulsant property was evaluated using Maximal Electroshock [MES] model (standard - Phenytoin 10 mg/kg BW; i.p.) and Pentelenetetrazole [PTZ] model (standard - Sodium valproate 400 mg/kg BW i.p.). Analgesic property was evaluated using tail warm water immersion method and writing test (standard - Morphine 5 mg/kg BW i.p.). The results were expressed as Mean \pm SD. Statistical significance among study groups were carried out by using SPSS-16.0 version software, by applying One-way ANOVA followed by Dunnet's post hoc test.

Results: The ethanolic extract of cardamom seeds showed significant ($p < 0.05$) decrease in the mean scores of MES induced seizures at 400 mg/kg BW. 100% protection against Tonic Hind Limb Extension (THLE) was shown by both graded doses of the test drug. The onset of PTZ induced convulsions were delayed and the severity, number and scores

of seizures were significantly reduced by cardamom extract at 400 mg/kg BW. At 400 mg/kg BW, there was a significant increase in the reaction time in tail warm water immersion test. There was also significant reduction in total number of writhes and the and the percentage inhibition of writhes [90.28%] was comparable to the standard drugs.

Conclusion: The ethanolic extract of *Elettaria cardamomum* seeds possess significant anticonvulsant and analgesic properties in Wistar albino rats at the dose of 400 mg/kg BW.

Key words: Anticonvulsant, Analgesic, Antioxidant, *Elettaria cardamomum*, Ethanolic extract