COMPARATIVE ANTICONVULSANT ACTIVITY OF THE ISOMERS OF EPOXY-CARVONE IN MICE

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The monoterpene epoxy-carvone (EC) is found in the essential oils from plants and can be obtained by synthesis from the R-(-)-carvone. Previous studies confirm the central effects of the EC, among them analgesic effect. As a chiral organic molecule, it presents the isomers (+)-cis, (-)-cis, (+)-trans and (-)-trans epoxy-carvone, which do not present comparative studies regarding CNS activity as anticonvulsants. This study aimed to investigate comparatively the anticonvulsant action of these isomers. We used mice (*Mus musculus*) Swiss males in a number of 8 animals per group and all administrations were performed by intraperitoneal route. The anticonvulsants methodologies carried out were testing of seizures induced by pentylentetrazole (PTZ) and the maximum electroshock (MES). The dose used for isomers was 300 mg/kg. In the PTZ test, treatment with (+)-cis EC (900.0 ± 0.0s), (-)-cis EC (763.3 ± 69.2s), (+)-Trans EC (791.1 ± 108.9s) and (-)-Trans EC (743.0 ± 83.7s), compared to the control group (59.0 ± 3.5s). Analogous results in the MES revealed a decreased duration of convulsions in groups treated with (+)-cis EC (9.8 ± 0.5s), (-)-cis EC (8.3 ± 1.4s), (+)-Trans EC (0.7 ± 0.7s) and (-)-Trans EC (0.0 ± 0.0s) compared to the control group (16.3 ± 0.9s). The percentage of tonic convulsions was significant in groups treated with (+)-cis EC (100%) and (-)-cis EC (87.5%). As for the groups receiving (+)-Trans EC (25%) and (-)-Trans EC (12.5%) of tonic convulsions showed less type. Inhibition of the seizures suggests that possibly there is an interference in GABAergic neurotransmission and in the prevention of the spread of seizure discharge through neural tissue. Our results indicate that all four isomers of epoxy-carvone are active in these seizures models, can be effective in reducing tonic seizures, as well as increase the survival rate after induction of convulsions.

Keywords: Anticonvulsant, Epoxy-carvone, Isomers.