Abstract:
The aim of this study was to evaluate time-course and dose-response relationships of nicotinic acid benzylamide (Nic-BZA) with regard to its anticonvulsant activity in the maximal electroshock (MES)-induced seizures and acute neurotoxic effects in terms of motor coordination impairment in the chimney test in mice. The experimental determination of both median effective dose ($ED_{50}$) and median toxic dose ($TD_{50}$) allowed for the calculation of protective index (PI) values characterizing a preclinical profile of Nic-BZA. Results indicated that Nic-BZA produced the time-dependent and clear-cut anticonvulsant activity in the MES test and its $ED_{50}$ values ranged between 35.7 and 84.0 mg/kg (after the ip administration of the agent at 5 and 60 min, respectively), and between 72.0 and 152.1 mg/kg (at 5 and 60 min, respectively, following the po administration of Nic-BZA). In the chimney test, the $TD_{50}$ values for Nic-BZA, after its ip administration ranged between 188.5 and 509.9 mg/kg, whereas following its po administration the $TD_{50}$ values for Nic-BZA were between 552 and 1222.1 mg/kg. The PI values for Nic-BZA, calculated at various times after its ip and po administrations (ranging between 3.56 and 17), revealed that the agent has a favorable profile, when considering its both anticonvulsant and acute neurotoxic effects in this preclinical study.

Based on this study, one can conclude that Nic-BZA might occur advantageous as a potential antiepileptic drug for breaking seizure attacks in patients with epilepsy.

Key words:
nicotinic acid benzylamide, maximal electroshock, chimney test, protective index