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Anticonvulsant activity of newly synthesized benzoylhydrazones with 2*H*-chromene and coumarin moieties in ICR mice

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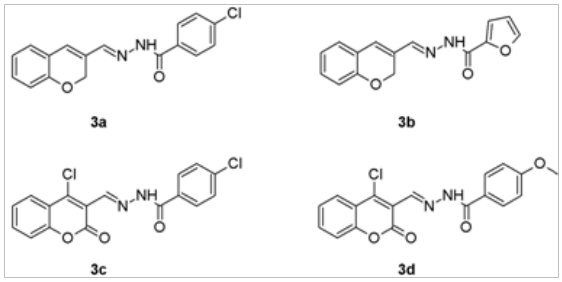
Several *2H*-chromene and coumarin based hydrazones were synthesized and evaluated for their anticonvulsant activity and neurotoxicity. The structures of the newly synthesized compounds were confirmed by 1H and 13C NMR, FTIR and HRMS (ESI) spectroscopy.



The initial anticonvulsant screening was performed using the maximal electroshock induced seizure tests (MES) and the subcutaneous pentylenetetrazol (scPTZ) test in ICR mice. All *2H*-chromene (3a,b) and coumarin (3c,d) based hydrazones demonstrated potency in at least one seizure test. Among all the tested compounds, only 3b showed activity at the lowest dose of 30 mg/kg, which was comparable with the referent drug phenytoin, while compounds 3a and 3d suppressed tonic-clonic seizures in the MES test at the highest dose of 300 mg/kg. All agents demonstrated anticonvulsant effect at 0.5 h whereas 3c and 3d in both time points. No neurotoxicity of the tested agents was observed at the doses with activity in this test. Compound 3c was potent at 100 mg/kg, while the compounds 3a and 3d protected against clonic seizures at the highest dose of 300 mg/kg in the scPTZ test. This activity was shown at time interval of 0.5 h and lacked neurotoxicity compared to DZP showing an activity at the lowest dose of 30 mg/kg. Taken together, the results suggest that the newly synthesized *2H*-chromene and coumarin based benzoylhydrazones could be efficient as adjuvants against secondarily generalized tonic-clonic seizures and primarily generalized seizures in humans.

Biography

V Karabeliov has completed his secondary education in 2013 from National High School of Maths and Science. Now he is studing in the Medical University of Sofia, Faculty of Pharmacy. He works as an assistant in a pharmacy from 2 years ago. He is interested in the fields of LC-MS, Mass secondary education, Bioanalysis, Chemical synthesis, Pharmacognosy and Medpharmacyicinal chemistry.

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