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Microwave assisted synthesis and docking study of N-(2-oxo-2-(4-oxo-2-substituted thiazolidin-3ylamino)ethyl)benzamide derivatives as anticonvulsant agents

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Abstract

Herewith, we report the design and synthesis of a series of N-(2-oxo-2((4-oxo-2-substituted thiazolidin-3yl) amino) ethyl) benzamide derivatives **7(a-j)** under microwave irradiation, based on four component pharmacophoric model to get structural prerequisite indispensable for anticonvulsant activity. The synthesized derivatives were investigated in maximal electroshock seizure (MES), subcutaneous pentylenetetrazole (sc-PTZ) induced seizure and neurotoxicity screening. All the test compounds were administered at a dose of 30, 100 and 300 mg/kg body weight at the time interval of 0.5 h and 4 h. The compounds were also evaluated for behavioral activity and toxicity study. The compound **7h** was found to be most active in MES model. The anticonvulsant screening data shows that 65% of the compounds were found active against MES model when compared to 35% sc-PTZ model. The computational parameter such as docking study, log P determination and ADME prediction were performed to exploit the results.

Keywords: Benzamide, Thiazolidinone, Microwave irradiation, Anticonvulsant evaluation, Computational studies.