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ORIGINAL ARTICLE

Synthesis and pharmacological evaluation of 3-[5-(aryl-[1,3,4]oxadiazole-2-yl]-piperidine derivatives as anticonvulsant and antidepressant agents

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Abstract In the present study, we have synthesized a series of fifteen nipecotic acid 1,3,4-oxadiazole based hybrids with significant (60–78%) yields. All the compounds were characterized by using different spectroanalytical techniques such as FT-IR, ^{1}H NMR, ^{13}C NMR, and elemental analysis. This design strategy was validated by using *in vivo* anti-epileptic and anti-depressant bioassay models. Anti-convulsant activity was evaluated using subcutaneous pentylenetetrazol (scPTZ) in mice and MES induced seizure. Among a spectrum of activities, three compounds (**4i, 4m,** and **4n**) displayed significant activity against pentylenetetrazole (scPTZ) induced seizures. No disruptions in motor co-ordination were observed in mice pretreated with the test compounds in the rotarod test. Their influence on the safety profile of elevated serum levels of biochemical markers such as hepatic and renal toxicity has been found to be safe. The derivatives also show marked anti-depressant activity, devoid of serotonergic augmentation as assessed using the despair swim test, 5-hydroxytryptophan (5-HTP)-induced head twitch test and learned helplessness test. *In silico*

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