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Synthesis and anticonvulsant activities of novel 1-Phenyl/1-(4-chlorophenyl)-2-(1H-triazole-1-yl) ethyl ester derivative compounds

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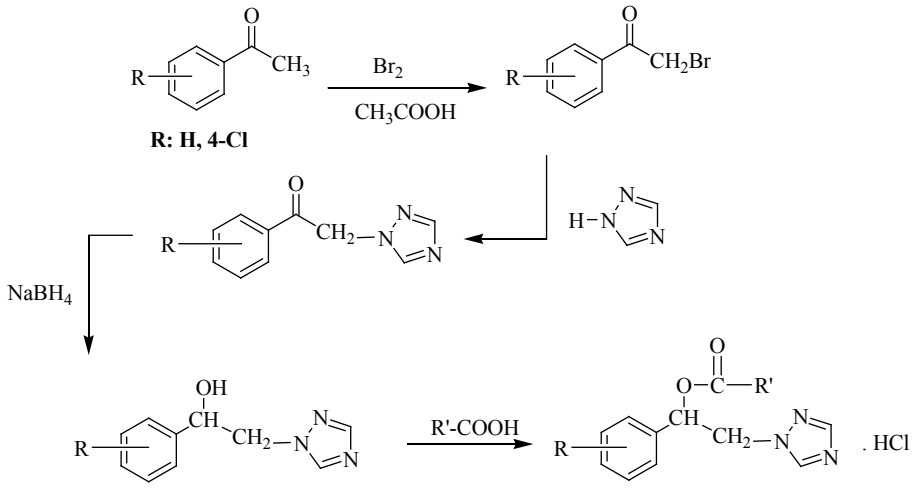
Although there are a large number of antiepileptic drugs (AEDs) on the market today, uncontrollable seizures related serious side effects, toxicity due to long-term use, the drugs not being tolerated well by some patients, development of resistance to drugs and drug-drug interactions are significant problems in treatment of epilepsy. Therefore, development safer, more effective, non-toxic, that can control all seizure types and selective compounds is on current and critical issue. Conventional AEDs are available in many different chemical structures such as hydantoins, barbiturates, benzodiazepines, imids, oxazolidines, sulfonamides, and valproates. Arylalkylazoles are a group of anticonvulsant compounds, which are different in structure with an azole ring, and nafimidone is one of the representatives of this group. Oxime ether derivatives of nafimidone with imidazole and triazole ring show high anticonvulsant activities. Literatures and our previous studies show that anticonvulsant properties of (arylalkyl)azoles are associated with the presence of a small oxygen functional group (such as carbonyl, methoxy, acyloxy, oxime ether, oxime ester and hydroxy) in the alkylene bridge. Therefore, in this study we aimed to synthesize and test anticonvulsant activities of 30 ester derivatives of phenyl/4-chlorophenyltriazolyl ethanone. The compounds have been synthesized according to the reaction pathways given below. Their structures were confirmed by IR, NMR, LC-MS and the elemental analysis.



R: H, 4-Cl

R' : -CH_3, -C_2H_5, -C_3H_7, -C_4H_9, -$CH_2CH(CH_3)_2$, -$CH(CH_2CH_2CH_3)_2$, -$CH_2CH_2COCH_3$, -$CH{=}CHCH{=}CHCH_3$, -$CH_2C_6H_5$, -$CH_2CH_2CH_2C_6H_5$, -$CH_2CH_2COC_6H_5$, -$CH{=}CH$-C_6H_5, -C_6H_1, -C_6H_5, -C_6H_4-C_6H_5

Anticonvulsant activities of the compounds were determined according to the Antiepileptic Drug Development (ADD) Program of National Institutes of Health (NIH) by maximal electroshock seizure (MES) tests. Rotorod test in mice was applied for neurological deficits.

Biography

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