SEARCH FOR POTENTIAL ANTICONVULSANTS AMONG THE DERIVATIVES OF 1,3,4-THIADIAZOLE

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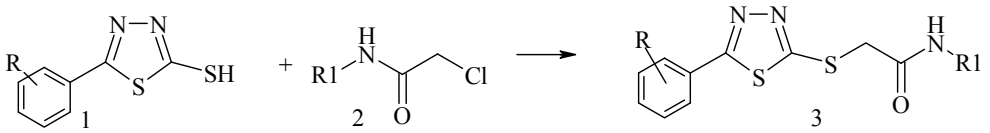
Purpose. The work devoted to the synthesis and researches about physical-chemical properties of the newly synthesized compounds the derivatives of 1,3,4-thiadiazoles and the study of their anticonvulsant activity. Analysis of the literature shows that among the derivatives of 1,3,4- thiadiazole there are a lot of promising compounds in terms of pharmacy, but at the same time, their biological properties have been insufficiently studied.

Materials and Methods. In order to search for new bioactive substances - potential anticonvulsant anilides of 5-R-phenyl-1,3,4-thiadiazole-2-yl-thioacetic acid were synthesized. The high reactivity of starting substances of 5-R-phenyl-2-mercapto-1,3,4-thiadiazoles(1) makes it possible quite easy modify their structure by alkylation, which extends the probability of finding new effective compounds in this series. Alkylation was performed by anilides of chloracetic acid (2) under the conditions of basic catalysis. Reaction was carried out in an alcohol in the presence of alkali solution. Target products have been obtained with satisfactory yields. The structure of obtained anilides of 5-R- phenyl -1,3,4-thiadiazole-2-ylthioacetic acid (3) was proved by modern physical and chemical methods of UV, IR and ^{1}H NMR-spectroscopy, the purity was confirmed by the method of thinlayer chromatography. The reaction method is according to the following scheme:



The computer prognosis of biological activity spectrum of all new compound by program PASS has set that the several substances are able to show the anticonvulsant activity (activity indexes of compounds are in the range of 0.4 to 0.5) Pharmacological screening for anticonvulsant activity has been carried out.

Results and conclusions. New anilides of 5-R-phenyl-1,3,4-thiadiazole-2-yl-thioacetic acid were synthesized. The structure of the compounds obtained was proved by methods NMR-, UV- and IR- spectroscopy and their purity and individuality was determined by thin-layer chromatography.

The results of studying an anticonvulsive activity have shown that the compounds synthesized are antagonists against the convulsive activity of pentylentetrazol.

Performed researches have allowed to select two leading compounds for in-depth researches.