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Conclusions. Therefore, the strongest antibacterial activity is found in aqueous solutions of the investigated AGFS, which, in our opinion, is related to the influence of the nature of the solvent on the efficiency of the release of fluoride ions, which provide the antibacterial effect, as a result of the hydrolysis of the SiF_6^{2-} anion. In aqueous solutions, the degree of hydrolysis of the SiF_6^{2-} anion is high and, accordingly, the maximum antibacterial effect of AGFS is observed, while in alcoholic solutions, hydrolysis is significantly suppressed and the pronounced bactericidal effect of the octenidine cation in the IV composition comes to the fore.

Prospects for further research are related to the study of antibiofilm activity and the minimum inhibitory concentration of AGFS with the creation of a therapeutic and preventive agent for the oral cavity in the future.

SYNTHESIS AND PROPERTIES OF 5-METHYL-4-PHENYL-1,2,4-TRIAZOLE-3-THIOL DERIVATIVES WITH CARBONIC ACID CHLORINOHYDRIDES

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The study of reactions of the chemical transformation of heterocyclic compounds is one of the fundamental directions of the development of chemistry and pharmacy. Heterocyclic systems of various nature represent the basis of a large number of natural and synthetic biologically active substances. Along with great practical significance, heterocyclic compounds are of theoretical interest as models for studying the relationship between the chemical properties of compounds and their structure, as well as for the development of methods of organic synthesis, which is directly related to the structure of compounds, while the most important are the size of the cycle, the degree saturations, number and nature of heteroatoms.

The aim of the work was the synthesis of 5-methyl-4-phenyl-1,2,4-triazole-3-thiol derivatives with carboxylic acid chlorides and further determination of their physicochemical properties.

Research methods. Ethyl ester of ethanoic acid was used as the key component. As a result of carrying out a group of transformations, namely hydrazinolysis, nucleophilic addition of phenylisothiocyanate, alkaline cyclization and subsequent acidification with ethanoic acid, the original thiol was obtained. Subsequently, the thiol was subjected to acylation reactions with carboxylic acid chlorides. The reactions were carried out in a medium of pyridine with the addition of an equivalent amount of alkali under slow heating for 1 hour. The obtained derivatives were white crystalline compounds. The structure of the substances was established using UV and IR spectrophotometry, ^{1}H NMR spectrometry, elemental analysis and chromatography-mass spectrometry. Preliminary screening of biological properties was carried out using computer programs GUSAR Online® and PASS Online®.

Results and their discussion. 10 new compounds were synthesized, the structure of which was confirmed. Based on computer prediction, it was shown that the synthesized compounds belong to the class of low-toxic compounds.

Conclusions. The method of synthesis of 5-methyl-4-phenyl-1,2,4-triazole-3-thiol derivatives with carboxylic acid chlorides was optimized. The indicators of computer evaluation of synthesized compounds using the PASS online service were studied. The most promising compounds for in vitro testing have been identified.