inhibitory activity with respect to the angiotensin-converting enzyme. A conducted detailed analysis of the geometric location of the molecules of the synthesized substances in the active site of the angiotensin-converting enzyme indicates that the formation and stability of the complexes between them is provided mainly due to the energetically favorable geometric location of the ligands in the active center of this acceptor, the formation of hydrogen bonds between them, intermolecular electrostatic and donor-acceptor interactions. It should be noted that the representatives of the second group, which combine active scaffolds such as 4-R-phenyl-1,3-thiazole and 2-R-phenylacetamide in the molecule, have the best affinity for this target.

Visualization of the results of molecular docking of the leader compounds is presented in Fig. 1

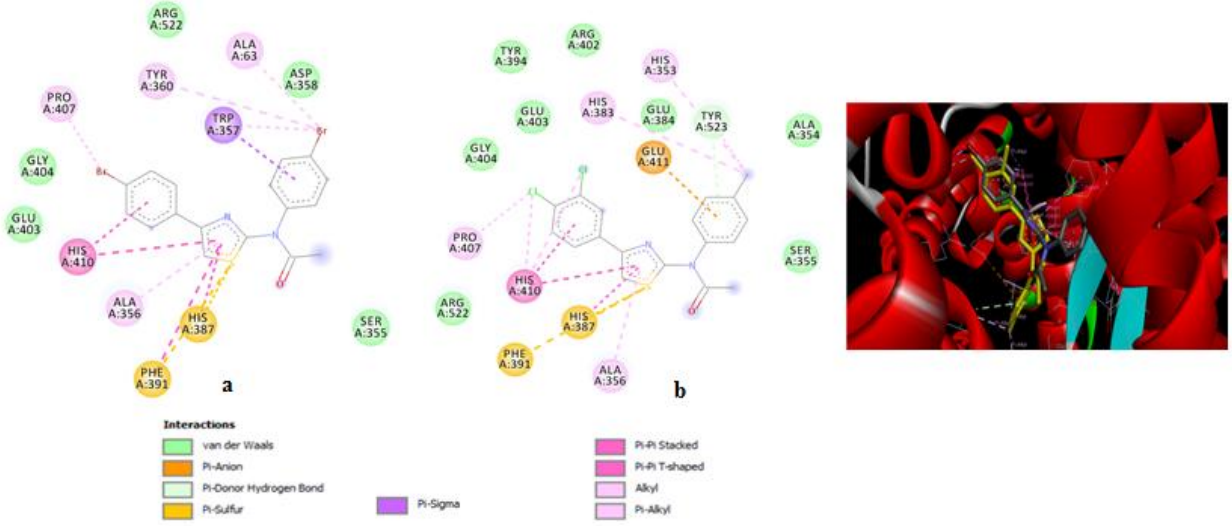

Fig. 1. Superposition and diagrams of interactions of ligands in complexes with angiotensin-converting enzyme (PDB ID: 4BZR) for leader compounds.

Conclusions. According to the results of molecular docking, it has been found that the inhibitory activity of the synthesized compounds with respect to the angiotensin-converting enzyme (ACE) can be realized by forming complexes between them, the stability of which is provided mainly due to the energy-favorable geometric location of the ligands in the active center of this acceptor, the formation of hydrogen bonds between them, electrostatic and donor-acceptor interactions. As a consequence, the thermodynamic probability of such binding is confirmed by the negative values of the scoring function. For experimental screening for antihypertensive activity, a promising group of compounds has been selected containing such active scaffolds as 4-R-phenyl-1,3-thiazole and 2-R-phenylacetamide.

THE APPROACHES FOR CONSTRUCTION OF PEPTIDOMIMETICS WITH THE HELP OF COUPLING-REAGENTS

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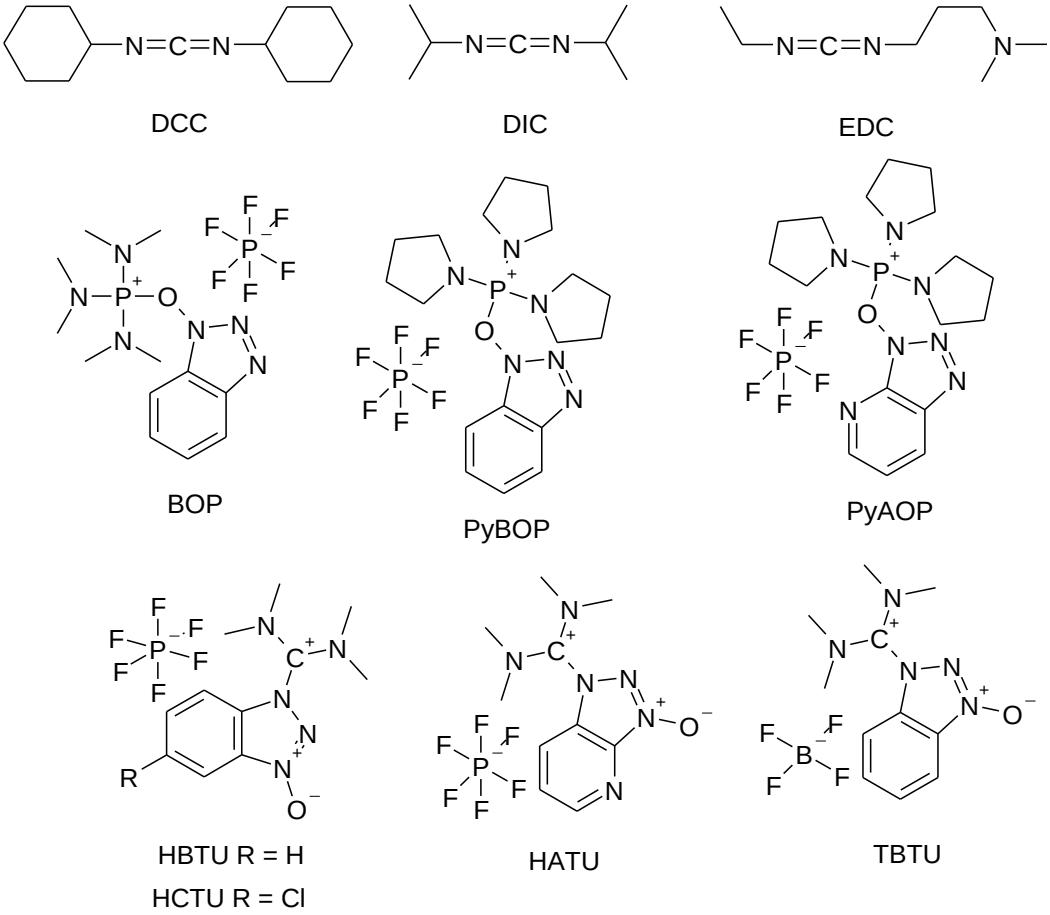
Introduction. In the last years, the number of the reported peptidomimetics as the drug-candidates increases. Peptidomimetics are small protein-like molecules.

Aim. There are many methods for preparation of peptides and their mimetics, which use the coupling reagents for the synthesis and our aim was to choose the most convenient of them.

Materials and methods. The information form the open Internet sources.

Results and discussion. The racemization is the side reaction of many of these synthetic processes. To avoid this the different reagents can be applied each of them is suitable for peptide synthesis and prevents racemization in the different cases. The following coupling reagents are known: 1)

carbodiimides (DCC, DIC, EDC); 2) phosphorous compounds (BOP, PyBOP, PyAOP); 3) uronium compounds (HATU, HBTU, HCTU, TBTU), etc.



Conclusions. The discussed reagents are effective for acylation reactions in peptide synthesis and decrease racemization. Application of phosphorous compounds regardless their toxicity is rational for formation of peptide bonds because it is similar to biosynthetic process in the live cells and gives good selectivity of the process.

SYNTHESIS OF 2-AMINO-4-ARYL-3-CYANO-8-METHOXYCARBONYL-5-OXO-5,6,7,8-TETRAHYDRO-4*H*-CHROMENES BASED ON ESTERS OF 2-HYDROXY-4-OXO-6-ARYLCYCLOHEXENE-2-CARBOXYLIC ACID

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Introduction. Among chromene derivatives many compounds display a high level of different types of pharmacological activity (anti-inflammatory, antibacterial, anticoagulant, etc.) which causes the relevance of the synthesis of its new derivatives in order to find new biologically active substances.

Aim. Current research was aimed to synthesize esters of 2-hydroxy-4-oxo-6-arylcyclohexene-2-carboxylic acid by interaction of arylidene acetones with dimethyl malonate with further three-component interaction with aromatic aldehydes and malononitrile to obtaining new derivatives of 2-amino-4-aryl-3-cyanochromenes.

Materials and methods. Starting compounds and reagents: arylidene acetones, dimethyl malonate, aromatic aldehydes, malononitrile, triethylamine, ethanol. The methods of organic synthesis and IR-, ^{1}H, ^{13}C NMR spectroscopy, chromatography-mass spectrometry methods were applied in the course of the research.