ВЭЖХ-анализа. Контроль реакции осуществляли методом ТСХ (тонкослойной хроматографии). В ИК-спектрах синтезированных соединений присутствуют валентные колебания, соответствующие следующим группам ($см^{-1}$): CH (2880), NH_2 (3320, 3340).

В результате проведенных исследований был усовершенствован метод синтеза производных тиадиазолов, позволяющий значительно повысить выход целевых продуктов, а, следовательно, эффективно использовать их в качестве синтонов для получения новых субстанций лекарственных препаратов.

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AZOMETHINES BASED ON 2-AMINOTHIAZOLE AND ITS DERIVATIVES

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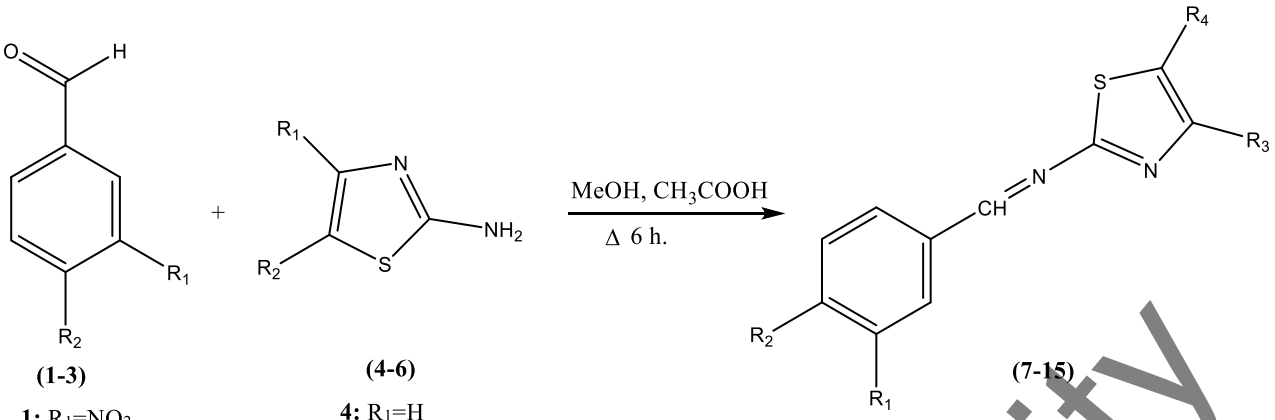
Thiazole derivatives serve as starting raw material for the production of valuable medicines, namely antibiotics, anti-allergic, anti-inflammatory, anticancer drugs [1-4]. Moreover, some azomethines synthesized based on aminothiazole derivatives possess high antituberculosis activity [5].

The aim of this work was to synthesize new azomethines (7-15) based on substituted benzaldehydes (1-3), 2-aminothiazole (4) and its derivatives (5, 6), as well as to predict the biological activity of the compounds obtained.



(1-3)

1: R_1=NO_2
R_2=H
2: R_1=H
R_2=NO_2
3: R_1=OCH_3
R_2=OH

(4-6)

4: R_1=H
R_2=H
5: R_1=H
R_2=NO_2
6: R_1=p-BrPh
R_2=H

(7-15)

7: R_1=NO_2
R_2=H
R_3=H
R_4=H
8: R_1=NO_2
R_2=H
R_3=H
R_4=NO_2
9: R_1=NO_2
R_2=H
R_3=p-BrPh
R_4=H

10: R_1=H
R_2=NO_2
R_3=H
R_4=H
11: R_1=H
R_2=NO_2
R_3=H
R_4=NO_2
12: R_1=H
R_2=NO_2
R_3=p-BrPh
R_4=H

13: R_1=OCH_3
R_2=OH
R_3=H
R_4=H
14: R_1=OCH_3
R_2=OH
R_3=H
R_4=NO_2
15: R_1=OCH_3
R_2=OH
R_3=p-BrPh
R_4=H

The obtained Schiff bases (7-15) are crystalline coloured substances. The structure of azomethines (7-15) was elucidated by Infrared spectroscopy. A clear band in the region of 1600-1612 cm^{-1} belonging to -N=CH group was detected in the IR spectra of all synthesized compounds.

In order to estimate the probability of different biological activities of the synthesized compounds (7-15), we carried out bioprediction using the PASS Online service. Thus, 2-aminothiazole (4) has antitumor activity with a confidence coefficient of 0.467, whereas 1-(4-nitrophenyl)-N-(thiazol-2-yl)methanimine (10) exhibits this activity with a higher coefficient of 0.583. 2-Amino-5-nitrothiazole (5) has anti-tuberculosis activity with a confidence coefficient of 0.493, and 1-(3-nitrophenyl)-N-(5-nitrothiazole-2-yl)methanimine (8) and 1-(4-nitrophenyl)-N-(5-nitrothiazole-2-yl)methanimine (11) have anti-tuberculosis activity with a confidence coefficient of 0.669 and 0.668 respectively. At the same time, Schiff bases (9, 12, 15) based on 2-amino-4-(*p*-bromophenyl)thiazole (6) have more pronounced anthelmintic activity compared to the parent compound.

Thus, we have synthesized 9 unknown azomethines based on 2-aminothiazole, its derivatives and various substituted aromatic aldehydes. Physico-chemical properties of the synthesized compounds have been studied. The azomethines (7-15) may find application as biologically active substances, which requires further in-depth study.

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EXPRESSION OF RECOMBINANT URIDINE PHOSPHORYLASE (UP) IN *PICHIA PASTORIS*

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Uridine phosphorylase (UP, EC 2.4.2.3) is a key enzyme in the pyrimidine salvage pathway, catalyzing the reversible phosphorolysis (transglycosylation) of uridine to uracil and ribose-1-phosphate. Recombinant uridine phosphorylase (UP) is widely applied for the biocatalytic synthesis of modified nucleosides, which have used as potential anticancer, antiviral and antibacterial drugs [1]. Modified nucleosides are heterocyclic nitrogenous bases of natural or synthetic origin containing monosaccharides - cyclic pentoses and can be synthesized by chemical or enzymatic methods, or a combination of these methods. Many preparations based on modified nucleosides are obtained by methods of multi-stage chemical synthesis, which has a number of significant drawbacks. At the same time, the use of recombinant nucleoside phosphorylases for the synthesis of modified nucleosides makes it possible to replace chemical synthesis with enzymatic synthesis and has proved to be highly effective [2].

For expression of recombinant UP in *Pichia pastoris* we have cloned the recombinant plasmid DNA pPICZαA-UP (4296 bp) containing the Urd gene (762