могут использоваться в медицине и других отраслях. Поэтому исследования в этой области весьма актуальны и перспективны.

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**Israyilova A.A., Huseynova Kh.E., Mamedova N.A., Shahmuradova A.A.,
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**The antibacterial activity of the 4-halogeno phenil 2-nitro benziliden hydrazine
derivatives**

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Hydrazones have been demonstrated to possess, among other, antimicrobial, anticonvulsant, and analgesic, anti-inflammatory, antiplatelet, antitubercular and antitumoral activities. For example, isonicotinoyl hydrazones are antitubercular; 4-hydroxybenzoic acid[(5-nitro-2-furyl)methylene]- hydrazide (nifuroxazide) is an intestinal antiseptic; 4-fluorobenzoic acid[(5-nitro-2-furyl)methylene]- hydrazide and 2,3,4-pentanetrione-3-[4-[(5-nitro-2-furyl)methylene] hydrazino] carbonyl]phenyl]- hydrazine, which have antibacterial activity against both *Staphylococcus aureus* ATCC 29213 and *Mycobacterium tuberculosis* H37Rv at a concentration of 3.13 µg/mL. Hydrazones possessing an azometine -NHN=CH- proton constitute an important class of compounds for new drug development [1-3]. These observations have been guiding for the development of new hydrazones that possess varied biological activities (Fig.1.).

Figure 1. General scheme the synthesis of hydrazine derivatives.

According to these results (E)-1-(4-bromophenyl)-2-(2-nitrobenzyliden) hydrazine (**1a**) and (E)-1-(4-fluorophenyl)-2-(2-nitrobenzyliden) hydrazine (**1b**) was synthesized [4] and the antibacterial activity studied against *A.baumannii*, *E.coli*, *K.pneumoniae*, *P.aeruginosa*, *S.aureus*, *B.megaterium*, *B.subtilis* by agar well diffusion assay (Fig.2.).

Figure 2. Hydrazine derivatives: (E)-1-(4-bromophenyl)-2-(2-nitrobenzyliden) hydrazine (**1a**); (E)-1-(4-fluorophenyl)-2-(2-nitrobenzyliden) hydrazine (**1b**).

The antibacterial activity of the prepared hydrazine derivatives (**1a** and **1b**) was screened against *Escherichia coli* BDU12, *Acenitobacter baumanii* BDU32, *Pseudomonas aeruginosa* BDU49, *Klebsiella pneumonia* BDU44, *Staphylococcus aureus* BDU23, *Bacillus subtilis* BDU50 and *Bacillus megaterium* BDU-N20 by agar well diffusion method [5-7]. The compounds were evaluated at a concentration of 0.25% in DMSO and the forming inhibition zone was measured. As shown in table Compound **1a** and **1b** showed moderate activity against all bacterial strains and better activity was detected only against *P.aeruginosa* BDU49.

Antibacterial activity of 4-halogeno phenil 2-nitro benziliden hydrazine derivatives (inhibition zone in mm)

Bacterial strains	Compounds		
	1a	1b	DMSO
<i>A.baumanii</i> BDU32	12.5±0.35	-	0
<i>E.coli</i> BDU12	-	11.5±0.35	4.3
<i>K.pneumoniae</i> BDU44	-	12.5±0.35	2.0
<i>P.aeruginosa</i> BDU49	19.0±1.41	21±1.41	0
<i>B.megaterium</i> BDU-N20	15.5±0.35	-	0
<i>B. subtilis</i> BDU50	13.5±0.35	-	0
<i>S.aureus</i> BDU23	-	14.5±0.35	0

From the results, it was revealed that the antibacterial activity of compound **1b** was better against *P.aeruginosa* BDU49 than compound **1a**. Compound **1a** was less active against *A.baumanii* BDU32 and *B.subtilis* BDU50 bacterial strains, while no inhibition was detected in case of *E.coli* BDU12, *K.pneumoniae* BDU44, *S.aures* BDU23. *E.coli* BDU12 and *K.pneumoniae* BDU44 was less sseptible against compound **1b**, however *A.baumanii* BDU32, *B.megaterium* BDU50, *S.aureus* BDU23 were inactive when tested with the compound **1b**.

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