

THE ANTIMICROBIAL ACTIVITY OF AMINO ACID DERIVATIVES

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Introduction. Taking into account the resistance of bacteria to antibiotics the WHO developed a global strategy on the problem of the growth inhibition of the antimicrobial resistance published in 2001. According to the WHO list of priority pathogens, *Pseudomonas aeruginosa* belongs to the 1st category of priority (a critical, high level of priority), and *Staphylococcus aureus* is in the second group (a high level of priority). Therefore, to create new antibiotics it is of interest to analyze the impact of derivatives of α -amino acids on some test strains for assessment of their antibacterial activity.

Aim. To determine the dependence of the antimicrobial activity on the nature of substituents the derivatives of alanine, serine, and threonine, as well as their N-hydroxymethyl, N,N-di(hydroxymethyl) and N,N-di(hydroxymethyl)-N-methyl derivatives were tested.

Materials and methods. The compounds studied were obtained from commercial sources or synthesized according to the synthetic methods previously developed. 1% aqueous solutions were tested in terms of the primary basis before modification.

Results and discussion. As the result of the preliminary microbiological studies it was found that the substituted amino acids showed the weak (*Escherichia coli*, *Proteus vulgaris*) or moderate (*Pseudomonas aeruginosa*) activity in relation to fungi and gram-negative microorganisms. Gram-positive bacteria are more sensitive to the action of the derivatives tested; moreover, the highest antimicrobial activity was shown by derivatives of threonine.

Conclusions. Based on the data obtained it follows that the chemically modified derivatives of α -amino acids mentioned above are promising for searching new compounds with the antimicrobial activity.