



Fund “Nauka” Project № 19026 Resume

“Determination of antimicrobial activity of novel nitroimidazole derivatives with potential application in transplantation medicine”

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The growing resistance of pathogens to drugs has become one of the most serious problem for medicine and public health.

Discussions about the global risk to life of millions of patients are increasing tremendously. Infections are one of the main reason for implant removal, although after an excellent invasive procedure/ operation.

The problem of “resistance” affects the individual patient and is the cause of failure therapy, rejection of the implant, extension of hospital stay and even lethal outcome for some cases.

In the last few years, the emergence of new types of resistance to clinically important antibiotics has made it even more difficult to manage with infectious agents.

Current data shows that if the rate continues to rise, through 2050 is possible the number of victims of infections to be 10,000,000 yearly-more than the number of neoplasms victim worldwide.

Searching for new biologically active compounds that have stronger antibacterial activity and a wider spectrum of action is necessary.

In most cases, the scientists rely on well-known compounds with proven therapeutic potential. Their purpose is to modify the molecules by replacing, removing or adding radicals to develop the desired new biological effects.

The synthesis and characterization of new substances with potential anti-infective and anti-tumor activity have a central role in modern medicine.

The scientists constantly looking for ways to decrease the toxicity of compounds by means of new mechanisms of action.

The project “Determination of antimicrobial activity of novel nitroimidazole derivatives with potential application in transplantation medicine” is a sequel of a project from Fund “Nauka” session 2018 – “Synthesis and characterization of novel nitroimidazole derivatives with potential biological effect. The main hypothesis of the project is that the novel nitroimidazole derivatives are going to demonstrate extended antimicrobial spectrum of activity compared to the most common nitroimidazole drugs spectrum.

It is provided to be determined and analyzed the activity of novel compounds against anaerobic and facultative anaerobic bacterial strains and fungi.

The aim of the project is to investigate the microbial sensitivity to novel nitroimidazoles with potential inhibitory activity on microbial growth of anaerobes, facultative anaerobes and fungi.

The scientific contribution of the project is modification of the basic chemical structures of nitroimidazoles, synthesis and analyzes of new nitroimidazole derivatives, determination of their microbial sensitivity as new drug molecules with potential application in the treatment of neoplasms and infections.