



Fund “Nauka” Project № 21012 Resume – Competitive-based Session 2021:

“Combination of essential oils from the Lamiaceae family and antibiotics,
reducing the microbial resistance against significant clinical isolates”

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The aim of this project is to evaluate the potential stronger effect of combinations of essential oils (members of the Lamiaceae family) with various antibiotics against medically significant clinical isolates. Increased antibiotic resistance is one of the serious problems for public health and medicine. In addition to all the strategies recommended by the WHO for the control and use of antibiotics, new alternatives are being sought to address the problem. Evolutionarily, plants have developed various mechanisms to protect against insects and microorganisms, synthesizing a number of chemicals and secondary antimicrobial metabolites. Essential oils obtained from members of the Lamiaceae family have a proven antimicrobial effect against a number of clinical isolates and reference strains such as: G (-) - *A. baumani*, *K. pneumoniae*, *E. coli*, *P. aeruginosa*; G (+) - *S. aureus*, *Tr. Rubium* and the fungus *C. albicans*. On the other hand, the combination of established antibiotics and essential oils increases the interest in studying the potential synergistic effect between them. Simultaneous application of such a two-component system could lead to multi-target action in the microbial cell, as the two active units attack different parts of it.