Abstract

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Title of thesis: Study of the interaction of newly synthesized compounds with bacterial agents.

Background: The aim of this thesis was to test antibiotic activity of substances produced by the Department of Inorganic and Organic Chemistry, Faculty of Pharmacy of Charles University in Hradec Králové.

Methods: Substances were tested by using microdilution broth method on eight strains of bacteria: *Staphylococcus aureus*, *Staphylococcus aureus* methicilin resistant, *Staphylococcus epidermidis*, *Enterococcus* sp., *Escherichia coli*, *Klebsiella pneumoniae*, *Klebsiella pneumoniae* ESBL positive and *Pseudomonas aeruginosa*.

Results: Substances were divided into five groups according to associated structural features. The most effective was the group of salicilanilid derivates. In this group, the bacterial effect of all 28 tested substances were shown.

Conclusion: The antibacterial effect was demonstrated in 50 from the total number of 73 tested compounds. The most susceptible strains were *Staphylococcus aureus, Staphylococcus aureus* methicilin resistant, *Enterococcus* sp. and *Staphylococcus epidermidis*. On the contrary, none of the tested compounds showed efficacy to the model strain *Pseudomonas aeruginosa*.

Key words: Minimal inhibitory concentration, microdilution broth method, antibiotics, biofilm, resistance.