ABSTRACT

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The aim of the theoretical part of this thesis is to summarize information regarding mycobacteria, mycobacterial infections and particularly their treatment. Infections caused by mycobacteria are widespread worldwide and a large part of the population is infected with them each year. The most common forms are pulmonary, but practically any organ of the human body can be affected. Although these diseases are treatable with combinations of antimycobacterial drugs, the number of cases with drug resistant forms of mycobacterial diseases is currently on the rise. Therefore, emphasis is placed on the development and testing of new drugs that would be able to treat these resistant forms of diseases in the future.

The experimental part is dedicated to testing newly synthesized antimycobacterial compounds that were tested using the microdilution broth method against five strains of *Mycobacterium* genus (*M. smegmatis*, *M. aurum*, *M. avium*, *M. kansasii* and *M. tuberculosis* H37Ra). The results are interpreted and evaluated in terms of the structure-activity relationship (SAR).

The compounds were divided into 7 groups according to their chemical structure. 52 out of 76 substances showed promising antimycobacterial activity. The most advantageous group in terms of chemical structure, appears to be derivatives of 1-hydroxy-1,3-dihydrobenzo[c][1,2]oxaborole and the most suitable substituents are halogens, trifluoromethyl and methyl.

Key words: Mycobacteria, Mycobacterioses, Antimycobacterials, Microdilution broth method, Minimum inhibition concentration