

# ABSTRACT

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Title of diploma: Atypical mycobacteria as causative agents of human diseases

The aim of this diploma thesis is to summarize the history of mycobacteria, their classification, epidemiology of nontuberculous infections, clinical significance, diagnosis, resistance, and treatment options. Within the epidemiology, the way of managing tuberculosis and non-tuberculous mycobacterioses is compared.

Mycobacterioses are rare diseases, which incidence is gradually increasing with the increasing number of immunocompromised patients. Based on the spot of infection, we divide them into lymphadenitis, skin lesions, lung disease and disseminated infections. The most frequently isolated pathogens are *Mycobacterium avium* complex, *Mycobacterium ulcerans*, *Mycobacterium abscessus*, *Mycobacterium marinum* and *Mycobacterium kansasii*.

The experimental part is devoted to the antimycobacterial activity of newly synthesized compounds, which could find application in the future in the treatment of tuberculosis and other mycobacterioses. Substance testing was performed on strains of the genus *Mycobacterium* (*M. smegmatis*, *M. aurum* and *M. tuberculosis* H37Ra) using the microdilution broth method. The thesis presents the evaluation of the obtained results and their interpretation in order to determine relationship between activity and structure of tested compounds.

The tested substances were divided into six groups, based on their structure. A total of 88 compounds were tested, of which a total of 20 substances showed antimicrobial activity. The group of substances, that show the biggest potential, are thiazolidine derivatives. The substituents that were likely to positively affect antimicrobial activity were probably chlorine, *tert*-butyl and hydroxy group.

**Key words:** Mycobacteria, Mycobacterioses, Antimycobacterial drugs, Microdilution broth method, Minimum inhibition concentration