ABSTRACT (ENGLISH)

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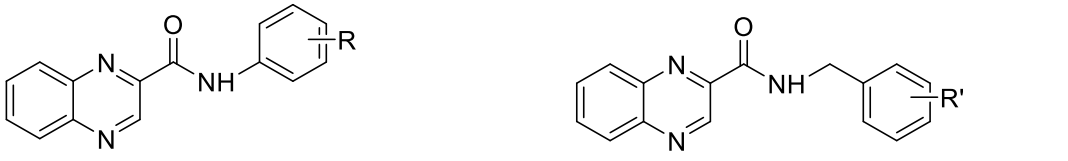
Title of diploma thesis: Derivatives of quinoxaline-2-carboxylic acid as potential antimicrobial compounds

Despite the presence of well-established treatment plan, tuberculosis remains the number one killer of infections according to WHO. One of the reasons behind this failure in eradicating this infection is drug resistance. This fact potentiates worldwide efforts to develop new antituberculars. As part of our long-term research on pyrazine derivatives, we prepared a series of *N*-substituted quinoxaline-2-carboxamides, refer to fig. below. Quinoxaline-2-carboxylic acid was activated by oxalyl chloride and reacted with different anilines or benzylamines in the presence of pyridine at room temperature, overnight with stirring, and then obtained crudes were purified with flash chromatography. Final products were evaluated for *in vitro* antimicrobial activities against six mycobacterial strains, eight fungal stems, along with four gram positive and four gram negative bacteria of clinical importance. The most promising compound among all with broad spectrum of antimycobacterial activity ($MIC_{MtbH37Ra}$ = 3.91 µg/mL, $MIC_{MtbH37Rv}$ = 50 µg/mL, $MIC_{M.\ kansasii}$ = 50 µg/mL, $MIC_{M.\ avium}$ = 50 µg/mL, $MIC_{M.\ aurum}$ = 125 µg/mL, $MIC_{M.\ smegmatis}$ ≥ 250 µg/mL) and high selectivity index (SI =16.1) was *N*-(4-methoxybenzyl)quinoxaline-2-carboxamide (JZAS-9).



R = H, 3-CF_3, 3-OH, 4-OH, 3,5-diOCH_3

R' = H, 2-Cl, 2-CH_3, 3-Cl, 3-F, 3-CF_3, 4-CH_3, 4-OCH_3, 4-OH, 2,5- diOCH_3, 3,5-diOCH_3

Fig. The chemical structures of title compounds.