Abstract

The importance of the searching for novel antimycobacterial active agents is continually increasing with growing mycobacterial resistance to currently used drugs. However, the resistance-related problems are also associated with other bacteria and fungi. The systematic modification of compounds with a known antimicrobial activity represents one of the possible approaches to overcome this problem. Sulphonamide derivatives may be considered to be such a kind of compounds. That is why we synthesized various sulphathiazole derivatives. Amides were obtained by the reaction of sulphathiazole with appropriate acyl chlorides, substituted ureas from corresponding isocyanates. These ureas were cyclized *via* oxalyl chloride to form substituted 2,4,5-trioxoimidazolidines.

Among derivatives evaluated for their antimycobacterial action, 4-(3-phenethylureido)-*N*-(thiazol-2-yl)benzenesulphonamide showed the highest activity. Its minimum inhibitory concentrations (MIC) against *Mycobacterium tuberculosis* My 331/88 (4 μmol/l) were superior to those obtained for sulphathiazole. In the case of nontuberculous mycobacteria (*M. avium* My 330/88, *M. kansasii* My 235/88 and *M. kansasii* My 6509/96), their activities were comparable (≥ 2 μmol/l). Amides showed also a significant antimycobacterial activity, especially against *M. tuberculosis*.

All of the newly synthesized compounds were investigated for their antibacterial and antifungal activities. However, any modification of parent sulphathiazole did not lead to substantially decreased MIC values.