PETRA HIRŠOVÁ: Derivatives of Thiazole as Potential Drugs. Diploma Thesis, Department of Pharmaceutical Chemistry and Drug Control, Charles University in Prague, Faculty of Pharmacy in Hradec Králové, 2008

Abstract

Within this diploma thesis, condensation products of *N*-substituted rhodanine and arylcarbaldehydes were prepared. According to the character of *N*-substituent, the reaction was carried out in either water-alcoholic medium using NH_4OH/NH_4Cl as a catalyst or glacial acetic acid with sodium acetate and acetic anhydride. Antifungal activity of prepared substances was tested against eight pathogenic fungal strains (*Candida albicans* ATCC 44859, *Candida tropicalis* 156, *Candida krusei* E 28, *Candida glabrata* 20/I, *Trichosporon asahii* 1188, *Aspergillus fumigatus* 231, *Absidia corymbifera* 272 and *Trichophyton mentagrophytes* 445) by the microdilution broth method. Strong inhibition effect (MIC/IC_{80} = 0,98 – 1,95 μmol.l^{-1}) against *Trichosporon asahii* and non-albicans strains of *Candida* was found with [4-oxo-5-(pyridin-2-ylmethylidene)-2--thioxothiazolidin-3-yl]acetic acid.

Next, a series of arylmethylidenhydrazonothiazolidin-4-ones was prepared. First, thiosemicarbazones were synthesized from arylcarbaldehydes. These thiosemicarbazones then reacted with monochloroacetic acid in ethanol and gave thiazolidine-4-one derivatives. Products were tested for antifungal activity as well. The medium antifungal activity (MIC/IC_{80} = 15,62 – 62,5 μmol.l^{-1}) against most of the strains was observed with 2-[(pyrazin-2-ylmethylidene)hydrazono]thiazolidin--4-one. 2-[(Pyridin-2-yl-methylidene)hydrazono]thiazolidin-4-one inhibited growth of all tested fungal strains (MIC/IC_{80} = 3,9 – 62,5 μmol.l^{-1}).

All prepared substances were characterized by NMR and IR spectra. Their purity was checked by the elemental analysis and HPLC.