

ABSTRACT

Jana Štvrtecká

Evaluation of activity of potential antifungal substances through the use of microdilution broth method I

Diploma thesis

Charles University in Prague, Faculty of Pharmacy in Hradec Kralové

Medical bioanalytic

The aim of this thesis is to evaluate the potential *in vitro* antifungal activity of selected drugs synthesised on the Department of Pharmaceutical Chemistry and Drug Control and on the Department of Anorganic and Organic Chemistry on the Faculty of Pharmacy in Hradec Kralové.

For drug testing was used the microdilution broth method. The tested compounds were tested on followed five yeast strains and three filamentous fungi models which are pathogenic for humans: *Candida albicans* ATCC 44859, *Candida tropicalis* 156, *Candida krusei* E28, *Candida glabrata* 20/I, *Trichosporon beigeli* 1188, *Aspergillus fumigatus* 231, *Absidia corymbifera* 272, *Trichophyton mentagrophytes* 445.

80 compounds were divided into 10 groups according to their chemical structures: anilides of pyrazin carboxyl acids, arylamin pyrazines, pyrazin carboxyl acid esters, pyrazine-2,3-dinitriles, benzoxazepin-diones, diamides, styryl benzoxazoles, derivatives of (Z)-5-arylmethyliden-2-thioxothiazolidin-4-on, ester derivatives of cholesterol and alcan acids and derivatives of thiosalicylamides.

The highest antifungal activity was observed in group of derivatives of thiosalicylamides. Advantage of this group of substances was substitution by chlorine and bromine. Whereas the least antifungal effect was found in groups of anilides of pyrazin carboxyl acids, arylamin pyrazines, pyrazin carboxyl acid esters and styryl benzoxazoles.

The most effective derivatives of thiosalicylamides were compounds T5622, T5625 and T5620; from ester derivatives of cholesterol and alcan acids the compound T6056 and from pyrazine-2,3.dinitriles the compound VL1-C1.

Trichophyton mentagrophytes 445 was the most susceptible and most inhibited strain out of all of the tested strain models.

Nevertheless, it is not possible to deduce the final conclusions from our results. For confirmation of *in vitro* activities it would be necessary to provide some more tests in a broad strain specificity.