

ABSTRACT

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Work title: Advanced methods for testing antimicrobial activity

Goal: The aim of the work in the theoretical part was to summarize methods of antimicrobial screening focusing on antimycotics and in the practical part to evaluate the antifungal activity of 47 tested substances using the microdilution broth method.

Methods: The substances were tested using quantitative microdilution broth method on eight strains of yeast and fibrous fungi. These were *Candida albicans*, *Candida krusei*, *Candida parapsilosis*, *Candida tropicalis*, *Aspergillus fumigatus*, *Aspergillus flavus*, *Absidia corymbifera* and *Trichophyton interdigitale*.

Results: The highest antimycotic activity was demonstrated by compound Ac-0a, where we recorded after 24 hours of incubation activity against all eight strains. However, it was not able to stop the growth of three strains after 48 hours of incubation, the strains concerned were *Candida parapsilosis*, *Aspergillus fumigatus* and *Aspergillus flavus*. Other samples which have shown activity were Cl-2, where activity was observed for *Candida krusei*, *Aspergillus fumigatus* and *Trichophyton interdigitale* strains, Cl-3 for all strains except *Aspergillus flavus* and *Absidia corymbifera* and the last active substance Cl-10, where the activity was recorded for *Candida albicans*, *Candida krusei*, *Candida parapsilosis* and *Trichophyton interdigitale* strains. Other substances have shown no activity. The most sensitive strain was *Trichophyton interdigitale*, on the other hand the most resilient strains were *Aspergillus flavus* and *Absidia corymbifera*.

Conclusion: In order to tested substances with proven antimycotic effect (Cl-2, Cl-3, Cl-10, Ac-0a) to be used in clinical practice, further testing and clinical trials would be needed.

Key words: fibrous fungi, yeast, antimycotic drugs, resistance, minimal inhibitory concentrations