IN VITRO TESTING OF SALICYLANILIDE DERIVATIVES AGAINST SOME FUNGAL AND BACTERIAL STRAINS

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Abstract

Twelve N-(2-bromo-phenyl)-2-hydroxy-benzamide and N-(4-bromo-phenyl)-2-hydroxy-benzamide derivatives were tested for antimicrobial activity against 6 bacterial strains, *S. aureus* (ATCC 25923), *E. coli* (ATCC 25922), *P. aeruginosa* (ATCC 27853), *S. pyogenes* (ATCC 19615), *S. flexneri* (ATCC 12022), *S. typhimurium* (ATCC 14028) and 2 fungal strains, *C. albicans* (ATCC 10231), *C. parapsilopsis* (ATCC 22019), using the Disk diffusion method for susceptibility testing, according to the Standard Rules for Antimicrobial Susceptibility Testing using Impregnated Disks [1]. *In vitro* testing was performed in plates, containing microcomprimates with Nystatin for the antifungal activity and Gentamicin for the antimicrobian activity as positives controls, alongside blank filter papers impregnated with DMSO as negatives controls and filter papers impregnated with 10 µL of 20 g/L stock solution of each compound. A 10^{-2} dilution of the fresh *Candida* cultures and a 10^{-2} fresh bacteria culture was used to perform the assay, an inoculum equivalent to a 0.5 McFarland standard. The Petri plates so seeded and the respective specimens with the extract were incubated at 30 °C for *Candida* species and 37 °C in case of the bacterial strains, for 24-48 hours. Tests were performed in duplicate. Finally, the interpretation of the result, the ratio of the antimycotic and antibacterial effect of the tested compounds, was achieved by measuring the diameter of the analyzed culture inhibition zones (including the diameter of the disc – 5mm) in millimeters. The results are presented as the average of three determinations as well as the standard deviation and a percentage representation of the efficacy of the compounds in relation to the effectiveness of the positive control. The tested compounds presented no effect against *S. aureus*, *S. flexneri*, *S. typhimurium* and *C. parapsilopsis* at the tested concentration. The results indicated that the N-(2-bromo-phenyl)-2-hydroxy-benzamide derivatives were more active against the tested microbes, inhibition zones of 6-10 mm being obtained, although the most effective compound against *S. pyogenes* proved to be N-(4-bromo-phenyl)-2-hydroxy-benzamide (14 mm inhibition zone).

Key words: N-(2-bromo-phenyl)-2-hydroxy-benzamide derivatives, N-(4-bromo-phenyl)-2-hydroxy-benzamide derivatives, antibacterial effect, antimycotic effect, disk diffusion method

References

[1] I. Cavalieri, J. Stephen, in: M.B. Coyle (Coord. Editor), Manual of Antimicrobial Susceptibility Testing, American Society for Microbiology, 2005, pp. 39.