

E0177 Anti-fungal activity of noval cobalt complexes on pathogenic *Candida albicans* strains

Omar Sadik Shalal*^{1,9}, Mariana Carmen Chifiriuc², Othman Thamer Almahdawy^{7,8}, Dunya Alkurjia², Lia-Mara Ditu³, Otilia Banu⁶, Rodica Marioara Olar⁵, Mihaela Badea⁴

¹ICUB, Microbiology, BUCHAREST, Romania, ² Microbiology, BUCHAREST, Romania, ³faculty of biology, Microbiology, BUCHAREST, Romania, ⁴faculty of chemistry, BUCHAREST, Romania, ⁵faculty of chemistry, BUCHAREST, Romania, ⁶Institute of Cardiovascular Diseases Prof. C.C. Iliescu, Microbiology, BUCHAREST, Romania, ⁷University of Bucharest-Faculty of Biology, Department of Microbiology and Immunology, ⁸Research Institute of the University of Bucharest, Bucharest, Romania, ⁹Research Institute of the University of Bucharest-ICUB, Department of Botany-Microbiology, Romania

Background: *Candida albicans* opportunistic pathogen is the fourth leading cause of nosocomial bloodstream infections, occurred particularly in immunocompromised patients. Its ability to form biofilms on different medical devices is associated with a high level of resistance to current antifungals and plays an important role in the chronicization and persistence of these infections. Therefore, there is an acute need for the development of new antifungal agents. **The aim** of this study was to assess the antifungal activity of new cobalt complexes on *Candida albicans* planktonic cells and biofilms.

Materials/methods: In these experiments, nineteen *C. albicans* strains isolated from different clinical sources were tested. The fungal strains were cultured on Sabouraud's dextrose agar (Oxoid) for 24h. The new cobalt complexes were prepared as stock solutions in dimethyl sulfoxide (DMSO) and tested for their minimal inhibitory concentrations (MIC) and minimal biofilm eradication concentrations (MBEC) by the liquid microdilution and by the microtiter method, respectively.

Results: The new cobalt complexes exhibited different efficiencies against the planktonic cells, with MIC values of the tested derivatives ranging from 1.25 to 0.625 mg/mL, while their MBEC from 0.132 to 0.625 mg/mL.

Conclusions: The obtained cobalt complexes yield promising antifungal activity, being active both against planktonic and biofilm cells. However, further study regarding the mechanisms of their antifungal activity as well as detailed knowledge of toxicity profiles, bioavailability, formulations, and drug interactions are needed.