ANTIFULGAL EFFECT OF REDUCED GRAPHENE OXIDE- SILVER NANOCOMPOSITES AGAINST CANDIDA KRUSEI

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RESUMO

ANTIFULGAL EFFECT OF REDUCED GRAPHENE OXIDE- SILVER NANOCOMPOSITES AGAINST *CANDIDA KRUSEI GOTTARDO, BIANCA [1]; ZOCCAL, A [1]; PASIANI, MARIO H.[2]; ALMEIDA, MARGARETE[3]; VOLANTI, DIOGO[1]*
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INTRODUCTION In recent decades the opportunistic fungal infections have increased, due to rising quantity of immunocompromised patients in our society. *Candida krusei* is a fungus that can cause a wide range of infections, which are difficult to treat, due to its intrinsic resistance to drugs commonly used in clinical practice, for example, the azoles. Nanostructured materials have been developed as alternative treatments of infectious diseases, exhibiting high antimicrobial activity, low toxicity and biocompatibility. The reduced graphene oxide has a bidimensional structure, high contact surface area and low toxicity. In addition, the silver works as an antimicrobial agent. **OBJECTIVE** The aim of this work was to evaluate the antifungal activity of reduced graphene oxide-silver (Ag/rGO) nanocomposites (NCs) with different Ag percentage (8%,10% and 12%), and its toxicity in vivo model *Galleria mellonella.* **METHODS** The strain of *Candida krusei*, from Microbiology Laboratory of the Medical School of São José do Rio Preto - FAMERP, were activated on Sabouraud dextrose agar and incubated at 30 ° C for 24 hours. To determine the minimal inhibitory concentration (MIC) of the NCs, susceptibility testing was conducted by the microdilution method, based on document M27-A3 of the Clinical and Laboratory Standards Institute conducted by the microdilution method (document M27-A3). Moreover, a toxicity assay was performed in a *in vivo* model (*Galleria mellonella*), by inoculating and bathing with the same NCs concentration used in the previously cited microdilution tests. **RESULTS** The highest activity was observed for the NC with 12% silver, MIC of 1,9 µg/mL. No toxicity was observed in the *in vivo* model for any of the NCs in any concentration tested.**CONSLUSION** These results show that Ag/rGO NCs acted efficiently against this clinical sample of *Candida krusei*. Finally, this study contributes to the knowledge of biophysiochemical interactions at the nano-bio interface between Ag-rGO NCs and *Candida krusei.*

PALAVRAS-CHAVE: antifungal, candida, nanoparticles

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