



DETERMINATION OF THE ANTIFUNGAL AND ANTIBIOFILM ACTIVITY AND THE MECHANISM OF ACTION OF THE EXTRACT AND FRACTIONS OF *Myrcia neoobscura* AGAINST CLINICAL STRAINS OF *Candida* spp.

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INTRODUCTION

Infections caused by yeasts of the genus *Candida* are among the main causes of nosocomial infections in humans and are responsible for high morbidity and mortality rates. With the scarcity of therapeutic options and the increase in resistance to antifungal drugs, new treatment options are needed. Natural products are an important source of resources for obtaining bioactives and developing drugs for various diseases. *Myrcia neoobscura* is an endemic plant of the Atlantic Rainforest, belonging to the genus *Myrcia*, several of whose species have demonstrated important antifungal activities.

MATERIAL AND METHODS

Determination of antifungal activity was carried out with clinical strains of *C. albicans*, *C. glabrata*, *C. krusei* and *C. tropicalis* using the broth microdilution methodology, and tested against the hydroalcoholic crude extract and fractions of *M. neoobscura* leaves. With these results obtained, the biofilm-forming capacity, the

antibiofilm activity of *M. neoobscura* and the mechanism of action involved in the sensitive strains were determined.

RESULTS

All *M. neoobscura* samples tested showed strong antifungal activity against *C. krusei*, especially the aqueous fraction with MIC of 7.81 µg/mL. The compounds were inactive against the other strains (>1000 µg/mL). When determining the mechanism of action, biofilm formation and antibiofilm activity, only the *C. krusei* strain was used, as it was the only one sensitive to the *M. neoobscura* samples. Analysing the mechanism of action, it is suggested that the *M. neoobscura* act on the fungal membrane and on the cell wall. Regarding the biofilm formation, *C. krusei* showed moderate biofilm formation. The extract and all the fractions of *M. neoobscura* at MIC and MICx2 concentrations had an action against the mature biofilm of *C. krusei*, where all showed a significant difference ($p < 0.01$) in relation to the negative control,





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with no significant difference between the different concentrations.

CONCLUSIONS

M. neoobscura leaves showed activities with strong potential for antifungal and antibiofilm use against *C. krusei*. Also, two possible different modes of actions were found. These results can be explained by the abundant presence of phenolic compounds, such as flavonoids and flavonols, in the *M. neoobscura* leaves.

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