



## DETERMINATION OF ANTIFUNGAL ACTIVITY, MECHANISMS OF ACTION AND ANTIBIOFILM CAPACITY OF CRUDE HYDROALCOHOLIC EXTRACT AND FRACTIONS OF *MYRCIA NEOOBSCURA* LEAVES AGAINST *CANDIDA KRUSEI*.

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Infections caused by yeasts of the genus *Candida* are responsible for high morbidity and mortality rates. *Candida krusei* has intrinsic resistance to fluconazole and can quickly acquire resistance to other antifungals. Biofilm formation is one of the main virulence factors of the genus, decreasing susceptibility to antifungals and being associated with increased mortality. 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. The objective was to evaluate the antifungal activity of the crude hydroalcoholic extract and ethyl acetate, aqueous, insoluble, hexane and dichloromethane fractions of *M. neoobscura* leaves against *C. krusei*, determine the mechanisms of action, evaluate the biofilm formation capacity of *C. krusei* and the antibiofilm action of *M. neoobscura*. Determination of antifungal activity was carried out with a clinical strain of *C. krusei* using the broth microdilution methodology and tested against the extract and fractions of *M. neoobscura* leaves. With these results obtained the mechanisms of action, the biofilm-forming capacity and the antibiofilm activity of *M. neoobscura* were determined. All *M. neoobscura* samples tested showed strong antifungal activity against *C. krusei*, especially the aqueous fraction with MIC of 7.81 µg/mL. Analysing the mechanisms of action, it is suggested that *M. neoobscura* may act simultaneously on the fungal membrane and cell wall. Regarding the biofilm formation, *C. krusei* showed moderate biofilm formation. The extract and all fractions of *M. neoobscura* at MIC and MICx2 concentrations showed antibiofilm capacity against *C. krusei* mature biofilm, with a significant difference ( $p < 0.01$ ) in relation to the negative control and no significant difference between different concentrations. *M. neoobscura* 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 *M. neoobscura* leaves.

**Keywords:** *Candida*, biofilm, *Myrcia neoobscura*, bioprospecting, antifungal

