

Título: EFFECT OF THE *Eugenia uniflora* EXTRACT ON BIOFILM FORMATION OF *CANDIDA* SPP. FROM THE ORAL CAVITY OF KIDNEY TRANSPLANT RECIPIENTS

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Resumo:

Candidiasis is a major oral manifestation in kidney transplant recipients. *Candida* spp. possesses essential virulence factors which contribute for the infectious process, including the ability to form biofilm. Biofilms are communities of microorganisms attached to either biotic or abiotic surfaces, embedded in a matrix of extracellular polymeric substance difficult to eliminate. Biofilm formation is a potent virulence factor of *Candida* species, once it confers significant tolerance to antifungal therapy, mainly by limiting the penetration of substances through the extracellular matrix. The extract obtained from the leaves of *Eugenia uniflora* [acetone: water (7:3, v/v)] has demonstrated antifungal activity against *Candida* spp. This study evaluated the influence of the *E. uniflora* extract on biofilm formation of 42 strains of *Candida* spp. isolated from the oral cavity of kidney transplant patients. *Candida* spp. strains belonging to a culture collection were reactivated and re-identified. For the virulence tests evaluated *in vitro*, yeasts were grown in the presence and absence of 1000 µg/mL of the extract. Biofilms were formed on polystyrene microtiter plates in the presence or absence of the extract. The quantification was performed with crystal violet staining at 570 nm. All *Candida* species analyzed were able to produce biofilm in the absence of *E. uniflora* extract, while *C. tropicalis* strains showed remarkable biofilm formation. We could detect that the extract of *E. uniflora* was able to reduce biofilm formation for both *Candida albicans* and non-*Candida albicans* *Candida* species. Most of isolates which showed a significant reduction in biofilm formation belonged to *C. albicans*. However, some isolates of *C. dubliniensis*, *C. glabrata*, *C. tropicalis*, and *C. metapsilosis* also showed impaired biofilm formation in the presence of the *E. uniflora* extract. Nevertheless, 16 *Candida* spp. strains (36 %) showed a statistically significant reduction in biofilm formation. In addition, two highly biofilm producer strains of *C. tropicalis* had an expressive reduction in biofilm formation (Strain 77: OD₅₇₀ nm 1.82 ± OD₅₇₀ nm 0.21 vs 0.27 ± 0.10 ; Strain 30 LA OD₅₇₀ nm 2.00 ± 0.13 vs OD₅₇₀ nm 0.47 ± 0.02). This study reinforces the idea that *E. uniflora* extract may interfere with the expression of virulence factors of *Candida* spp., and may be possibly applied in the future as a novel antifungal agent.

Keywords: *Candida* spp., oral candidiasis, kidney transplant recipients, virulence factors, *Eugenia uniflora*

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