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


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 microwell 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

Agência de Fomento: CAPES