

TITLE: INFLUENCE OF THE *Eugenia uniflora* EXTRACT ON CELL SURFACE HYDROPHOBICITY OF *Candida albicans* STRAINS OBTAINED FROM KIDNEY TRANSPLANT PATIENTS WITH ORAL CANDIDIASIS

AUTHORS: Souza, L. B. F.C.¹; Silva-Rocha, W. P.¹; Ferreira, M. R. A.³; Soares, L.A.L.³; Svidzinski, T. I. E.⁴; Milan, E. P.²; Chaves, G. M.¹.

INSTITUTIONS: ¹ Universidade Federal do Rio Grande do Norte, Natal, RN, Brasil (Rua Gal. Gustavo Cordeiro de Faria, S/N, Petrópolis);

² Universidade Federal de Pernambuco, Recife, PE, Brasil (Rua Prof. Arthur de Sá, S/N, Cidade universitária);

³ Universidade Estadual de Maringá, Maringá, PR, Brasil (Avenida Colombo, 5790)

ABSTRACT

Oral candidiasis is a superficial *Candida* infection commonly found in the elderly, denture wearers and immunocompromised host. *Candida albicans* is the most frequently isolated species which possess essential pathogenicity factors that may contribute for the infectious process. Cell surface hydrophobicity (CSH) is an important virulence factor that has a significant role in the pathogenesis of *Candida* spp. 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 cell surface hydrophobicity of 28 *C. albicans* strains isolated from the oral cavity of kidney transplant patients. Yeast strains belonging to our culture collection were reactivated and re-identified. For the virulence test evaluated *in vitro*, yeasts were grown in the presence and absence of 1000 µg/mL of the extract. Cell surface hydrophobicity was measured with *Candida* adhesion ability to hydrocarbon (xylene). *Candida* isolates were cultured in YNB (Yeast Nitrogen Base) medium for 18 h at 37°C, with the absorbance adjusted to 1.0 at 600 nm. For each strain, 2 ml of the cell suspension were added to clean glass tubes. In each test tube, 0.4 mL of xylene was added and the tubes were incubated in a water bath at 37°C for 10 minutes, then vortexed for 30 seconds and re-incubated for another 30 minutes to separate the aqueous phase and xylene. The aqueous phase, was carefully aspirated and transferred to clean tubes. The absorbance of the test and control tubes was measured at 520nm. The CSH was calculated by the the following equation: $[(Co-CH) / Co] \times 100$, where Co represents the OD_{520nm} of the control tube and CH represents the OD_{520nm} of the test tube. Each strain was tested in triplicate. We could detect that the extract of *E. uniflora* was able to reduce the CSH values of *C. albicans* from oral cavity of kidney transplant patients. Most of isolates showed a variable reduction of CSH. However, the comparison of test and control means showed a statistically significant reduction in the presence of *E. uniflora* extract (25.5 ± 0.7 vs 16.9 ± 0.8; p<0.05). CSH is a crucial factor for adhesion of *C. albicans* to biotic and abiotic surfaces. Thus, the reduction of CSH by *E. uniflora* extract is a relevant finding and this natural product may be used in the future to extend the therapeutic options to treat oral candidiasis.

Keywords: *Candida albicans*, cell surface hidrophobicity, *Eugenia uniflora*, oral candidiasis