

Effect of Root Extracts of *Pongamia pinnata* on Cell Surface Hydrophobicity of *Candida* spp.

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Candida is a dimorphic fungus that causes opportunistic infections. Cell surface hydrophobicity (CSH) of *Candida* plays an important role in the pathogenicity of the organism as it is a key factor for the adhesion of the candidal cell to the host tissue. Our previous findings revealed a significant anti-candidal activity of the root extract of plant *Pongamia pinnata* ("karanda"/ "pongam") which is popular in Sri Lankan traditional medicine. Hence, this study aimed to evaluate the effect of root extracts of *P. pinnata* on CSH of *Candida* spp.

Root extract of *P. pinnata* was prepared using 75% ethanol and the extract was evaporated and freeze dried. CSH of five different candidal isolates (MIC were previously determined) were evaluated under five different concentrations [Minimum Inhibitory Concentrations (MIC), 1/2 x MIC, 1/4 x MIC and 1/8 x MIC] of the freeze dried extract. Data were analysed using analysis of variance (ANOVA) and means were separated by Tukey test at P<0.05.

Among the five isolates subjected to the assay, *Candida dubliniensis* was the most hydrophobic followed by *Candida guilliermondii*. The hydrophobic affinity of *Candida albicans* (ATCC 90028 and the wild type strain) and *Candida parapsilosis* was relatively low. The effect of *P. pinnata* on the CSH was concentration dependent. *C. albicans* (ATCC 90028), *C. albicans* (wild type) and *C. dubliniensis*, showed a significant reduction (P<0.05) in their CSH when treated with 1/8 MIC, which was the lowest concentration used in the study. Negative CSH were observed for *C. guilliermondii* at 1/4 MIC, while a negative CSH was observed for the other isolates when they were treated with 1/8 MIC. Negative CSH may be an indication of the hydrophilic behavior of the organism which makes the organism less virulent.

Capability of root extract of *P. pinnata* to influence CSH could be due to its potential in altering the surface characteristics of the organism. Its ability to make a significant reduction in the CSH at concentrations even below the MIC will assist the control of the pathogen instead of its complete inhibition. Since *Candida* is a commensal fungus, usage of sub-inhibitory concentrations will help maintain the balance of the host microflora while controlling pathogenicity of the organism. However, purification of the active compound of the root extract and evaluation of its effect on CSH of *Candida* spp. is needed.

The results suggest that root extract of *P. pinnata*, has a potential in reducing CSH of *Candida* spp, even below their MICs. This will result a reduction in the hydrophobic binding capacity of the organism when treated with the extract.