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***In vitro* antifungal susceptibility test using micro-broth dilution method of Amphotericin B, Fluconazole, Voriconazole and Ketoconazole against *Candida rugosa* biofilm**Priya Madhavan¹, Sri Raja Rajeswari Mahalingam¹, Eng Hwa Wong¹, Pei Pei Chong¹, Leslie Than² and Mohd Nasir²¹Taylor's University, Malaysia²University Putra Malaysia, Malaysia

Statement of the Problem: The virulence of *Candida* species is due to repertoire of factors, specifically, the ability to form biofilms. Medical devices such as intravenous catheters, prosthetic heart valves and orthopedic implants provide pathogenic microorganisms with a surface to adhere to form biofilm. Fungi present as biofilms are often resistant to antifungal treatment because these biofilms offer a protective barrier that prohibits the drugs to get to the drug acting sites of the fungi. The objective of this study is to investigate the architecture of the biofilms of *Candida rugosa* using confocal scanning laser microscopy (CSLM) and antifungal susceptibility patterns of *Candida rugosa* biofilm at three-time points: 24, 48 and 72 hours towards fluconazole, voriconazole, itraconazole and amphotericin B.

Methodology & Theoretical Orientation: CSLM was used to visualize *Candida rugosa* biofilms at 1.5, 6, 12, 18, 24, 48, 72 and 96 hours for two clinically isolated strains of *Candida rugosa*. For the antifungal susceptibility test, a total of nine clinically isolated strains of *Candida rugosa* were grown in RPMI-1640 medium at 37°C at 24, 48 and 72 hours in 96 microliters well plates. The antifungal susceptibility test was performed using a broth microdilution method according to the M27-A3 guidelines for yeasts. The biochemical quantification of *Candida* biofilms was performed by the 2,3-bis (2-methoxy-4-nitro-5-sulphophenyl)-5-[(phenylamino)carbonyl]-2H-tetrazolium hydroxide (XTT Assay) reduction assay.

Findings: From the CSLM images, the mature *Candida rugosa* biofilms consisted of a dense network of yeasts cells and pseudo-hyphal elements at 24, 48 and 72 hours. *Candida rugosa* biofilm at all the time points were less susceptible to all the antifungal treatment and exceeded the recommended concentrations. From the antifungal susceptibility test, the biofilms are resistant to fluconazole at >64 µg/mL and >16 µg/mL for amphotericin B, voriconazole and itraconazole, respectively.

Conclusion & Significance: In conclusion, the ability of *Candida rugosa* to form biofilms may attribute to the resistance towards the antifungals.

Biography

Priya Madhavan has developed expertise in antimicrobial and anticancer activities from natural products, host-pathogen relationships, drug resistance in microorganisms, infectious and metabolic diseases. Having had experience in a various fields, she continues to contribute her knowledge in teaching undergraduates and postgraduates. Her professional Memberships include Malaysian Microbiology Society, Malaysian Society of Tropical Medicine and Parasitology, American Society of Microbiology (ASM), European Society of Clinical Microbiology and Infectious Diseases (ESCMID) and International Society of Human and Animal Mycology (ISHAM). She is currently involved in the research groups, i.e. Ageing and Quality of Life, Infectious Diseases, Cancer Innovation and Metabolic Research, Experimental Medicine Research.

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