3rd International Conference on
Diagnostic Microbiology and Infectious Diseases
September 24-25, 2018 | Montreal, Canada

Development of single Pan-fungal yeast PCR detection of a broad range of pathogenic yeast species of medically important

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Background: Detection methods based on the polymerase chain reaction (PCR) technique have been effectively used for *Candida* species and other fungal pathogens. However, most of the published PCR primers are not fungal yeast specific, therefore; diagnostic approaches covering a large number of pathogenic yeast species are of particular importance.

Objectives: This study aimed to develop a Pan-Fungal yeast PCR detection method that is accurate and highly specific in detecting *Candida* species and other yeast of medical importance.

Methods: Pan-Fungal yeasts primers were designed based on the conserved sequences found in all the *Candida* and yeasts species using random amplification. DNA was extracted from 13 ATCC strains of *Candida* species, *Pichia pastoris* strain GS115, 2 clinical isolates of *Cryptococcus* species and 4 *Aspergillus* species, while some bacterial and human cells from the buccal cavity were used to confirm the specificity of the designed Pan-Fungal yeasts primers.

Results: This assay demonstrates the effectiveness of the designed Pan-Fungal yeast primer to amplified DNA from *Candida* species and other yeast but not *Aspergillus*. Therefore, it might be used to differentiate medically important fungal yeasts pathogens from *Aspergillus* with a detection limit as low as 10fg of fungal yeasts DNA.

Conclusion: The Pan-Fungal yeast PCR developed in this study has provided an accurate, rapid and reproducible method for detecting the most common strains of fungal yeasts and differentiating them from *Aspergillus*.

Biography

Nabil has completed his PhD in 2011 from University Putra Malaysia and postdoctoral research fellowship for two years at University Putra Malaysia, Faculty of Medicine and Health Sciences. He is a senior Lecturer at Asia Metropolitan University, Faculty of Medicine and the course coordinator of MBBS program (preclinical). He has published more than 22 papers in reputed journals and has a patent on Developing a Molecular Technique for Detection of Candida species which was granted in Malaysia in 2018.

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