



USE OF A MULTIPLEX PCR TO IDENTIFY CANDIDA SPECIES IN CONCENTRATED ORAL RINSE SAMPLES OF PATIENTS WITH DIABETES

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Oral candida infections are most frequently observed in patients with diabetes. As diabetes has become the number one non communicable disease in Sri Lanka, oral candida infections are an emerging problem. Although *Candida albicans* is the predominant pathogen in oral candidiasis multiple *Candida* species involvement is common. Hence it is important to develop rapid, sensitive and specific molecular based methods to identify multiple *Candida* species in clinical specimens.

The aims of this study were to optimize and apply a multiplex PCR to identify four important *Candida* species, namely *C.albicans*, *C.parapsilosis*, *C.glabrata* and *C.tropicalis* in concentrated oral rinse samples of patients with type 11 diabetes. The performance of multiplex PCR was compared with phenotypic identification.

A multiplex PCR was optimized to identify *C.albicans*, *C.parapsilosis*, *C.glabrata* and *C.tropicalis* in concentrated oral rinse samples of patients with diabetes, attending the Endocrinology clinic at Colombo South Teaching hospital. Multiplex PCR was optimized using a common reverse primer, ITS4 and four species specific primers targeting ITS 1 and ITS2 regions of yeast genome (primer CA, CT, CP, and CGL respectively). Optimized multiplex PCR was applied to identify four different *candida species* in 20 clinical samples and the results were compared with results of phenotypic identification for *Candida* ie; colony characteristics, germ tube test, sugar assimilation and chlamydo-spore formation. Further antifungal susceptibility test was performed using disk diffusion method (NCCLS guideline M 44) for colonized patients.

Out of the 20 oral rinse samples, 10 were culture positive. However, only 8 samples were colonized (> 600 CFU/ml) with *Candida species*. Out of these 8 patients, multiple *Candida species* were identified in 5 patients, where all of them had *C. albicans* alone with either *C. Parapsilosis* or *C. tropicalis*. Three patients had only *Candida albicans*. The

20 samples tested with multiplex PCR, 14 were positive for *Candida spp.* All 14 contained *C. albicans* with 12 being positive for multiple *Candida spp.* including *C. parapsilosis* (10/20), *C. tropicalis* (4/20) and *C. glabrata* (4/20).

Established multiplex PCR is found to be rapid, sensitive and more specific than conventional culture method in identifying multiple *candida species* in oral rinse samples.