

**SPECIATION OF CANDIDA ISOLATES FROM CLINICAL SAMPLES: A
COMPARISON OF TWO CARBOHYDRATE ASSIMILATION METHODS
FOR EFFICACY, SPEED AND ACCURACY WITH SPECIAL REFERENCE
TO THE SENSITIVITY TO COMMONLY USED ANTIFUNGAL AGENTS**

by

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ABSTRACT

Background and objectives

Candidiasis is the commonest fungal infection seen in humans all across the globe. Change in global trend with the predominance of non albicans Candida in majority of the candidiasis has made speciation of Candida species imperative for all diagnostic laboratories. High resistance to commonly used antifungal agents in some of the Candida species is another reason for employing tests which are accurate, rapid and reliable for speciation of Candida. Most of the laboratories in India use phenotypic methods for identification, which is time consuming, resulting in delayed initiation of specific anti fungal therapy in patients. Therefore there is a need of phenotypic method which is quick, accurate and reliable for routine use in diagnostic laboratories.

Methodology

Study was conducted in a tertiary care hospital in North Karnataka. 115 samples sent for routine culture and sensitivity to the microbiology laboratory which yielded Candida were subjected for speciation and antifungal susceptibility testing against fluconazole and voriconazole using disk diffusion method. The study was done to compare two sugar assimilation methods (Modified Wickerham Burton and Auxanographic method) for speed, accuracy and feasibility.

Results

Out of 112 samples which could be completely processed, the predominant Candida species were *C. tropicalis* (32%), *C. krusei* (29%) and *C. albicans* (26%) were the predominant species isolated. The two sugar assimilation methods matched perfectly (but for two isolates) in identifying the Candida isolates. However the real difference

was in the speed of identification. Auxanographic method took an average of 3.5 days for identification, whereas modified Wickerham Burton method took 5.5 days. Most of the isolates were pan-sensitive to both fluconazole and voriconazole; however 78% of *C. krusei* was resistant to fluconazole.

Conclusion

Auxanographic method matched with the modified Wickerham Burton method when accuracy and feasibility parameters were tested. However the difference in speed of identification suggests that auxanographic method can be employed for speedier identification of Candida isolates in diagnostic laboratories. Isolation of drug resistant *C. krusei* in majority of the neonatal blood samples calls for a relook at empirical treatment of Candidemia with fluconazole, especially in pediatric population.

Key words

Candida, Speciation, Sugar assimilation, *C. krusei*, *C. tropicalis*, Candidemia, Candidiasis, Fluconazole, Voriconazole