

Characterizing virulent *Candida albicans* from Indian patients and isolating plant products to use as antifungal agents from Indian herbs

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Abstract

Aim: The present study was carried out to identify the correlations between oral carriage of *Candida* in oral pre-cancer and cancer conditions and to explore the antimicrobial activities of selected plant leaves extracts of *Lawsonia inermis*, *Withania somnifer*, *Curcuma longa*, *Cymbopogon citrates* and *Zingiber officinale*.

Material & methods: Clinical isolates of *C. albicans* were obtained from the oral cavity of five different groups. Speciation of *Candida* was performed by performing germ tube test. Histopathology was done to study hyphae level. Spectrophotometric analysis of SAP level was performed.

Further, leaves extract of ten selected plant prepared in DMSO solution have been chosen for the investigation of in vitro antifungal activity which acts as expectorant and not having toxic properties on humans while for comparison or control, antifungal drugs have been taken.

Results: Hyphae levels and CFU were higher in individuals with leukoplakia and OSCC than in control ($P = 0.001$). Further, a correlation between CFU, hyphae level and SAP level was also observed at all the stages.

Herbal extracts of *Lawsonia inermis*, *Withania somnifer*, *Curcuma longa*, *Cymbopogon citrates* and *Zingiber officinale* gives the best inhibitory effect and they have the potential to control growth of *Candida albicans*.

Conclusion: The increasing SAP level and hyphae of *C. albicans* in individuals biopsy tissue of patients with leukoplakia, erythroplakia to OSCC suggests that this pathogen plays a role in disease development and could aid in identifying the pathogenic commensal. Plant products can be useful in treating *Candida* infection.



Biography:

She has passed out BDS (2000) (gold medalist) and MDS (2005) from R Ahmed Dental College, Kolkata.. She has 100 published papers to her contribution.

Total no. of citation: 501, Total no. of impact factor: 128.4155, i-10 indexed-11, h-indexed- 11, No. of Original article: 54, No. of Review article: 23, No. of case reports: 22, Book contributions -2. Additional courses: Certificate course in Bio Medical Waste Management, Forensic Odontology, Forensic Biology and Toxicology, Cyber forensic & digital crime investigation, Forensic Psychology, Forensic DNA fingerprinting. She has bagged many paper and poster presentations award at various National and International Conferences.

Speaker Publications:

1. "Genetic Polymorphism of tumor necrosis factor alpha (TNF- $\hat{1}\pm$) and tumor necrosis factor beta (TNF- $\hat{1}^2$) genes and risk of oral pre cancer and cancer"; cancer.cmesociety /2019/PMCID: PMC6792027
2. " Heterogeneous conceptualization of etiopathogenesis: Oral pyogenic granuloma", njms / Year: 2019/volume 10/issue1/page 3-7
3. Development of α -tocopherol surface-modified targeted delivery of 5-fluorouracil-loaded poly-D, L-lactic-co-glycolic acid nanoparticles against oral squamous cell carcinoma"; cancerjournal/ Year : 2019 | Volume : 15 | Issue : 3 | Page : 480-490
4. Contemporary practice in forensic odontology; J Oral Maxillofac Pathol. 2014 May;18(2):244-50. doi: 10.4103/0973-029X.140767.

5. A study of morphological patterns of lip prints in relation to gender of North Indian population; J Oral Biol Craniofac Res Oct-Dec 2011;1(1):12-6. doi: 10.1016/S2212-4268(11)60005-5.

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