

ORAL PREVALENCE OF *Candida* AND ITS ASSOCIATION WITH DENTAL CARIES IN CHILDREN

C. Gunasena^{1*}, D.P. Jayarathne², M.R.D.M. Senanayake¹, M.P. Paranagama²,
and J.A.M.S. Jayatilake¹

¹Department of Oral Medicine and Periodontology, University of Peradeniya, Peradeniya,
Sri Lanka.

²Department of Basic Sciences, Faculty of Dental Sciences, University of Peradeniya, Peradeniya,
Sri Lanka.

*chandirag@dental.pdn.ac.lk

Oral commensal *Candida* has been suggested to contribute to the pathogenesis of dental caries. However, studies on *Candida* in oral cavity and caries lesions of patients with dental caries are lacking. This study investigated the presence of *Candida* in oral cavities and dental caries lesions in patients with dental caries. A group of 60 children (6 – 12 years) seeking treatment for dental caries from the Dental Teaching Hospital Peradeniya, Sri Lanka were included. None had received dental treatment or antimicrobial therapy within the preceding three months. *Candida* from oral rise and the caries biofilm samples were isolated on Sabouraud dextrose agar and identified using Gram stain, germ tube test, CHROMagar, and Polymerase Chain Reaction (PCR). Hemolysin and phospholipase activities of 12 selected *C. albicans* isolates each from oral and caries lesions were assessed using in vitro plate assays. Site distribution of *Candida* was analysed using Chi square test, while mean hemolysin and phospholipase activities were compared with paired *t* test. The sample comprised 31 males (50.8%) and 29 females (47.15%). *Candida* prevalence was higher in the oral cavity (76.6%, 46/60) than in caries lesions (58.3%, 33/60). *C. albicans* predominated in the oral cavity (84.8%, 41/46), whereas Non-albicans *Candida* (NAC) species were common in caries lesions (51.4%, 18/33). There was a significant difference in *Candida* distribution between these two sites ($\chi^2 = 5.33$, $p = 0.021$). Hemolysin activity of *C. albicans* from caries lesions was significantly higher than that of oral isolates ($p = 0.02$), while phospholipase activity showed no significant difference ($p = 0.65$). These findings demonstrate that *C. albicans* predominates in the oral cavity, whereas NAC species are more frequent in caries lesions. The elevated hemolysin activity of *C. albicans* from caries lesions suggests a potential role in caries pathogenesis, while NAC species may also contribute to lesion development.

Financial assistance from University Research Council (URC), University of Peradeniya, (URG/2024/09/D) is acknowledged.

Keywords: *Candida*, Dental Caries, Virulence, Non-albicans *Candida*, PCR