

GENOTYPIC DIVERSITY AND CARIOGENIC POTENTIAL OF *Candida albicans* ISOLATED FROM A COHORT OF CHILDREN WITH EARLY CHILDHOOD CARIES PRESENTED TO THE DENTAL TEACHING HOSPITAL, PERADENIYA, SRI LANKA

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In recent years, studies have identified a strong link between *Candida albicans*, an opportunistic fungal pathogen in humans, and Early Childhood Caries (ECC), or tooth decay, a significant global health concern among preschool children. Based on 25S rDNA, strains of *C. albicans* are classified into multiple genotypes (A, B and C), which may vary in their prevalence and cariogenic potential. Hence, investigating the genotypic diversity and cariogenic potential of different genotypes is crucial for ECC prevention, although it has not been studied in Sri Lanka. Therefore, this study aimed to examine the genotypic diversity and cariogenic potential of *C. albicans* isolated from a cohort of Sri Lankan children with ECC. Dental biofilm samples were collected from 19 children with ECC. *C. albicans* was isolated using CHROMagar medium, followed by DNA extraction and PCR targeting the 25S rDNA to analyse the genotypes. The Cariogenic potential of different genotypes was evaluated with regard to acidogenicity and aciduricity. Out of 19 participants, 10 tested positive for *C. albicans*. Genotyping revealed that only a single genotype was present in each child, with the majority of children (70%) carrying genotype A, followed by 10% with genotype B, and 20% with genotype C. All three genotypes produced acids and lowered pH below the tooth demineralisation threshold of pH 5.5 within 24 hours. Notably, acidogenicity of genotype C was significantly lower than that of genotype A and B ($n = 3$; $p < 0.05$). According to the aciduricity test results, genotype A exhibited the highest growth at all tested pH values, suggesting its superior acid tolerance contributing to its high prevalence. In conclusion, genotype A has the highest prevalence in the selected cohort and exhibits greater cariogenic potential, suggesting its potential role in disease progression. Future studies are warranted to clarify its clinical relevance in the management of ECC.

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