

**PREVALENCE OF ANTIBIOTIC RESISTANCE GENES IN ORAL BIOFILMS
COLLECTED FROM PATIENTS ATTENDING THE DENTAL (TEACHING)
HOSPITAL, UNIVERSITY OF PERADENIYA, SRI LANKA**

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Oral biofilms are complex microbial ecosystems that can harbor opportunistic pathogens responsible for periodontal diseases, dental caries, and systemic infections. Antibiotic resistance in oral microorganisms poses a critical challenge to the management of both oral and systemic infections. While several studies worldwide have examined antibiotic resistance genes (ARGs), only a limited number of studies have focused on the prevalence of specific ARGs in oral biofilms, multidrug resistance, and factors influencing antibiotic resistance in Sri Lankan patients. This study aimed to investigate the prevalence of ARGs in oral biofilms collected from 70 patients (35 children and 35 adults) attending the Dental (Teaching) Hospital, University of Peradeniya, Sri Lanka. Total DNA was extracted from the biofilms using the NaOH boiling method and the presence of ARGs (*TetM*, *TetQ*, *ermB*, *blaTEM*) was detected using PCR. The overall prevalence of ARGs as well as prevalence within the children and adult groups was assessed and the difference between the two groups were compared using a chi-square test. The overall prevalence of ARGs was *TetM* (64.3%), *TetQ* (34.3%), *ermB* (67.1%), and *blaTEM* (74.3%). Multidrug resistance was observed in 71.4% of the sample and 97.1% carried at least one ARG. *TetM* ($p = 0.025$) and *ermB* ($p = 0.022$) were significantly associated with age, showing a higher prevalence in adults, whereas no significant association with age was found for *TetQ* ($p = 0.615$) or *blaTEM* ($p = 0.584$). In conclusion, this study indicates a high prevalence of ARGs and elevated multidrug resistance in oral biofilms among the study population with notable differences in resistance gene distribution among adults and children. However, future research is needed to confirm if these genes translate to clinical antibiotic resistance via phenotypic tests. These preliminary findings highlight the need for improved awareness regarding rational antibiotic prescription and use.

Keywords: Antibiotic resistance genes, Dental caries, Oral biofilm, Periodontal disease