

Detection of Virulent Genotypes *FimA* II and *FimA* IV of *Porphyromonas gingivalis* in Periodontitis Patients Attending the Dental Teaching Hospital, Peradeniya

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Porphyromonas gingivalis is the major bacterium involved in the pathogenesis of periodontitis. This disease is prevalent in more than 90% of Sri Lankan adults. Severe periodontitis can lead to loss of teeth and is also implicated in a myriad of health complications, including cardiovascular diseases, stroke, arthritis and oral cancer. Fimbriae is a key virulent factor of *P. gingivalis*. Based on the diversity of the *FimA* gene, which encodes a subunit of its fimbriae, *P. gingivalis* is classified into several genotypes. According to the studies conducted in other countries, *FimA* II and *FimA* IV genotypes have been strongly associated with periodontitis. However, *FimA* genotypic diversity of *P. gingivalis* in the Sri Lankan population has not been studied. Therefore, this study aimed to identify the *FimA* II and *FimA* IV genotypes of *P. gingivalis* from the saliva of periodontitis patients visiting the Peradeniya University Dental Hospital. DNA was extracted from their saliva samples and analyzed for the presence of *P. gingivalis* using species-specific primers. Thirty-four samples positive for *P. gingivalis* were subsequently analyzed by PCR using *FimA* II and *FimA* IV genes-specific primers. PCR amplicons were subjected to agarose gel electrophoresis and visualized by a gel imaging system. Among the *P. gingivalis* positive saliva samples, 73.5% (25/34) harbored the *FimA* II genotype, while 20.6% (7/34) harbored the *FimA* IV genotype. Notably, both genotypes were observed in 8.8% (3/34) of samples. However, 14.7% (5/34) of samples were negative for both genotypes. In conclusion, *FimA* II is the predominant genotype of *P. gingivalis* associated with periodontitis in our study population. This is the first insight into the virulent genotypes of *P. gingivalis* in the Sri Lankan population. This finding may be utilized in population screening for risk assessment of periodontitis and developing targeted therapeutics against *FimA* II expression enabling effective management of periodontitis in Sri Lankans.

Keywords: Fimbriae, *FimA* genotypes, periodontitis, *Porphyromonas gingivalis*, virulence genes

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