

**FULL PAPER**

# Analysis of salivary levels of lactate dehydrogenase, alkaline phosphatase and arginase as well as detection of streptococcus mutans in smoking and non-smoking periodontitis patients

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Periodontal disease is an inflammatory disorder affecting the oral cavity, caused by *Streptococcus mutans*. Diagnostic tests for periodontal disease involve analysis of biomarkers in saliva, such as lactate dehydrogenase (LDH), alkaline phosphatase (ALP), and arginase (AR) levels. This study aimed to assess salivary enzyme levels and isolate *S. mutans*, in smoking and non-smoking patients with periodontal disease. A sample between 18 and 60 years old who suffering from Periodontitis due to bacterial infection was involved and divided into three groups: Group A consisted of 25 smokers with periodontitis, Group B included 25 non-smokers with periodontitis, and Group C (control) comprised 25 healthy non-smokers without periodontitis. Saliva samples were collected from each participant and analysed using auto-analyser to measure enzyme levels. *S. mutans* was identified using biochemical, and polymerase reaction (PCR). Salivary enzyme levels were found higher in Groups A and B compared to the control Group C. LDH levels were  $323.21 \pm 22.31$  UI/L (Group A),  $138.02 \pm 13.22$  UI/L (Group B), and  $104.21 \pm 12.33$  UI/L (Group C). ALP levels were  $67.77 \pm 5.34$  UI/L (Group A),  $53.36 \pm 4.24$  UI/L (Group B), and  $21.88 \pm 1.79$  UI/L (Group C). AR levels were  $21.58 \pm 1.21$  UI/L (Group A),  $17.89 \pm 1.35$  UI/L (Group B), and  $15.31 \pm 1.45$  UI/L (Group C). Approximately 80% of bacterial isolates were cultured on MSB from smokers with periodontal and approximately 60% from non-smokers with periodontal disease identified. *S. mutans* was in 90% of smokers with periodontal disease and 80% non-smokers with periodontal disease.

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**KEYWORDS**

Arginase; periodontitis; lactate dehydrogenase; alkaline phosphatase.

**Introduction**

The salivary glands are exocrine organs responsible for producing saliva. Major salivary glands, including the parotid,

submandibular, and sublingual glands, along with other minor salivary glands, contribute to saliva production. Saliva primarily consists of water, along with salivary proteins, electrolytes, antibodies, and other substances