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Type-2 Diabetes Mellitus Individuals Carry Different Periodontal Bacteria

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PESQUISA BRASILEIRA EM ODONTOLOGIA E CLINICA INTEGRADA

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Abstract

Objective: To identify etiologic microbiota associated periodontal diseases among diabetes patients and the factors related to the most commonly identified bacteria species. Material and Methods: Periodontal plaque samples from 11 diabetic participants and 13 non-diabetic controls were collected to assess their aerobic and anaerobic bacterial growth. Different distinct colonies were identified by microscopic and 16S rDNA sequencing. Pearson's chi-square tests were conducted to examine any association between categorical variables. Results: The diabetic subjects revealed a more intense plaque formation with a mean plaque index of 2.4 compared to 1.8 in non-diabetics. A total of 86 bacteria were isolated from 24 plaque samples, 44 were aerobic, and 42 were anaerobic. Only aerobic isolates, 22 from diabetic patients and 22 from non-diabetic patients, were evaluated in these analyses. *Bacillus* spp. (*B. cereus* mainly) and *Klebsiella* spp. (*K. pneumoniae*, *K. aerogenes*, *K. oxytoca*) were detected markedly higher in non-diabetic individuals than in diabetic subjects ($p=0.026$ and $p=0.021$, respectively). Some bacteria were only identified in the dental plaque of diabetic individuals, namely, *Bacillus mojavensis*, *Enterobacter cloacae*, *Proteus mirabilis*, *Staphylococcus epidermidis*, *Staphylococcus hominis*, *Staphylococcus pasteurii*, *Streptococcus mutans*, and *Streptococcus pasteurianus*. The presence of acid reflux and jaundice were significantly associated with the most common bacterial isolate, namely *Bacillus* spp., with the p -values of 0.007 and 0.001, respectively. Conclusion: Type-2 diabetes mellitus is associated with a higher amount of dental plaques. Periodontal plaque samples from diabetic and non-diabetic subjects possess differential microbial communities. Diabetic plaques contain more versatile microbes predominated by gram-positive streptococci and staphylococci.

Keywords

Author Keywords: Oral Health; Periodontal Diseases; Periodontitis; Diabetes Mellitus; Type 2

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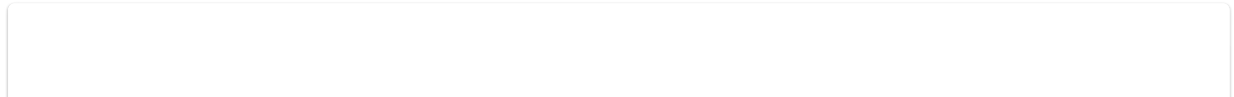
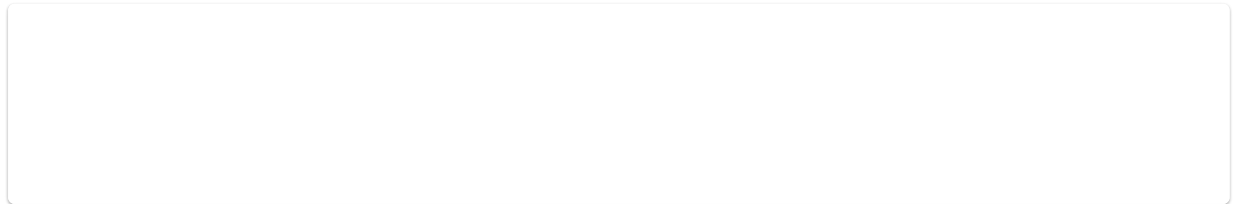
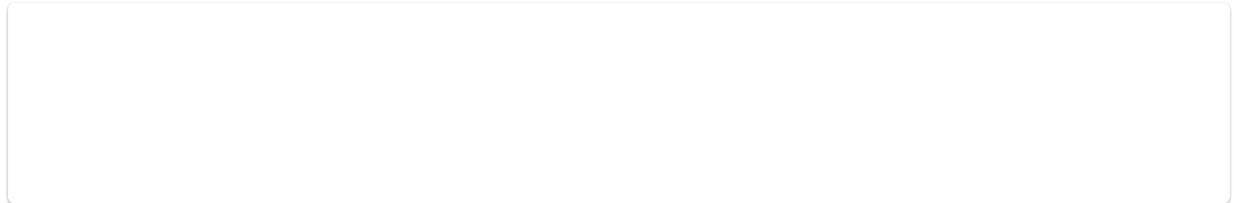
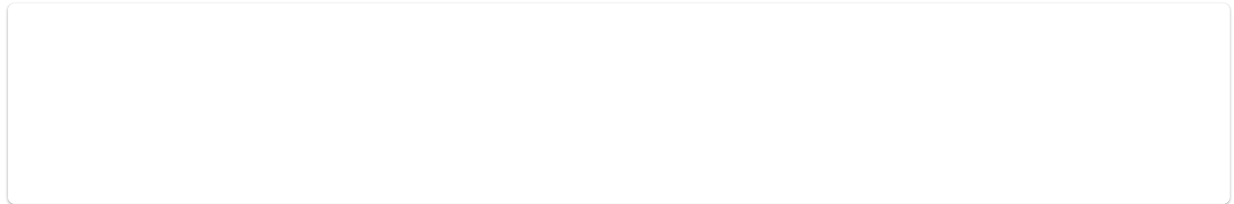
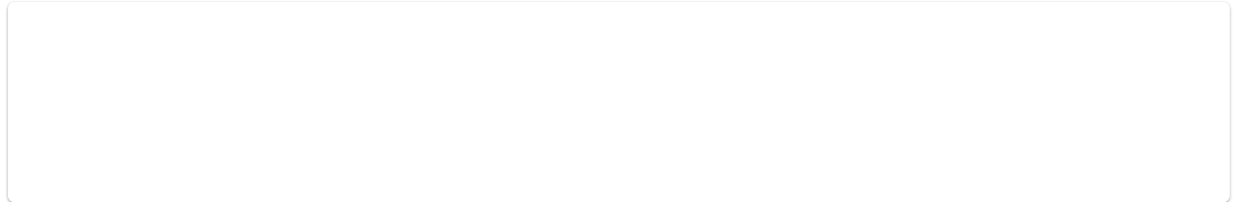
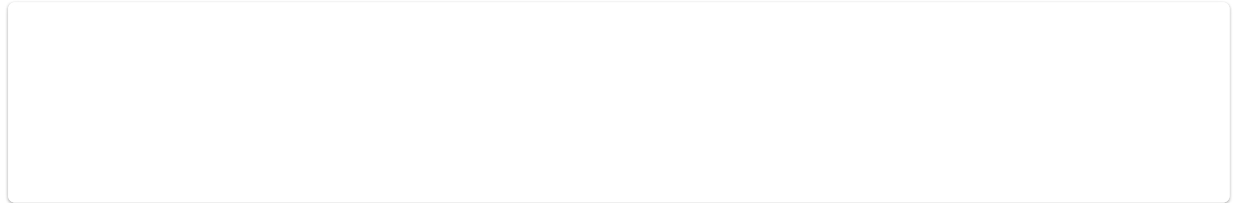
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