

Microbial Communities in Oral Health

Nurin Jazlina Hafizal, Latifah Munirah Bakar*

Structured Abstract

Background : The oral cavity hosts diverse microorganisms essential for health, with over 700 species identified. These organisms colonize various surfaces within the mouth, influencing oral and systemic health. Bacteriocins from bacteria aid microbial competition. Environmental factors shape the oral microbiome, impacting immune function and health. Disruptions can lead to diseases, emphasizing the importance of maintaining oral hygiene and health.

Methods : This review used PubMed, Science Direct, and Taylor and Francis online database to ensure comprehensive coverage. The screening process involved keyword searches, filtering for relevance and peer-reviewed status, abstract reviews, and full-text evaluations. Cross-referencing and quality assessments further ensured the inclusion of high-quality, pertinent studies on the oral microbiome and health.

Discussion : The research aims to explore the microbial composition in the oral cavity of individuals with good and bad oral health and the interactions between different microbial species. The study will focus on the predominant bacteria in a healthy oral microbiome, including *Streptococcus* species, *Veillonella* species, and *Actinomyces* species, as well as the role of bacteriocins in inhibiting or killing other bacteria. However, individuals with poor oral health, experiencing dental caries or gum disease, may have an imbalanced oral microbiome, featuring harmful bacteria like *Streptococcus mutans*, *Porphyromonas gingivalis*, and *Candida albicans*. The research will also examine how dysbiosis in the oral microbiome can contribute to the development of dental caries, periodontitis, and oral candidiasis. Additionally, lifestyle factors like dietary habits, oral hygiene practices, tobacco use, alcohol consumption, and medication can impact the oral microbial community composition. Therapeutic interventions like probiotics, prebiotics, and antimicrobial agents play essential roles in modulate the oral microbiome and promote oral health. Understanding these microbial communities and their interactions is crucial for developing effective strategies to maintain oral health and prevent oral diseases.

Conclusion : In conclusion, the findings of this study highlights the importance of the oral microbiome in maintaining health and preventing diseases. It examines microbial composition, interactions, and the impact of lifestyle factors like diet and hygiene. The study also emphasizes therapeutic interventions, such as probiotics to modulate the microbiome, urging targeted strategies for promoting oral health.

Keywords : Oral Cavity, Oral Health, Interaction, Microbial, Oral Disease

*Correspondence: latifahmunirah@uitm.edu.my

School of Biology, Faculty of Applied Sciences, Universiti Teknologi MARA, Shah Alam, Malaysia