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REVIEW ARTICLE

Insight into Oral Biofilm: Primary, Secondary and Residual Caries and Phyto-Challenged Solutions

Smitha Chenicheri^{1,2,3}, Usha R¹, Rajesh Ramachandran^{2,*}, Vinoy Thomas^{4,*} and Andrew Wood⁴

¹Department of Microbiology, Karpagam University, Coimbatore, Tamil Nadu, India.

²Microbiology Division, Biogenix Research Center for Molecular Biology and Applied Sciences, Thiruvananthapuram, Kerala, India.

³Department of Microbiology, PMS Dental college and Research Center, Thiruvananthapuram, Kerala, India.

⁴Department of Materials Science & Engineering, Center for Nanoscale Materials and Biointegration (CNMB), University of Alabama at Birmingham (UAB), Birmingham, Alabama, USA

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Abstract:

Introduction:

Dental caries is known to be one of the most widespread, chronic infections affecting all ages and populations worldwide. The plethora of oral microbial population paves way for various endogenous infections and plays a crucial role in polymicrobial interactions contributing to biofilm-mediated diseases like caries and periodontal diseases.

Methods:

Extensive literature survey was conducted using the scientific databases like PubMed, Google scholar, Science Direct, *etc.* using the key words like dental caries, orodental infections, dental microbes, dental biofilm, secondary caries, phytotherapy, *etc.* The literature was analyzed thoroughly and critical review was performed.

Results:

The risk of development of secondary caries and residual caries further results in treatment failure. Drug resistance developed by oral microbes and further side effects pose serious hurdles in the current therapeutic strategies. The hyperactivities of various MMPs and the resulting massive ECM degradation are the challenging part in the design of effective therapeutic approaches. Anticariogenic phytotherapy is well appreciated owing to lesser side effects and versatility of their action. But appreciable outcomes regarding the phytochemical bioavailability and bioretention are still challenging. Site-specific delivery of phytoagents at the infected site may enhance the efficiency of these drugs. Accordingly emerging phytodentistry can be promising for the management of secondary and residual caries.

Conclusion:

This article presents major cariogens and their mechanisms in initiating and aggravating dental caries. Effectiveness of phytotherapy and different mode of action of phytochemicals against cariogens are outlined. The article also raises major concerns and possibilities of phytochemical based therapeutics to be applied in the clinical arena of caries management.

Keywords: Dental caries, Oral biofilm, Phytotherapy, Secondary caries, Transmissible chronic infections, Odontoblasts.

* Address correspondence to this authors at the Microbiology Division, Biogenix Research Center for Molecular Biology and Applied Sciences, Thiruvananthapuram, Kerala, India and Polymers and Healthcare Materials/Devices Department of Materials Science and Engineering Center for Nanoscale Materials and Biointegration (CNMB) University of Alabama at Birmingham (UAB) :BEC 358F, Business Engineering Complex, 1150 10th AVE South, Birmingham, AL 35294; Alabama, USA; Tel: 205 975 4098/205 934 5013; Fax: 205 975 8450; E-mails: info@biogenixresearchcenter.com, vthomas@uab.edu