The effect of Piper betle and Psidium guajava extracts on the cell-surface hydrophobicity of selected early settlers of dental plaque

Type: Article

Abstract:

The adhesion of early settlers of dental plaque to the tooth surface has a role in the initiation of the development of dental plaque. The hydrophobic surface properties of the bacteria cell wall are indirectly responsible for the adhesion of the bacteria cell to the acquired pellicle on the tooth surfaces. In this study, the effect of aqueous extract of two plants (Psidium guajava and Piper betle) on the cell-surface hydro-phobicity of early settlers of dental plaque was determined in vitro. Hexadecane, a hydrocarbon was used to represent the hydrophobic surface of the teeth in the oral cavity. It was found that treatment of the early plaque settlers with 1 mg/ml extract of Psidium guajava reduced the cell-surface hydrophobicity of Strep. sanguinis, Strep. mitis and Actinomyces sp. by 54.1%, 49.9% and 40.6%, respectively. Treatment of these bacteria with the same concentration of Piper betle however, showed a comparatively lesser effect (< 10%). It was also observed that the anti-adhesive effect of the two extracts on the binding of the early plaque settlers to hexadecane is concentration dependent.

Author	a) Razak, F. A. b) Othman, R. Y. c) Rahim, Z. H.
Source	J Oral Sci
ISSN	1343-4934
DOI	10.2334/josnusd.48.71
Volume (Issue)	48(2)
Page	71-75
Year	2006

Keyword:

plant extract, Actinomyces, analysis of variance, article, bacterium adherence, dental pellicle, drug effect, guava, hydrophobicity, microbiology, physiology, Piper betle, Streptococcus mitis, Streptococcus sanguinis, surface property, tooth plaque, Bacterial Adhesion, Dental Plaque, Plant Extracts, Psidium, Streptococcus sanguis, Surface Properties

Please Cite As:

RAZAK, F. A., OTHMAN, R. Y. & RAHIM, Z. H. 2006. **The effect of Piper betle and Psidium guajava extracts on the cell-surface hydrophobicity of selected early settlers of dental plaque**. *J Oral Sci,* 48**,** 71-75.

URL:

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