

# THE EFFECT OF PSIDIUM GUAJAVA AND PIPER BETLE EXTRACTS ON THE MORPHOLOGY OF DENTAL PLAQUE BACTERIA

Type: Article

Abstract:

Objective: It has been reported that the aqueous extracts of *Psidium guajava* and *Piper betle* leaves showed anti-plaque activities during the early stages of dental plaque formation. The aim of the study was to elucidate if such anti-plaque activities involve any ultra-structural changes to the morphology of three early dental plaque bacteria, *Streptococcus sanguinis*, *Streptococcus mitis* and *Actinomyces* sp. Methodology: Pure cultures of the bacteria were suspended in BHI medium and treated with the test herbal extracts at the sub-lethal concentrations. The growth mixtures were incubated at 37 degrees C. At the logarithmic growth phase (t(1)), aliquots of 1 ml of the growth mixtures were fixed and used in the preparation of specimens for SEM studies. Ultra-structural alterations to the morphology of the treated cells noted were compared to those of the cells cultured under untreated conditions. Results: Following exposure of the bacteria to the two test herbal extracts, profound ultra-structural changes to their morphology were observed. The observed structural or morphological alterations could attribute to the bacteria being less active in performing normal physiological metabolic functions and thus rendering them less efficient to multiply. The changes noted included (i) reduced sizes of the bacteria, and (ii) majority cells at the non-dividing state as compared to those cultured under controlled conditions. Conclusions: This study has shown anti-plaque effects of aqueous extract of both *P. betle* and *P. guajava*.

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Source	Pakistan Journal of Medical Sciences
ISSN	1682-024X
DOI	-
Volume (Issue)	25(6)
Page	928-933
Year	2009

Keyword:

*Psidium guajava*, *Piper betle*, Bacterial ultra-structural alteration, Anti-plaque activity

Please Cite As:

FATHILAH, A. R., YUSOFF, M. & RAHIM, Z. H. A. 2009. **THE EFFECT OF PSIDIUM GUAJAVA AND PIPER BETLE EXTRACTS ON THE MORPHOLOGY OF DENTAL PLAQUE BACTERIA.** *Pakistan Journal of Medical Sciences*, 25, 928-933.

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