

Effects of Cistus-tea on bacterial colonization and enzyme activities of the in situ pellicle

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Abstract

Objectives

Polyphenols are expected to have antibacterial properties. Cistus is a tea rich in polyphenols. The aim of the present in situ study was to investigate the effect of Cistus-tea on the pellicle and on the initial oral biofilm.

Methods

For in situ pellicle formation and initial biofilm formation, bovine enamel slabs were fixed on maxillary splints and carried by four subjects at buccal sites for up to 2h. Bacteria present in 120-min pellicles were determined with DAPI-staining and fluorescence in situ hybridization with and without a 10min rinse with Cistus-tea performed 1min after incorporation of the slabs.

In addition, amylase, lysozyme, glucosyltransferase and peroxidase activities immobilised in the pellicle layer were measured before and after rinsing for 10min with Cistus-tea.

Results

The amount of bacteria detected in the 120-min biofilm was reduced significantly, if a 10min rinse with Cistus-tea was performed one min after insertion of the enamel slabs. DAPI-staining yielded 13.2 ± 3.5 for controls and $6.5 \pm 1.1 \times 10^4$ bacteria/cm², if a rinse with Cistus-tea was applied. Lysozyme, amylase and glucosyltransferase activities immobilised in the pellicle were not affected following a rinse with Cistus-tea. However, peroxidase activity was reduced significantly.

Conclusions

Cistus-tea may be used to reduce the initial bacterial adhesion in the oral cavity.