THE EFFECT OF PLANT EXTRACT MIXTURE (TRIAQUORA RINSE®) ON THE DEVELOPMENT OF MIXED-SPECIES BIOFILMS

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Objectives: The objective of this study was to compare the effect of the (Triaquora rinse®) on the development of different mixed-species biofilms (early and early with late colonisers).

Methods: The rinse was prepared from a mixture of extracts from three different plant species. The experiments were carried out by growing the respective biofilms consisting of mixed bacterial species (i) Strep. mitis and Strep. sanguinis, ii) Strep. mitis and Strep. mutans, iii) Strep. sanguinis and Strep mutans and iv) Strep.mitis, Strep. sanguinis and Strep. mutans) in a artificial mouth system (NAM model). Glass beads were placed in the NAM model to provide surface for the biofilm to develop. Saliva was allowed to flow into the model to coat the glass surface and this was followed by bacterial inoculation to allow for formation of biofilm on the saliva-coated glass surface. Subsequently the rinse was pumped into the model to treat the respective biofilms. The experiment was repeated with deionised distilled water as negative control and with thymol blue as positive control. The number of bacteria in the respective biofilms was determined using serial dilution method. The bacterial population of the different mixed-species biofilms was compared and analysed statistically using Student's t-test.

Results: It was found that treating the respective biofilms with the rinse decreased the bacterial population of the mixed-species biofilms. The effect on the biofilm can be written in the following order: Strep. sanguinis-Strep. mitis-Strep. mutans (102 x 10^4 CFU mL^-1)< Strep. sanguinis-Strep. mitis (73 x 10^4 CFU mL^-1)<Strep. sanguinis and Strep. mutans biofilm (41 x 10^4 CFU mL^-1)< Strep. mitis and Strep. mutans (11.3 x 10^4 CFU mL^-1).

Conclusion: The influence of the rinse appears to be lesser with mixed-species biofilm containing Strep. sanguinis compared to the other two bacteria.