B-06  Active compounds and their effect on oral microorganisms

Fathilah AR*, Himratul-Aznita WH, Mohd-Al-Faisal N

Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia

**Introduction:** In the oral ecosystem, microorganisms have a role in the normal development of the physiology and defences of the host. Imbalances in the resident microflora may result in certain microbe becoming more prevalent and able to cause diseases in the oral cavity. **Objective:** The study aimed to look at the effect of active compounds in mouth washes on the sustainability of the resident oral microorganisms. **Methods:** Two active compounds; (i) chlorhexidine digluconate (0.12%) (CHX) incorporated in a mouth wash and (ii) Piper betle (4 mg/ml) present in an aqueous preparation were used in the study. Common oral microbes including *Streptococcus sanguinis, Streptococcus mitis, Candida tropicalis, Candida krusei and Actinomyces sp.* were cultured and their physiological growth process under the untreated and treated conditions were monitored based on the growth curves produced. The effect of the treatments on microbial growth was analysed based on changes in the generation time (g) and specific growth rate (μ) of the cell population. **Results and Discussion:** The *P. betle* preparation incurred a varying degree of growth suppressive effect on all the microorganisms. The streptococci were the most affected as indicated by about 90% reduction in the μ and extension of the g to more than 10-fold. The candida and *Actinomyces sp.* exhibited a reduction in the μ by about 65-70% and 50%, respectively. In contrast to the *P. betle* preparation, CHX exhibited intense and immediate growth suppressive effect on all the microorganisms, an indication of its biocidal property. The effect of the *P. betle* preparation was more biostatic. **Conclusion:** Active compounds with biostatic rather than biocidal activities would be more suitable for use in oral health care products as it would ensure the sustainability of the oral residents. The use of strong biocidal agent should be minimised as it can perturb the ecological balance of the oral ecosystem.