

Efek paparan pasta gigi propolis UI dalam menghambat pembentukan biofilm streptococcus mutans atau streptococcus gordonii In vitro = The effect of propolis UI toothpaste in inhibiting biofilm formation of streptococcus mutans or streptococcus gordonii in vitro

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Abstrak

Latar Belakang: Perkembangan karies gigi berkaitan dengan bakteri Streptococcus mutans atau Streptococcus gordonii. Propolis dilaporkan sebagai agen antibakteri karena mengandung flavonoid berupa apigenin dan tt-farnesol yang dapat menghambat aktivitas enzim glukosiltransferase dan mempengaruhi integritas membran bakteri.

Tujuan: Menganalisis potensi hambat pasta gigi mengandung ekstrak propolis UI terhadap pembentukan biofilm Streptococcus mutans atau Streptococcus gordonii.

Metode: Biofilm Streptococcus mutans atau Streptococcus gordonii yang telah dipaparkan pasta gigi ekstrak propolis UI dengan konsentrasi 25mg/10ml, 50mg/10ml, dan 100mg/10ml kemudian diinkubasi selama 4 jam (fase adhesi), 12 jam (fase akumulasi aktif) dan 24 jam (fase maturasi) pada suhu 37°C. Persentase inhibisi dinilai dengan menggunakan MTT assay.

Hasil: Persentase potensi hambat biofilm Streptococcus mutans tertinggi setelah inkubasi 12 jam dan Streptococcus gordonii setelah inkubasi 4 jam dengan konsentrasi 100mg/10 ml.

Kesimpulan: Efek paparan pasta gigi mengandung ekstrak propolis UI dalam menghambat pembentukan biofilm Streptococcus mutans atau Streptococcus gordonii dipengaruhi oleh konsentrasi dan durasi paparan pasta gigi UI.

.....Background: The development of dental caries has been found to be associated with Streptococcus mutans and Streptococcus gordonii. Propolis has been reported as a potent antimicrobial material because containing flavonoids such as apigenin and tt-farnesol that inhibit glucosyltransferase enzyme activity and membrane integrity.

Objective: To analyze the effect of toothpaste containing propolis wax UI in inhibit Streptococcus mutans or Streptococcus gordonii biofilm formation.

Methods: Streptococcus mutans and Streptococcus gordonii biofilm that has been exposed by propolis UI toothpaste at concentration 25mg/10ml, 50mg/10ml, dan 100mg/10ml was incubated for 4 hours (adherence phase), 12 hours (active accumulation phase) and 24 hours (maturation phase) at 37°C. The percentage of inhibition was tested with MTT assay.

Result: Inhibition percentage of Streptococcus mutans the highest is on active accumulation phase and Streptococcus gordonii biofilm is on adherence phase at concentraton 100mg/10ml.

Conclusion: Propolis UI toothpaste effect on inhibiting biofilm formation of Streptococcus mutans or Streptococcus gordonii depend on concentration and duration of time.