# Efektifitas SDF, SNF, dan PPF terhadap daya hambat demineralisasi serta peningkatan kekerasan dentin: uji SEM dan microhardness (in vitro) = Effectivity of SDF, SNF, and PPF towards inhibitory effect of demineralisation and increase in hardness on dentine: SEM and microhardness test (in vitro)

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Abstrak

Latar Belakang: Demineralisasi dentin akibat karies menyebabkan hilangnya mineral dan serabut protein dari dentin intertubular dan peritubular. Silver memiliki efek bakterisidal dan dalam bentuk silver nano memiliki cakupan kontak permukaan yang lebih baik. Propolis memiliki aktivitas mikroba. Penggabungan silver, silver nano, dan propolis dengan fluoride merupakan suatu keuntungan dan menjadi inovasi baru dalam upaya pencegahan karies.
Tujuan: Menganalisis kerja dari SDF, SNF, dan PPF dengan konsentrasi yang berbeda terhadap daya hambat demineralisasi dilihat dari morfologi permukaan dentin dan peningkatan kekerasan dentin.
Metode: Dilakukan demineralisasi pada 105 sampel dentin disc 70 sampel morfologi permukaan; 35 sampel kekerasan selanjutnya diaplikasikan SDF Ag 25,4 F- 4,48 ; NSF Ag 1,4 F- 2.26 , NSF Ag 1,9 F- 2,26 ; PPF Propolis 6,67 F- 1,19 , PPF Propolis 10 F- 1,19 yang diikuti proses pH-cycling, morfologi permukaan dentin diobservasi menggunakan alat Scanning Electron Micrograph, Vickers Microhardness Tester untuk menganalisis kekerasan dentin.
Hasil: Terdapat gambaran kristal fluorapatit pada permukaan dentin SDF Ag 25,4 F- 4,48 dan NSF Ag 1,4 F- 2.26 , NSF Ag 1,9 F- 2,26 . Terdapat lapisan amorf pada permukaan dentin PPF Propolis 10 F- 1,19. Terdapat peningkatan nilai kekerasan dentin gigi pada seluruh konsentrasi SDF, NSF, dan PPF dengan peningkatan terbesar terjadi pada PPF Propolis 6,67 F- 1,19.
Simpulan: SDF, NSF, dan PPF dapat menghambat demineralisasi serta dapat meningkatkan kekerasan dentin walaupun peningkatan tersebut tidak dapat mengembalikan kekerasan awal dentin.
.....Background: Dentin demineralization due to caries causes loss of mineral and protein fiber in peritubular dentin and intertubular dentin. Silver has a bactericidal effect, silver nano has a broader contact surface and propolis is an antimicroba agent. The combination of silver, silver nano, and propolis with fluoride is a new innovation in caries prevention.
Aim: To analyze the effect of SDF, SNF, and PPF with different concentration towards inhibitory effect of demineralization through observed from dentine morphology and increase in hardness.
Methods: 105 samples of dentin disc were demineralised and allocated to surface morphology group 70 samples and hardness group 35 samples. Each group received topical application of SDF Ag 25,4 F 4,48 NSF Ag 1,4 F 2.26, NSF Ag 1,9 F 2,26 PPF Propolis 6,67 F 1,19, PPF Propolis 10 F 1,19, followed by pH cycling process, surface morphology of dentin was observed by Scanning Electron Micrograph, Vickers Microhardness Tester was used to analyze dentine hardness.
Result: The surface morphology under SEM showed crystal fluorapatite on the dentin surface of SDF Ag 25,4 F 4,48 , NSF Ag 1,4 F 2.26 , and NSF Ag 1,9 F 2,26 . There was an amorphous layer on the dentin surface of Propolis 10 F 1,19 . Increased of dentin hardness were observed after application of SDF, NSF,

and PPF with the highest increase of hardness was in the PPF Propolis 6,67 F 1,19.
Conclusion: SDF, NSF, and PPF can inhibit demineralization of dentin and increase dentin hardness, although cannot restore the initial value of dentin hardness.