

ABSTRAK

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Judul : Perbedaan Efek Propolis, sodium Hipoklorit, dan EDTA sebagai Bahan Irigasi terhadap Kekerasan Mikro Dentin Saluran Akar secara *In-Vitro*

Sodium hipoklorit (NaOCl) dan EDTA adalah bahan irigasi yang umum digunakan karena memiliki sifat antimikrobal serta kemampuan keduanya dalam melarutkan komponen organik dan anorganik. Namun, penggunaan bahan kimia ini dapat mempengaruhi sifat fisik maupun kimia dentin saluran akar. Propolis memiliki potensi sebagai bahan irigasi saluran akar alternatif. Tujuan penelitian ini adalah untuk melihat apakah terdapat perbedaan efek antara ekstrak propolis, NaOCl dan EDTA terhadap kekerasan mikro dentin saluran akar. Penelitian ini menggunakan 24 gigi premolar berakar tunggal. Mahkotanya dipotong dan akarnya dibelah secara longitudinal menjadi dua. Sampel dibagi secara acak menjadi 6 kelompok ($n=8$) masing-masing direndam dengan propolis 8%, propolis 20%, propolis 30%, NaOCl 2,5%, NaOCl 5%, dan EDTA 17%. Kekerasan mikro dentin saluran akar diukur dengan *Vickers Hardness Tester* sebelum dan setelah perendaman. Data hasil penelitian dianalisis dengan uji *One Way ANOVA*. Hasil penelitian menunjukkan bahwa propolis 8% memiliki nilai penurunan kekerasan mikro dentin yang paling kecil dari seluruh kelompok perlakuan dengan selisih rerata kekerasan mikro dentin awal dan akhir yaitu 3,68 diikuti oleh propolis 20%, NaOCl 2,5%, NaOCl 5%, propolis 30% dan EDTA 17%. Terdapat perbedaan signifikan ($p<0,05$) efek dari masing-masing kelompok perlakuan terhadap kekerasan mikro dentin saluran akar. Ekstrak propolis 8% memiliki efek yang paling kecil dalam menurunkan kekerasan mikro dentin saluran akar.

Kata Kunci : Bahan Irigasi; EDTA; Kekerasan Mikro; NaOCl; Propolis

ABSTRACT

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Title : *Differences in the Effects of Propolis, Sodium Hypochlorite, and EDTA as Irrigation Materials on the Microhardness of Root Canal Dentin: In-Vitro Study*

Sodium hypochlorite (NaOCl) and EDTA are commonly used irrigation materials due to their antimicrobial properties and their ability to dissolve both organic and inorganic components. However, the use of these chemicals can affect the physical and chemical properties of root canal dentin. Propolis has been widely used as an alternative irrigation material because it has similar potential to NaOCl. The aim of this study is to investigate whether there are differences in the effects of propolis extract, NaOCl, and EDTA on the microhardness of root canal dentin. This research utilized 24 single-rooted premolar teeth. The crowns were cut off, and the roots were longitudinally split into two halves. The samples were randomly divided into six groups (n=8), each immersed in 8% propolis, 20% propolis, 30% propolis, 2.5% NaOCl, 5% NaOCl, and 17% EDTA. The microhardness of root canal dentin was measured using a Vickers Hardness Tester before and after immersion. Data were analyzed using One Way ANOVA. The results showed that 8% propolis had the smallest reduction in microhardness among all treatment groups, with an average difference in initial and final microhardness of 3.68, followed by 20% propolis, 2.5% NaOCl, 5% NaOCl, 30% propolis, and 17% EDTA. There were significant ($p < 0,05$) differences in the effects of each treatment group on the microhardness of root canal dentin. 8% propolis extract had the smallest effect in reducing the microhardness of root canal dentin.

Keywords : *Irrigation Materials; EDTA; Microhardness; NaOCl; Propolis*