

PENGARUH PENAMBAHAN *NANOFIBER* SISAL PADA SILER BERBAHAN DASAR RESIN EPOKSI TERHADAP DAYA ALIR DAN DERAJAT KEASAMAN (pH)

INTISARI

Daya alir dan nilai pH merupakan sifat fisikokimia yang penting pada siler endodontik untuk mendukung keberhasilan perawatan saluran akar. Penambahan *filler* dapat meningkatkan sifat fisik dari siler resin epoksi. Tujuan penelitian ini adalah untuk mengetahui pengaruh penambahan *nanofiber* sisal (*Agave sisalana*) terhadap daya alir dan pH siler resin epoksi.

Penelitian ini dibagi menjadi 2 uji yaitu uji daya alir dan uji pH. Masing-masing pengujian menggunakan 30 spesimen yang dibagi menjadi 3 kelompok ($n=10$), yaitu kelompok kontrol (tanpa penambahan *nanofiber* sisal), kelompok *nanofiber* sisal 0,5% dan kelompok *nanofiber* sisal 0,75%. Pengujian daya alir dilakukan sesuai spesifikasi ISO 6876. Pengujian pH dilakukan pada siler *fresh* sampel dan *set* sampel diamati pada waktu 1 jam sampai dengan 14 hari.

Hasil analisis Anava satu jalur menunjukkan tidak terdapat perbedaan signifikan ($p>0,005$) daya alir siler dan terdapat perbedaan signifikan pada uji pH dengan penambahan nanofiber sisal dengan konsentrasi berbeda ($p<0,005$). Kesimpulan penelitian ini adalah tidak terdapat pengaruh penambahan *nanofiber* sisal terhadap daya alir siler resin epoksi dan terdapat pengaruh penambahan *nanofiber* sisal pada nilai pH siler resin epoksi. Nilai pH siler resin epoksi dengan penambahan *nanofiber* sisal konsentrasi 0,75% lebih besar dibandingkan dengan kelompok siler resin epoksi 0,5% dan kelompok kontrol.

Kata kunci: *nanofiber* sisal, siler resin epoksi, daya alir, pH

THE EFFECT OF SISAL NANOFIBER ADDITION ON THE FLOWABILITY AND pH VALUE OF EPOXY RESIN-BASED SEALER

ABSTRACT

Flowability and pH value are important physicochemical properties in endodontic sealers to enhance the success of root canal treatment. The addition of filler to epoxy resin sealer can improve the physical properties. The purpose of this study was to determine the effect of the addition of sisal (*Agave sisalana*) nanofibers to epoxy resin sealer on the flowability and pH value.

This research was divided into 2 evaluation: flowability and pH test. Each evaluation used 30 specimens which were divided into 3 groups ($n = 10$), the control group (without the addition of sisal nanofiber), nanofiber sisal 0,5% and nanofiber sisal 0,75%. The flowability test was carried out according to the ISO 6876 specification. The pH test was carried out on the fresh sample sealer and the sample set was observed from 1 hour to 14 days.

The results of one-way ANOVA analysis showed that there was no significant difference ($p > 0.05$) in flowability of resin epoxy sealer and there was significant difference in the pH test with addition of sisal nanofiber with different concentration ($p < 0,05$). The conclusion of this study was that there was no effect of the addition of sisal nanofibers on the flowability of the epoxy resin sealer and there was an effect of the addition of sisal nanofibers on the pH value of the epoxy resin sealer. The pH value of sisal nanofiber 0,75% was greater than 0,5% and the control group.

Keywords: Sisal nanofiber, epoxy resin sealer, flowability, pH