

## INTISARI

*Fiber reinforced composite* (FRC) merupakan bahan yang terdiri dari resin komposit sebagai matriks, *fiber* sebagai *reinforced* dan *silane* meningkatkan kekuatan adhesi. *Fiber reinforced composite* dapat digunakan sebagai kerangka *crown*. Penurunan kekuatan fleksural *E-glass* FRC salah satunya dipengaruhi oleh alkohol. Banyak masyarakat menggunakan obat kumur untuk menjaga kebersihan rongga mulut. Penelitian ini bertujuan mengetahui pengaruh lama perendaman *E-glass* FRC dalam obat kumur terhadap kekuatan fleksural.

Bahan penelitian adalah *E-glass* (Fiber Splint Polydentia Multi Layer, Swiss), resin komposit (Master Flow Biodinamica, Brazil), *silane* (Monobond ivoclar vivadent) dan obat kumur (Listerine® Multi Protect). Spesimen berbentuk balok (25x2x2)mm disinari *light cured* (LED) selama 20 detik (n=12). Spesimen dibagi menjadi 1 kelompok kontrol dan 2 kelompok perlakuan perendaman: kelompok-1 tidak direndam, kelompok-2 selama 24 jam dan kelompok-3 selama 48 jam. Nilai kekuatan fleksural diukur dengan *universal testing mechine* (Pearson, Texas). Data yang diperoleh dianalisis menggunakan *one way anova* dilanjutkan dengan uji LSD.

Hasil penelitian menunjukkan rerata kekuatan fleksural kelompok perendaman obat kumur (0, 24, dan 48)jam berturut-turut adalah  $120,2 \pm 3,9$  MPa,  $116,7 \pm 9,5$  MPa,  $85,1 \pm 9,3$  MPa. Hasil uji *one way anova* menunjukkan terdapat pengaruh yang bermakna signifikansi lebih dari 0,05 pada lama perendaman *E-glass* FRC dalam obat kumur terhadap kekuatan fleksural. Hasil uji LSD menunjukkan perbedaan bermakna antar semua kelompok perlakuan. Kesimpulan penelitian ini adalah lama perendaman *E-glass* FRC dalam obat kumur menurunkan kekuatan fleksural *E-glass* FRC.

Kata kunci: FRC, *E-glass*, lama perendaman, obat kumur, alkohol, *Listerine*, kekuatan fleksural.

### **ABSTRACT**

*Fiber reinforced composite (FRC) is a material consisting of a composite resin as matrix, fiber as reinforced and silanes to improve the adhesion strength. Fiber reinforced composite can be used as a crown framework. The flexural strength of E-glass FRC is influenced by alcohol. More people used mouthwash for oral hygien. The objective of this study was to know the effect of the duration of E-glass FRC immersion into the mouthwash against the flexural strength.*

*The research materials were E-glass (Fiber Splint Polydentia Multi-Layer, Switzerland), composite resin (Master Flow Biodynamic, Brazil), silane (Monobond Ivoclar Vivadent) and mouthwash (Listerine® Multi Protect). The beam-shaped specimens (25x2x2) mm were illuminated by light cured (LED) for 20 seconds (n=12). The specimens were divided into 1 control groups, 2 treatment groups of immersion: Group 1 was not immersed; Group 2 was immersed for 24 hours; and Group 3 was immersed for 48 hours. The flexural strength value was measured using a universal testing machine (Pearson, Texas). The data were analyzed using one-way ANOVA followed-up by LSD.*

*The results showed the average flexural strengths of mouthwash immersion groups (0, 24, and 48) hour(s) were  $120.2 \pm 3.9$  MPa,  $116.7 \pm 9.5$  MPa,  $85.1 \pm 9.3$  MPa, respectively. The one-way ANOVA test results showed that there was a significant effect more than 0.05 in the duration of E-glass FRC immersion into the mouthwash against the flexural strength. The LSD test results showed significant differences between all treatment groups. The conclusion of this study is that the duration of E-glass FRC immersion into mouthwash will lower the strength of flexural E-glass FRC.*

*Keywords: FRC, E-glass, duration of immersion, mouthwash, alcohol, Listerine, flexural strength.*