INTISARI

Fiber reinforced composite terdiri dari *fiber* dan matriks yang saling berikatan. *Fiber* alami sisal *Agave sisalana* yang digunakan dialkalisasi untuk menghilangkan komponen *amorphous* agar dapat meningkatkan adhesivitas matriks dan *fiber*. Penggunaan FRC di dalam rongga mulut sebagai *fixed partial denture* akan berkontak dengan minuman teh yang berwarna. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh lama perendaman FRC sisal teralkalisasi dalam larutan teh terhadap stabilitas warna.

Bahan penelitian ini adalah resin komposit *flowable* (*Master Flow* A2, BIODINAMICA^{TM}, Brazil) dan *fiber* sisal (Balittas, Malang) yang dialkalisasi dengan NaOH 5%. Alat penelitian berupa cetakan/*metal split mould* (diameter 10 mm dan tebal 2 mm) dan *chromameter* (Konica Minolta CR400, Jepang). Dua belas sampel berbentuk cakram (10 mm x 2 mm) tersusun atas resin komposit dengan 1% *fiber* sisal teralkalisasi, dan dibagi menjadi tiga kelompok (n=4) variasi lama perendaman (0, 7, dan 14 hari). Warna sampel diukur sebelum dan sesudah melakukan perendaman dalam larutan teh (37^oC) yang diukur menggunakan *chromameter*. Data $\Delta E_{L^*a^*b^*}$ diuji dengan ANAVA satu jalur dan $LSD_{0,05}$.

Hasil penelitian menunjukkan rerata ΔE pada kelompok 0, 7, dan 14 hari berturut-turut adalah 1,57±0,66; 3,09±0,95; dan 4,64±0,34. Hasil ANAVA satu jalur menunjukkan nilai F=19,32 dengan p=0,001, berarti terdapat pengaruh lama perendaman FRC *Agave sisalana* terhadap stabilitas warna (p<0,05). Uji LSD menunjukkan perbedaan yang bermakna antar semua kelompok perlakuan (p<0,05). Kesimpulan penelitian ini adalah lama perendaman FRC *Agave sisalana* teralkalisasi dalam larutan teh sampai hari ke 14 berpengaruh terhadap stabilitas warna.

Kata kunci : *Fiber* sisal, alkalisasi, teh, stabilitas warna

ABSTRACT

Fiber reinforced composite consisted of interconnected fiber and matrix. *Agave sisalana* natural fiber used was alkalized to remove amorphous component in order to be able to improve matrix and fiber adhesiveness. The application of FRC in mouth as a fixed partial denture caused material could contact with colored tea drink. This research was aimed to know the influence of alkalized FRC *Agave sisalana* immersion duration in tea solution towards color stability.

This research material were flowable composite resin (*Master Flow* A2, BIODINAMICA^{TM}, Brazil) and sisal fiber (Balittas, Malang) that was alkalized with NaOH 5%. This research instruments were metal split mould (10 mm in diameter and 2 mm in thickness) and a chromamater (Konica Minolta CR 400, Japan). Twelve samples were made in form of disk (10 mm x 2 mm) used a composite resin and 1% alkalized sisal fiber and was divided into three groups (n=4), according to immersion duration (0, 7, and 14 days). The initial and final color of samples were measured by chromameter before and after immersed in tea solution (37^o C). The data of $\Delta E_{L^*a^*b^*}$ were analyzed by a one-way ANOVA and $LSD_{0.05}$ test.

The research result showed mean value of ΔE for each group 0, 7, and 14 days were 1.57±0.66; 3.09±0.95 and 4.64±0.34 respectively. The one way ANOVA result showed F value=19.32 and p=0.001 meant that there was an influence of alkalized FRC *Agave sisalana* immersion duration towards color stability ($p<0.05$). The LSD test showed a significant difference among all the treatment groups ($p>0.05$). This research concludes that alkalized FRC *Agave sisalana* immersion duration in tea solution until 14^{th} day influenced color stability.

Key words : Sisal Fiber, alkalization, tea, color stability