Abstract

Some methods can be conducted to increase the strength of flexural fiber reinforced acrylic resin. Fiber Reinforced Acrylic Resin (FRAR) is the addition of fiber to strengthen the mechanical power of acrylic resin.

This research was conducted to determine the effect of the orientation of coco fiber on the flexural strength of Fiber Reinforced Acrylic Resin (FRAR) in a woven and continuous manner. This research was conducted using laboratory experimental method and was designed with a posttest-only design. The continuous treatment group was made of acrylic resin with the addition of woven and continuous coconut coir fiber, as well as acrylic resin without fiber (control group).

The research data analyzed by One Way ANOVA. It showed a significance value of p = 0.004 (p<0.005) which indicated a significant difference. In the post hoc Bonferroni test between-groups, it was found that there was a significant difference in flexural scores between the control group and the continuous group, p = 0.004 (p>0.05).

The conclusion of this research showed that the addition of coco fiber to heat-cured acrylic resin was effective in increasing the flexural strength of Fiber Reinforced Acrylic Resin (FRAR).

***Keywords**: Fiber reinforce acrylic resin (FRAR), flexural, coco fiber, woven, continuous.*

Abstrak

Terdapat berbagai metode yang dapat dilakukan untuk meningkatkan kekuatan fleksural resin akrilik heat cure. Fiber reinforced acrylic resin (FRAR) merupakan penambahan serat untuk memperkuat kekuatan mekanik resin akrilik. Penelitian berikut dilakukan untuk mengetahui pengaruh orientasi serat sabut kelapa (cocofiber) secara woven dan continuous terhadap kekuatan fleksural fiber reinforced acrylic resin (FRAR).

Metode penelitian berikut dilakukan secara eksperimental laboratoris mempergunakan rancangan post test only. Kelompok perlakuan tersusun atas resin akrilik dengan penambahan serat sabut kelapa secara woven, continuous dan resin akrilik tanpa serat (kelompok kontrol).

Data hasil penelitian dianalisis menggunakan One Way ANOVA dimana memperlihatkan nilai signifikansi p = 0,004 (p<0,005) yang memperlihatkan perbedaan signifikan. Pada uji antar kelompok dengan post hoc Bonferroni, diketahui terdapat perbedaan

nilai fleksural yang signifikan di kelompok kontrol dengan kelompok continuous p = 0,004 (p>0,05).

Kesimpulan penelitian memperlihatkan penambahan serat sabut kelapa pada resin akrilik heat cured efektif untuk meningkatkan kekuatan fleksural fiber reinforce acrylic resin (FRAR).

***Kata Kunci** : Fiber reinforce acrylic resin (FRAR), fleksural, serat sabut kelapa, woven, continuous*