

INTISARI

Resin komposit merupakan salah satu bahan alternatif yang umumnya biasa digunakan sebagai pengganti restorasi berbahan logam karena sifatnya yang sewarna gigi serta mempunyai kekuatan yang baik. Sifat mekanis resin komposit dapat ditingkatkan dengan penambahan serat yang disebut juga dengan *Fiber Reinforced Composite* (FRC). Tujuan dari penelitian ini adalah untuk mengetahui pengaruh jumlah pita *fiber Bombyx mori*. terhadap modulus elastisitas FRC.

Penelitian menggunakan resin komposit *flowable* resin (DenFil™ Flow, Vericom, Korea) yang diperkuat pita sutra *Bombyx mori*. Sampel berbentuk balok berukuran (25x2x2) mm sejumlah 18. Kelompok perlakuan dibagi menjadi tiga (0 pita, 1 pita, dan 2 pita). Modulus elastisitas diuji menggunakan *Universal Testing Machine*. Data yang diperoleh dianalisis menggunakan *One Way ANOVA*.

Hasil penelitian menunjukkan rerata modulus elastisitas (MPa) kelompok FRC dengan penambahan 0 pita (1336,29±191,93), 1 pita (1414,74±188,53), dan 2 pita (1667,76±181,94). Hasil analisis *One Way ANOVA* menunjukkan jumlah pita sutra *Bombyx mori* berpengaruh signifikan terhadap modulus elastisitas FRC. Hasil *LSD* menunjukkan bahwa rerata modulus elastisitas antar kelompok 0 pita dan 1 pita terhadap 2 pita berbeda bermakna. Kesimpulan dari penelitian ini adalah jumlah pita sutra *Bombyx mori* meningkatkan modulus elastisitas *Fiber Reinforced Composite*.

Kata kunci: modulus elastisitas, *silk fiber Bombyx mori*, FRC.

ABSTRACT

Composite resin is an alternative material that is generally used as a replacement for metal restorations because it is tooth-colored and has good strength. The mechanical properties of composite resin can be improved by adding fiber which is also called Fiber Reinforced Composite (FRC). The aim of this research is to determine the effect of the number of Bombyx mori fiber ribbons. on the modulus of elasticity of FRC.

The research used flowable resin composite resin (DenFil™ Flow, Vericom, Korea) reinforced with Bombyx mori silk ribbon. The samples were in the form of blocks measuring 18 (25x2x2) mm. The treatment groups were divided into three (0 bands, 1 band, and 2 bands). The elastic modulus was tested using a Universal Testing Machine. The data obtained were analyzed using One Way ANOVA.

The results showed the average elastic modulus (MPa) of the FRC group with the addition of 0 bands (1336.29 ± 191.93), 1 band (1414.74 ± 188.53), and 2 bands (1667.76 ± 181.94). The results of the One Way ANOVA analysis showed that the number of Bombyx mori silk ribbons had a significant effect on the elastic modulus of FRC. The LSD results show that the average elastic modulus between the 0 band and 1 band groups with respect to 2 bands is significantly different. The conclusion of this research is that the number of Bombyx mori silk ribbons increases the elastic modulus of the Fiber Reinforced Composite..

Key words: *elastic modulus, Bombyx mori silk fiber, FRC.*