

INTISARI

Nanofiller resin composite merupakan salah satu jenis resin komposit yang digolongkan berdasarkan ukuran pengisi skala nanometer, yang digunakan sebagai bahan tumpatan. *Red wine* merupakan minuman fermentasi yang telah lama dikonsumsi atas asas tradisi, keagamaan, *trend*, dan kebudayaan di lingkungan bermasyarakat. Kebiasaan mengonsumsi *red wine* dapat menyebabkan penurunan kekerasan material *nanofiller resin composite*. Penelitian ini bertujuan untuk mengetahui pengaruh variasi lama perendaman dalam *red wine* terhadap kekerasan *nanofiller composite resin*.

Penelitian menggunakan bahan *nanofiller resin composite* jenis Filtek™ Z350 XT Restorative dengan sampel bentuk disk ukuran 8 mm (diameter) x 2 mm (tebal) sebanyak 16 keping. Sampel dibagi menjadi 4 kelompok perendaman dalam *red wine*, masing-masing kelompok terdiri dari 4 sampel yaitu kelompok A (0 jam), kelompok B (30 jam), kelompok C (90 jam), dan kelompok D (150 jam). Seluruh sampel diuji kekerasan menggunakan alat *Vickers hardness tester* dengan beban 200 g selama 15 detik. Data dianalisis menggunakan uji Anava satu jalur dan *post hoc* LSD_{0,05}.

Hasil penelitian menunjukkan rerata kekerasan *nanofiller resin composite* yang direndam dalam *red wine* berturut-turut adalah 104,68 ± 4,09 HVN (0 jam); 83,73 ± 1,52 HVN (30 jam), 84,22 ± 2,14 HVN (90 jam) dan 78,49 ± 3,73 HVN (150 jam). Hasil uji Anava satu jalur menunjukkan pengaruh yang bermakna lama perendaman dalam *red wine* terhadap kekerasan *nanofiller composite resin* ($p < 0,05$). Uji LSD_{0,05} menunjukkan perbedaan rerata kekerasan yang bermakna antar semua kelompok perendaman ($p < 0,05$) kecuali antara kelompok 30 jam dan 90 jam. Kesimpulan penelitian adalah: variasi lama perendaman dalam *red wine* mempengaruhi kekerasan *nanofiller resin composite*.

Kata kunci: *Nanofiller resin composite*, *red wine*, lama perendaman, kekerasan

ABSTRACT

Nanofiller composite resin is one type of composite resin which is classified based on the size of the nanometer scale filler, which is used as a filling application. Red wine is a fermented drink that has long been consumed as a tradition, religion, trend, and culture in the community. The habit of consuming red wine can cause a decrease in the hardness of the nanofiller composite resin material. This study aims to determine the effect of variations in the immersion time of red wine on the hardness of the nanofiller composite resin.

The sample material used was Filtek™ Z350 XT Restorative nanofiller composite resin with a size of 8 mm (diameter) x 2 mm thick as many as 16 pieces. The samples were divided into 4 groups of 4 pieces each with group A (0 hours), group B (30 hours), group C (90 hours), and group D (150 hours). The specimens were tested for hardness using a Vickers hardness machine with a load of 200 g for 15 seconds. Data analysis used one-way Anova test and LSD_{0.05} test.

The results showed that the average hardness of the nanofiller composite resin was as follows: 104.68 ± 4.09 HVN (0 hours); 83.73 ± 1.52 HVN (30 hours), 84.22 ± 2.14 HVN (90 hours); and 78.49 ± 3.73 HVN (150 hours). The results of the one-way ANOVA test showed a significant effect of immersion time variations on the hardness of nanofiller composite resin. The LSD_{0.05} test showed a significant difference in mean hardness between all treatment groups ($p < 0.05$) except between the 30-hour and 90-hour immersion groups. The conclusion of the study was: variations in the immersion time in red wine affected the hardness of the nanofiller composite resin

Keyword: Nanofiller composite resin, red wine, immersion time, hardness