

## INTISARI

*Bleaching* merupakan proses mencerahkan warna gigi dengan aplikasi bahan kimia seperti hidrogen peroksida. Restorasi resin komposit sering ditemukan pada gigi geligi pasien yang akan melakukan prosedur *bleaching*. Resin komposit yang banyak digunakan adalah jenis mikrohibrid dan nanofil. Meningkatnya kekasaran permukaan resin komposit disebabkan oleh aplikasi hidrogen peroksida. Pelekatan zat pewarna seperti kopi meningkat karena kekasaran permukaan resin komposit. Penelitian ini bertujuan untuk mengetahui perbedaan diskolorasi pada resin komposit mikrohibrid dan nanofil setelah prosedur *bleaching*.

Subjek pada penelitian ini adalah 5 sampel resin komposit mikrohibrid (Z250) dan 5 sampel resin komposit nanofil (Z350XT) yang dibuat dalam cetakan dengan diameter 15 mm dan ketebalan 2 mm. Bahan *bleaching* hidrogen peroksida 40% (Opalescence Boost) diaplikasikan pada sampel kemudian dilakukan pengukuran warna awal dengan *chromameter*. Selanjutnya, seluruh sampel direndam dalam larutan kopi selama 48 jam dan dilakukan pengukuran warna akhir. Perhitungan perubahan warna dilakukan dengan metode CIE  $L^*a^*b$  dan dikalkulasi dengan rumus  $\Delta E^*_{ab} (L^*a^*b) = [(\Delta L^*)^2 + (\Delta a^*_{ab})^2 + (\Delta b^*_{ab})^2]^{1/2}$ . Analisis data dilakukan dengan uji t tidak berpasangan.

Hasil analisis menunjukkan terdapat perbedaan diskolorasi antara kedua kelompok sampel ( $p < 0,05$ ). Diskolorasi pada kelompok resin komposit nanofil (6,27) lebih besar dibandingkan dengan kelompok resin komposit mikrohibrid (4,92). Kesimpulan dari penelitian ini adalah terdapat perbedaan diskolorasi antara resin komposit mikrohibrid dan nanofil yang direndam dalam kopi setelah prosedur *bleaching* dengan hidrogen peroksida 40%.

**Kata Kunci:** Resin Komposit, mikrohibrid, nanofil, bleaching, diskolorasi

## ABSTRACT

Bleaching is the lightening of the color of a tooth through the application of a chemical agent such as hydrogen peroxide. Composite resin restoration frequently seen in patient's dentition who receive bleaching treatment. The common composite resin used were microhybrid and nanofilled. Surface roughness of composite resin was increased by the application of hydrogen peroxide. The adherence of coloring agent, such as coffee, increased by the roughness of composite resin. The purpose of this study was to determine the differences between discoloration of microhybrid and nanofilled composite resin after bleaching procedures.

The specimens in this study were 5 microhybrid composites (Z250, 3M ESPE) and 5 nanofilled composites (Z350, 3M ESPE) made in a mold of 15 mm diameter and 2 mm thickness. Bleaching agents, hydrogen peroxide 40% (Opalescence Boost, Ultradent) was subjected to the samples and an initial color measurement was conducted using chromameter. All the specimens immersed in coffee solutions for 48 hours and final color measurement was conducted. The calculation of discoloration on the entire sample were conducted using CIE L\*a\*b method and calculated using  $\Delta E^*_{ab} (L^*a^*b) = [(\Delta L^*)^2 + (\Delta a^*_{ab})^2 + (\Delta b^*_{ab})^2]^{1/2}$  formula. The data were analyzed by independent t-test.

The results showed that there were differences between discoloration of two sample groups ( $p < 0,05$ ). Discoloration of nanofilled group (6,27) was greater than microhybrid group (4,92). The conclusion of this study was there was differences between discoloration of microhybrid and nanofilled composite resin that were immersed in coffee solution after bleaching treatment using 40% hydrogen peroxide.

**Keywords:** Composite resin, microhybrid, nanofilled, bleaching, discoloration