

# Pengaruh Suhu Rendah terhadap Stabilitas Warna Material Restoratif Estetik Sewarna Gigi untuk Keperluan Forensik = The Effect of Low Temperature on Color Stability Of Tooth- Colored Esthetic Restorative Materials for Forensic Purposes

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## Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh suhu rendah terhadap stabilitas warna material restoratif estetik sewarna gigi untuk keperluan forensik. Spesimen terdiri dari resin-modified glass ionomer cement (RMGIC) dan resin komposit giomer bulk-fill dipaparkan pada suhu 5,5-6,2°C dan kelembaban relatif 20% dengan lama paparan 3, 7, dan 14 hari. Pengukuran warna spesimen sebelum dan sesudah perlakuan dilakukan menggunakan colorimeter. Hasil menunjukkan bahwa terdapat perbedaan bermakna pada setiap kelompok perlakuan pada hari ke-3, ke-7, dan ke-14 ( $p < 0,05$ ). Selain itu, terdapat perbedaan yang tidak bermakna antara kelompok RMGIC yang memiliki lama paparan 3 hari dengan lama paparan 7 hari ( $p > 0,05$ ) serta perbedaan yang bermakna ( $p < 0,05$ ) antara kelompok RMGIC yang dipaparkan selama 3 hari dengan 14 hari dan 7 dengan 14 hari; serta antara kelompok resin komposit giomer bulk-fill dengan lama paparan 3, 7, dan 14 hari. Perbedaan yang bermakna ( $p < 0,05$ ) juga ditemukan ketika kedua bahan dibandingkan dengan lama paparan yang sama (3, 7, dan 14 hari). Disimpulkan bahwa suhu rendah dapat mempengaruhi nilai perubahan warna RMGIC dan resin komposit giomer bulk-fill yang memiliki potensi untuk digunakan dalam keperluan odontologi forensik.

.....The aim of this study was to analyze the effects of low temperature on the color stability of tooth-colored esthetic restorative materials for forensic purposes. Specimens consisted of resin-modified glass ionomer cement (RMGIC) and giomer bulk-fill composite resin that were exposed to the temperature of 5,5-6,2°C and 20% relative humidity for 3, 7, and 14 days of exposure. Color measurement of specimens was done using colorimeter prior to and after the exposure of low temperature. The results showed that there were significant differences among each group of 3, 7, and 14 days exposure ( $p < 0.05$ ). In addition, there was an insignificant difference ( $p > 0.05$ ) between the group of RMGIC that was exposed to low temperature for 3 days and the group of RMGIC that was exposed for 7 days; significant differences ( $p < 0.05$ ) between the group of RMGIC that was exposed for 3 days and 14 days; 7 and 14 days; and among the groups of giomer bulk-fill composite resin that were exposed to low temperature for 3, 7, and 14 days. Significant differences ( $p < 0.05$ ) were also found when the two materials were compared under the same time of exposure (3, 7, and 14 days). It could be concluded that low temperature was capable of affecting the color change value of RMGIC and giomer bulk-fill composite resin, and therefore possessed a potential to be utilized for forensic odontology purposes.