

**KELARUTAN RESIN MODIFIED GLASS IONOMER DAN ENHANCED  
RESIN MODIFIED GLASS IONOMER, DALAM SIMULATED BODY  
FLUID DENGAN LAMA PERENDAMAN BERBEDA**

**INTISARI**

*Resin modified glass ionomer cement (RMGIC)* dan *enhanced resin modified glass ionomer cement (ERMGIC)* merupakan bahan restorasi yang memiliki kemampuan remineralisasi gigi dan mencegah terjadinya karies sekunder. Kedua bahan tersebut perlu memiliki sifat kelarutan yang baik di dalam rongga mulut. Tujuan dari penelitian ini adalah untuk mengetahui kelarutan RMGIC dan ERMGIC dalam *simulated body fluid* dengan lama perendaman 1, 7, dan 14 hari.

Spesimen penelitian yang digunakan berbentuk silinder dengan diameter 15 mm dan tebal 1 mm. Jumlah spesimen sebanyak 48 spesimen yang terdiri dari kelompok RMGIC dan kelompok ERMGIC. Kelompok RMGIC dan kelompok ERMGIC dibagi dalam 3 subkelompok berdasarkan lama perendaman, yaitu 1 hari, 7 hari, dan 14 hari. Pengukuran kelarutan dilakukan melalui penimbangan massa spesimen sebelum dan sesudah direndam dalam *simulated body fluid*, sesuai standar ISO 4049:2009. Selanjutnya, data dianalisis statistik Anava dua jalur dan uji *Tukey's Post Hoc*.

Hasil analisis statistik Anava dua jalur, menunjukkan bahwa jenis bahan restorasi berpengaruh secara signifikan terhadap kelarutan bahan restorasi ( $p < 0,05$ ). Lama perendaman berpengaruh secara signifikan terhadap kelarutan bahan restorasi ( $p < 0,05$ ). Tidak terdapat interaksi antara jenis bahan restorasi dan lama perendaman ( $p > 0,05$ ). Kesimpulan dari penelitian ini adalah kelarutan RMGIC lebih tinggi dibandingkan dengan ERMGIC. Kelarutan bahan restorasi dengan perendaman 14 hari lebih tinggi dibandingkan dengan perendaman 1 hari dan 7 hari.

Kata kunci: kelarutan, *resin modified glass ionomer cement*, *enhanced resin modified glass ionomer cement*, *simulated body fluid*, lama perendaman

## **SOLUBILITY OF MODIFIED GLASS IONOMER RESIN AND ENHANCED RESIN MODIFIED GLASS IONOMER IN SIMULATED BODY FLUID WITH DIFFERENT IMMERSION TIME**

### **ABSTRACT**

Resin modified glass ionomer cement (RMGIC) and enhanced resin modified glass ionomer cement (ERMGIC) are restoration materials that have the ability to remineralize teeth and prevent secondary caries. Both materials need to have good solubility properties in the oral cavity. The purpose of this study was to determine the solubility of RMGIC and ERMGIC in simulated body fluid with immersion times of 1, 7, and 14 days.

The research specimens used were cylindrical with a diameter of 15 mm and a thickness of 1 mm. The number of specimens was 48 specimens consisting of the RMGIC group and the ERMGIC group. The RMGIC group and ERMGIC group were divided into 3 subgroups based on the immersion time, namely 1, 7, and 14 days. Solubility measurements were made by weighing the mass of the specimens before and after immersion in simulated body fluid, according to ISO 4049:2009 standard. The data were analyzed using two-way ANOVA and Tukey's Post Hoc test.

The results of the two-way ANOVA statistical analysis showed that the type of restoration material had a significant effect on the solubility of the restoration material ( $p < 0.05$ ). Immersion time has a significant effect on the solubility of restoration materials ( $p < 0.05$ ). There was no interaction between the type of restoration material and immersion time ( $p > 0.05$ ). The conclusion of this study is that the solubility of RMGIC is higher than that of ERMGIC. The solubility of restoration materials with 14 days immersion was higher compared to 1 day and 7 days immersion.

**Keywords:** solubility, resin modified glass ionomer cement, enhanced resin modified glass ionomer cement, simulated body fluid, immersion time