

**PELEPASAN ION FLUOR *RESIN MODIFIED GLASS IONOMER* DAN
ENHANCED RESIN MODIFIED GLASS IONOMER
DALAM SALIVA pH ASAM DENGAN
LAMA PERENDAMAN BERBEDA**

INTISARI

Resin Modified Glass Ionomer Cement (RMGIC) dan *Enhanced Resin Modified Glass Ionomer Cement* (E-RMGIC) adalah bahan restorasi kedokteran gigi yang mampu melepas ion fluor sehingga dapat mendukung mineralisasi tulang atau gigi sekaligus mengurangi terjadinya karies sekunder. Nilai pH saliva yang asam mampu memengaruhi pelepasan ion fluor tumpatan. Penelitian ini dilakukan untuk mengetahui pelepasan ion fluor dari material restorasi RMGIC dan E-RMGIC dalam saliva pH asam dengan lama perendaman berbeda.

Penelitian eksperimental dilakukan pada total 48 spesimen dengan dua kelompok utama yaitu bahan restorasi RMGIC dan ERMGIC. Setiap kelompok dibagi menjadi 3 subkelompok sesuai durasi perendaman spesimen yaitu 1 hari, 7 hari, dan 14 hari. Masing-masing subkelompok memiliki 8 buah spesimen dengan diameter 15 mm dan ketebalan 1 mm (ISO 4049, 2009). Jumlah pelepasan ion fluor dari bahan diuji menggunakan Spektrofotometer *UV-Vis* dengan Panjang gelombang 570 nm sehingga dapat diketahui nilai absorbansinya.

Data hasil penelitian dianalisis menggunakan menggunakan software SPSS versi 29.0.2 dengan tingkat kepercayaan 95% ($\alpha=0,05$). Analisis data diawali dengan uji normalitas *Shapiro-Wilk* dan uji homogenitas *Levene's*, kemudian dilanjutkan dengan uji ANAVA dua jalur dan uji *Post-hoc Tukey's*. Hasil analisis menunjukkan bahwa data terdistribusi normal dan homogen. Hasil analisis data pada uji ANAVA dua jalur terkait pengaruh jenis bahan restorasi dan lama perendaman menunjukkan nilai $p=0,001$ ($p<0,05$) kedua variabel tersebut berpengaruh signifikan terhadap pelepasan ion fluor. Uji *Post-hoc Tukey's* menunjukkan bahwa terdapat perbedaan signifikan antarkelompok.

Kata kunci: Ion Fluor, *Resin Modified Glass Ionomer Cement* (RMGIC), *Enhanced Resin Modified Glass Ionomer Cement* (ERMGIC), Saliva pH Asam, Lama Perendaman

FLUORIDE IONS RELEASE OF RESIN MODIFIED GLASS IONOMER AND ENHANCED RESIN MODIFIED GLASS IONOMER IN ACIDIC SALIVARY pH WITH DIFFERENT IMMERSION TIMES

ABSTRACT

Resin Modified Glass Ionomer Cement (RMGIC) and Enhanced Resin Modified Glass Ionomer Cement (E-RMGIC) are dental restorative materials that are capable of releasing fluoride ions so they can support bone or tooth mineralization while reducing the occurrence of secondary caries. The acidic pH value of saliva can influence the release of spilled fluorine ions. This research was conducted to determine the release of fluorine ions from RMGIC and E-RMGIC restoration materials in acidic pH saliva with different immersion times.

Experimental research was carried out on a total of 48 specimens with two main groups, namely RMGIC and ERMGIC restoration materials. Each group was divided into 3 subgroups according to the duration of immersion the specimens got, namely 1 day, 7 days and 14 days. Each subgroup had 8 specimens with a diameter of 15 mm and a thickness of 1 mm (ISO 4049: 2009). The amount of fluoride ion released from the material was tested using a UV-Vis Spectrophotometer with a wavelength of 570 nm so that the absorbance value could be determined.

The research data were analyzed using SPSS software version 29.0.2 with a confidence level of 95% ($\alpha=0.05$). Data analysis began with the Shapiro-Wilk normality test and Levene's homogeneity test, then continued with the two-way ANOVA test and Tukey's Post-Hoc test. The results of the analysis showed that the data is normally distributed and homogeneous. The results of data analysis in the two-way ANOVA test regarding the influence of the type of restoration material and immersion time showed a value of $p=0.001$ ($p<0.05$) that means both variables had a significant effect on the release of fluoride ions. Post-Hoc Tukey's test showed that there were significant differences between groups.

Keywords: Fluoride Ion, Resin Modified Glass Ionomer Cement (RMGIC), Enhanced Resin Modified Glass Ionomer Cement (ERMGIC), Acid pH Saliva, Immersion Time