

ABSTRACT**THE DIFFERENCE OF RESIDUAL MONOMERS BETWEEN BULK FILL SCULPTABLE AND FLOWABLE RESIN COMPOSITES ON LIGHT EMITTED DIODE (LED) LIGHTNING**

Background: Resin composite has many benefits, namely good mechanical properties, fast polymerization, aesthetical quality, easy to handle, and its ability to adhere on the surface of the enamel. However, there are also some disadvantages from this material, one of them is the existence of residual monomers. Bulk fill composite is available in the forms of sculptable (hard) and flowable (liquid). Most of the matrix of the resins is diacrylate (aromatic or aliphatic). Bis-gma, udma and tegdma are the matrix monomers which are commonly used. The residual monomers of tegdma, bis-gma and udma show high level of cytotoxicity. Furthermore, they also have poor mechanical properties such as wear resistance, hardness and tendency to change color and may cause pulp reactions. Based on the background above, the authors wanted to analyze some residual monomers which can be extracted by bulk fill composite with a thickness of 4 mm and diameter of 5 mm in the soaking of 10 minutes, an hour and 24 hours. **Purpose:** To investigate the different amount of residual monomers in bulk fill sculptable and flowable composites in the soaking of ethanol 75% (10 minutes, an hour and 24 hours). **Methods:** Sculptable and flowable composites were used in this study, samples (4 mm thick, 5 mm diameter) were prepared and polymerized for 10 seconds with an intensity of 1025 mW / cm² of light emitted diode (LED). After the sample was made, each sample was immediately immersed in a 75% ethanol solution which was used as an extraction liquid and stored in amber colored bottles at room temperature. Samples were taken as many as 7 cc at intervals of 10 minutes, an hour and 24 hours. Samples were analyzed by HPLC. The data obtained were analyzed using Kruskal-Wallis Test, Independent T Test and Mann-Whitney Test at a significance level of $p < 0.05$. **Result:** The amount of elution remaining monomers of bulk fill flowable composite was higher than bulk fill sculptable monomer. Udma composite of bulk fill flowable soaked in 75% ethanol solution for 24 hours was the highest among other monomers. **Conclusion:** Residual monomers eluted inside bulk fill composite resins in all time periods and the amount of eluted monomers increases with time.

Keywords: Residual monomer, Bulk fill composite, Soaking time, Hplc