

ABSTRAK

PENGARUH *PREHEATING TREATMENT* SUHU 39°C DAN 50°C TERHADAP PELEPASAN ION FLUORIDA BAHAN RESTORASI KOMPOMER

Wahyu Intan Putri Rambianti

Latar Belakang. Karies gigi ditandai dengan rusaknya struktur jaringan keras akibat bakteri kariogenik. Penanganan umum karies gigi adalah restorasi menggunakan bahan yang mengandung ion fluorida seperti kompomer. *Preheating treatment* dapat diaplikasikan pada kompomer untuk meningkatkan sifat mekanis. **Tujuan.** Tujuan dari penelitian ini adalah untuk mengetahui pengaruh *preheating treatment* terhadap pelepasan ion fluorida bahan restorasi kompomer. **Metode.** Metode penelitian ini adalah eksperimen laboratoris menggunakan total 27 sampel silinder kompomer yang terbagi menjadi 3 kelompok, yaitu kelompok *preheating treatment* 39°C, 50°C, dan kelompok kontrol. Seluruh sampel direndam di dalam saliva buatan kemudian dilakukan pengujian kadar ion fluorida menggunakan spektrofotometer UV-Vis dengan panjang gelombang 570 nm. **Hasil.** Hasil penelitian ini menunjukkan rata-rata kadar pelepasan ion fluorida tertinggi terdapat pada kelompok kontrol dan terendah pada kelompok *preheating treatment* suhu 50°C. Uji *one-way* ANOVA menunjukkan perbedaan signifikan kadar pelepasan ion fluorida pada seluruh kelompok perlakuan dengan nilai $p < 0,05$. Uji *post-hoc* LSD menunjukkan perbedaan signifikan kadar pelepasan ion fluorida antara kelompok *preheating treatment* suhu 39°C, 50°C dan kontrol. **Simpulan.** Simpulan dari penelitian ini adalah terdapat pengaruh *preheating treatment* pada suhu 39°C dan 50°C terhadap kadar pelepasan ion fluorida kompomer.

Kata Kunci: Fluorida, karies, kompomer, *preheating*, spektrofotometer

ABSTRACT

THE EFFECT OF PREHEATING TREATMENT AT 39°C AND 50°C ON FLUORIDE ION RELEASE OF COMPOMER RESTORATIVE MATERIALS

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Background. Dental caries is characterized by the destruction of hard tissue structures due to cariogenic bacteria. The common treatment for dental caries is restoration using fluoride-releasing materials such as compomers. Preheating treatment can be applied to compomer to enhance their mechanical properties. **Purpose.** The aim of this study was to determine the effect of preheating treatment on the fluoride release of compomer restorative material. **Methods.** The method used in this study was laboratory experimental using a total of 27 cylindrical compomer samples divided into 3 groups, namely preheating treatment at 39°C, 50°C, and a control group. All samples were immersed in artificial saliva and then tested for fluoride ion levels using a UV-Vis spectrophotometer at a wavelength of 570 nm. **Result.** The results of this study showed that the highest average fluoride ion release was found in the control group, while the lowest was recorded in the preheating treatment group at 50°C. One-way ANOVA test showed significant differences in the levels of fluoride release among the treatment groups with p-value < 0.05. LSD post-hoc test showed a significant difference in fluoride ion release levels among the preheating treatment groups at 39°C, 50°C, and the control group. **Conclusions.** The conclusion of this study is that there was an effect of preheating treatment at 39°C and 50°C on compomer fluoride release levels.

Keywords: Caries, compomer, fluoride, preheating, spectrophotometer