ABSTRAK

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Judul : Pengaruh penambahan bubuk slika terhadap *fracture toughness* bahan restorasi sementara *bis-acrylic* resin

Latar belakang: Restorasi sementara berfungsi untuk melindungi struktur gigi penyangga yang telah dipreparasi sebelum waktu pemasangan gigi tiruan cekat permanen. Restorasi sementara harus memenuhi syarat mekanis, biologis dan estetis. Salah satu upaya yang dapat dilakukan untuk memperbaiki sifat mekanis tersebut dengan menambahkan nanopartikel sebagai bahan pengisi dalam jumlahtertentu, diantaranya silika. **Tujuan**: Mengetahui pengaruh penambahan bubuksilika terhadap *fracture toughness* bahan restorasi sementara *bis-acrylic* resin secara mekanis, biologis, dan estetis. **Hasil penelitian**: Adanya perbedaan pengaruh yang signifikan saat penambahan bubuk silika terhadap *fracture toughness* bahan restorasi sementara *bis-acrylic* antara kelompok 0% dengan 0,1%, 0,3%, dan 0,5%, antara 0,1% dengan 0,3% dan 0,5%, serta antara 0,3% dengan 0,5% ($p \leq 0,05$). **Kesimpulan**: Penambahan bubuk silika 0,1% merupakan peningkatan *fracture toughness* bahan restorasi sementara *bis-acrylic* terbesardibandingkan dengan penambahan bubuk silika 0,3% dan 0,5%.
Kata Kunci: Restorasi sementara, *bis-acrylic* resin, *fracture toughness*.

ABSTRACT

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Title : Effect of silica powder addition on fracture toughness of bis-acrylic resin temporary restorative materials

Introduction: Temporary restoration serves to protect the structure of the abutment teeth that have been prepared prior to the installation of permanent fixed dentures. Temporary restoration must meet mechanical, biological and aesthetic requirements. One of the efforts that can be done to improve the mechanical properties is by adding nanoparticles as a filler in a certain amount, including silica. **Purpose:** To determine the effect of the addition of silica powder on the fracture toughness of bis-acrylic resin temporary restorative materials mechanically, biologically, and aesthetically. **Result:** There was a significant difference in the effect of the addition of silica powder on the fracture toughness of bis-acrylic temporary restorative materials between the 0% and 0.1%, 0.3%, and 0.5% groups, between 0.1% and 0.3% and 0.5%, and between 0.3% and 0.5% ($p \leq 0.05$). **Conclusion:** The addition of 0.1% silica powder was the largest increase in fracture toughness of the bis-acrylic temporary restorative material compared to the addition of 0.3% and 0.5% silica powder.
Keywords: Temporary restoration, bis-acrylic resin, fracture toughness.