PENGARUH PERENDAMAN SUSU FERMENTASI BAKTERI *LACTOBACILLUS BULGARICUS* TERHADAP KEKERASAN PERMUKAAN *GLASS IONOMER CEMENT*

SKRIPSI

Sebagai salah satu syarat untuk melaksanakan penelitian
Dalam rangka menulis skripsi pada Program Pendidikan Sarjana
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ABSTRAK

Latar Belakang: *Glass ionomer cement (GIC)* merupakan salah satu bahan restorasi yang digunakan oleh dokter gigi. Keberadaan GIC dalam rongga mulut menyebabkan bahan ini akan berkontak langsung dengan minuman atau makanan yang dikonsumsi, salah satu minuman yang gemar dikonsumsi dari berbagai kalangan masyarakat adalah susu fermentasi bakteri *Lactobacillus Bulgaricus* dengan pH 3,4 –4,6 yang dapat mempengaruhi kekerasan permukaan GIC. **Tujuan:** Mengetahui pengaruh perendaman minuman susu fermentasi bakteri *Lactobacillus Bulgaricus* terhadap kekerasan permukaan *glass ionomer cement.* **Metode:** Metode penelitian yang digunakan adalah eksperimental laboratoris menggunakan *post test only control group design*. Sampel dibuat dari GC FUJI IX GP EXTRA sebanyak 36 buah yang direndam dalam saliva buatan selama 24 jam dalam inkubator dengan suhu 37°C. Sampel dibagi menjadi dua kelompok perlakuan. Kelompok pertama direndam dalam minuman susu fermentasi *Lactobacillus bulgaricus*, kelompok kedua sebagai kontrol direndam dalam saliva saliva buatan selama 18 jam dalam inkubator. Pengujian kekerasan menggunakan *Vickers Hardness Tester*. **Hasil:** Berdasarkan hasil penelitian didapatkan rata-rata kekerasan permukaan pada kelompok perlakuan sebesar 41,33 VHN dan kelompok kontrol sebesar 52,23 VHN. Analisis uji statistic independent t-test menunjukan hasil signifikan $p<0,05$ yaitu terdapat pengaruh perendaman susu fermentasi bakteri *Lactobacillus bulgaricus* terhadap kekerasan permukaan GIC. **Kesimpulan:** Terdapat pengaruh perendaman minuman susu fermentasi bakteri *Lactobacillus bulgaricus* terhadap kekerasan permukaan bahan restorasi GIC, yaitu nilai kekerasan permukaan kelompok perendaman menggunakan minuman susu fermentasi bakteri *Lactobacillus bulgaricus* lebih rendah dibandingkan kelompok saliva .

Kata-kata kunci: GIC, *Glass Ionomer Cement*, Kekerasan Permukaan, *Lactobacillus Bulgaricus*, *Yoghurt*

EFFECT OF SUBMERSION IN MILK FERMENTATION OF LACTOBACILLUS BULGARICUS TOWARDS THE SURFACE HARDNESS OF GLASS IONOMER CEMENT

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ABSTRACT

***Background**: Glass ionomer cement (GIC) is one of the restorative materials used by dentists. The presence of GIC in the oral cavity causes this material to come into direct contact with food and beverages consumed, one of which is fermented milk from Lactobacillus Bulgaricus bacteria with a pH of 3.4-4.6 which can affect the surface hardness of GIC. **Objective**: To determine the effect of immersion in fermented milk from Lactobacillus Bulgaricus bacteria on the surface hardness of glass ionomer cement. **Methods**: The research method used was a laboratory experimental study using a post-test only control group design The sample was made from GC FUJI IX GP EXTRA, consisting of 36 pieces, which were immersed in artificial saliva for 24 hours in an incubator at a temperature of 37°C. The samples were divided into two treatment groups. The first group was immersed in fermented milk from Lactobacillus bulgaricus, while the second group as the control was immersed in artificial saliva for 18 hours in an incubator. Hardness testing was performed using a Vickers Hardness Tester. **Results**: Based on the results, it was found that the average surface hardness in the treatment group was 41.33 VHN and the control group was 52.23 VHN. Independent t-test statistical analysis showed a significant result with $p<0.05$, indicating an effect of immersion in fermented milk from Lactobacillus Bulgaricus bacteria on the surface hardness of GIC. **Conclusion**: There is an effect of immersion in fermented milk from Lactobacillus Bulgaricus bacteria on the surface hardness of GIC restorative material, with the surface hardness of the immersion group using fermented milk from Lactobacillus Bulgaricus bacteria is lower than the saliva group.*

***Keywords**:* GIC, *Glass Ionomer Cement, Lactobacillus Bulgaricus, Surface hardness, Yoghurt*