

**FAKULTAS KEDOKTERAN GIGI  
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**EFEK MINUMAN SUSU FERMENTASI TERHADAP KEKERASAN  
PERMUKAAN EMAIL GIGI SECARA IN VITRO**

ix + 64 Halaman + 5 Gambar + 6 Tabel + 4 Lampiran

**ABSTRAK**

Susu fermentasi merupakan salah satu produk susu yang memiliki pH asam. Minuman dengan pH asam jika berkontak langsung dengan email gigi dapat menyebabkan demineralisasi, sehingga menurunkan kekerasan permukaan email gigi. Tujuan penelitian adalah untuk mengetahui efek minuman susu fermentasi terhadap kekerasan permukaan email gigi secara in vitro.

Metode penelitian adalah eksperimental dengan *pretest* dan *posttest design*. Sampel berupa gigi premolar satu permanen rahang atas yang sudah diekstraksi dibagi menjadi dua kelompok perlakuan. Kelompok I perendaman dalam susu fermentasi A dengan bakteri starter *Lactobacillus casei* Shirota, dan kelompok II perendaman dalam susu fermentasi B dengan bakteri starter *Lactobacillus bulgaricus* dan *Streptococcus thermophilus*. Sebelum perendaman, kedua minuman diukur pH-nya menggunakan pH meter digital. Perendaman dilakukan selama 25 jam dalam inkubator 37°C. Kekerasan permukaan email diukur dengan alat Vickers Microhardness Tester.

Hasil penelitian menunjukkan pH kedua jenis minuman susu fermentasi berada di bawah pH kritis 5,5, terjadi penurunan yang tidak signifikan pada nilai rata-rata kekerasan permukaan email gigi antara sebelum dan sesudah perendaman, dan tidak terdapat perbedaan yang signifikan pengaruh antara kedua jenis minuman susu fermentasi terhadap kekerasan permukaan email gigi.

Kesimpulan penelitian ini adalah minuman susu fermentasi dapat menyebabkan terjadinya penurunan kekerasan permukaan email gigi yang tidak signifikan karena memiliki kandungan mineral seperti kalsium, posfat, dan fluor.

Kata kunci : susu fermentasi, demineralisasi, kekerasan permukaan email gigi

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**EFFECT OF FERMENTED MILK BEVERAGES ON ENAMEL SURFACE  
HARDNESS IN VITRO**

ix + 64 Pages + 5 Pictures + 6 Tables + 4 Attachment

**ABSTRACT**

Milk fermented is one of the dairy product which is has low pH that will cause demineralization if there was direct contact exposure to enamel. Demineralization will affect enamel by decreasing enamel surface hardness. The aim of this study is to test the in vitro milk fermented effect on enamel surface hardness.

The method that used in this study is using experimental approach to pretest and posttest design. Extracted human first premolar permanent teeth were divided into two treatment groups, first group immersion in fermented milk A that contain *Lactobacillus casei* Shirota and second group immersion in fermented milk B that contain *Lactobacillus bulgaricus* and *Streptococcus thermophilus*. Before samples immersion, the pH of the two fermented milks were measure by pH meter digital. Samples immersed in the fermented milk for a total 25 hours under 37°C temperature. Enamel surface hardness was measure by Vickers Hardness Tester.

The result of this study showed that pH value of each beverage were under critical pH 5,5, decreasing of enamel surface hardness happened although there were no significant difference between before and after immersion, and there were no significant difference between the two milk fermented beverages effect on enamel surface hardness.

This study revealed that fermented milk beverages can affect enamel by decreasing enamel surface hardness values which are not significant because fermented milk contains high mineral such as calcium, phosphor, and fluoride.

Key word : fermented milk, demineralization, enamel surface hardness