

## ABSTRAK

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Program Studi : Kedokteran Gigi  
Judul : Pengaruh Aplikasi Substrat Tulang Ikan Bandeng (*Chanos chanos*) terhadap Kekerasan Enamel Gigi Pasca Perendaman Minuman Berkarbonasi  
Pembimbing : drg. Nushita Dinar, M. Biotech, Sp. Ort  
drg. Gloria Fortuna, Sp. KG

**Tujuan:** Mengetahui pengaruh aplikasi substrat tulang ikan bandeng (*Chanos chanos*) terhadap kekerasan enamel gigi pasca perendaman minuman berkarbonasi. **Metode:** Jenis penelitian ini merupakan penelitian eksperimental laboratoris dengan desain *pre-test and post-test control group design*. Penelitian ini menggunakan 27 sampel gigi premolar rahang atas. Sampel dibagi menjadi 3 kelompok, yaitu kelompok substrat tulang ikan bandeng konsentrasi 20%, 40%, dan kelompok kontrol saliva buatan. Uji kekerasan enamel gigi dilakukan menggunakan *Vickers Hardness Tester*. Pengujian kekerasan dilakukan sebanyak 2 kali yaitu setelah demineralisasi dan setelah perlakuan. Data dianalisis menggunakan uji *Paired T-Test* dan *One Way ANOVA*. **Hasil:** Seluruh kelompok penelitian menunjukkan peningkatan nilai kekerasan enamel setelah perlakuan selama 14 hari. Peningkatan rata-rata tertinggi terdapat pada kelompok substrat tulang ikan bandeng konsentrasi 40%, diikuti kelompok kontrol saliva buatan, dan konsentrasi 20%. Uji *Paired T-Test* menunjukkan peningkatan signifikan pada kelompok 40% ( $p=0,003$ ) dan kontrol ( $p=0,004$ ), sedangkan kelompok 20% tidak signifikan ( $p=0,207$ ). Uji *One Way ANOVA* menunjukkan tidak terdapat perbedaan yang bermakna antar kelompok ( $p=0,168$ ). **Kesimpulan:** Aplikasi substrat tulang ikan bandeng 40% berpengaruh secara signifikan terhadap kekerasan enamel pasca perendaman dalam minuman berkarbonasi.

**Kata kunci:** minuman berkarbonasi, tulang ikan bandeng, kekerasan enamel, demineralisasi, remineralisasi, *Vickers Hardness Tester*

## ABSTRACT

Name : Yania Putri Marcelliaji  
Study Program : Dentistry  
Title : The Effect of Milkfish (*Chanos chanos*) Bone Substrate Application on Enamel Hardness after Immersion in Carbonated Beverages  
Counsellor : drg. Nushita Dinar, M. Biotech, Sp. Ort  
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**Objectives:** To determine the effect of milkfish (*Chanos chanos*) bone substrate application on enamel hardness after immersion in carbonated beverages.

**Methods:** This study was a laboratory experimental study with a *pre-test* and *post-test* control group design. This study used 27 maxillary premolar teeth as samples. The samples were divided into three groups, 20% milkfish bone substrate, 40% milkfish bone substrate, and artificial saliva control group. Enamel hardness was measured using a *Vickers Hardness Tester*. Hardness testing was performed twice, after demineralization and after treatment. Data were analyzed using the *Paired T-Test* and *One Way ANOVA*. **Results:** All groups showed an increase in enamel hardness after 14 days of treatment. The highest mean increase was observed in the 40% milkfish bone substrate group, followed by the artificial saliva control group and the 20% concentration group. The *Paired T-Test* showed significant increases in the 40% group ( $p=0.003$ ) and the control group ( $p=0.004$ ), while the 20% group showed no significant increase ( $p=0.207$ ). The *One Way ANOVA* showed no significant difference among groups ( $p=0.168$ ). **Conclusion:** The application of 40% milkfish bone substrate had a significant effect on enamel hardness after immersion in carbonated beverages.

**Keywords:** carbonated beverages, milkfish bone, enamel hardness, demineralization, remineralization, *Vickers Hardness Tester*