

**EFEKTIVITAS PASTA GIGI DENGAN KANDUNGAN DAUN SIRIH
(*PIPER BETLE*) DAN JERUK NIPIS (*CITRUS AURANTIFOLIA*)
TERHADAP PENURUNAN INDEKS PLAK PADA PENGGUNA
ORTODONTIK CEKAT**

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ABSTRAK

Latar Belakang: Kebutuhan perawatan ortodontik cekat pada masa kini semakin meningkat. Ortodontik cekat memiliki komponen yang lebih rumit dan sulit dibersihkan sehingga dapat meningkatkan akumulasi plak. Penumpukan plak dapat dikendalikan dengan cara menyikat gigi. Kandungan herbal pada pasta gigi diharapkan dapat menghambat pertumbuhan plak karena berkaitan dengan kemampuan bahan herbal dalam menghambat pertumbuhan mikroba.

Tujuan: Mengetahui efektivitas pasta gigi herbal kandungan daun sirih dan jeruk nipis dengan pasta gigi non herbal untuk penurunan indeks plak pengguna ortodontik cekat.

Metode: Jenis penelitian ini adalah *quasy experiment* dengan menggunakan rancangan *non equivalent control group*. Populasi penelitian ini adalah mahasiswa pengguna ortodontik cekat dengan lama penggunaan 12-36 bulan di kampus terpadu Poltekkes Kemenkes Yogyakarta dengan total 60 sampel. 30 sampel pada kelompok perlakuan menggunakan pasta gigi herbal kandungan daun sirih dan jeruk nipis dan 30 sampel pada kelompok kontrol menggunakan pasta gigi non herbal. Analisis data menggunakan *paired t-test* dan *independent t-test*.

Hasil: Hasil penelitian menunjukkan penurunan indeks plak pada kelompok perlakuan sebesar 39,25% dan kelompok kontrol 28,00%. Analisis statistik uji *paired t-test* menunjukkan $p=0,000$ ($< 0,05$) yang artinya terdapat perbedaan indeks plak sebelum dan sesudah menyikat gigi pada kelompok perlakuan dan kelompok kontrol. Hasil uji beda indeks plak antara kelompok perlakuan dan kelompok kontrol menggunakan *independent t-test* menunjukkan $p=0,049$ ($p<0,05$) yang artinya terdapat perbedaan indeks plak antara kelompok perlakuan dan kelompok kontrol.

Kesimpulan: Pasta gigi herbal kandungan daun sirih dan jeruk nipis mampu menurunkan indeks plak dengan rerata persentase 39,25% sedangkan pasta gigi non herbal 28,00%. Rerata indeks plak pengguna pasta gigi herbal kandungan daun sirih dan jeruk nipis sebelum dan sesudah menyikat gigi 1,09 menjadi 0,08 sedangkan pasta gigi non herbal 0,92 menjadi 0,29.

Kata Kunci: pasta gigi, daun sirih, jeruk nipis, plak, ortodontik cekat.

THE EFFECTIVENESS OF TOOTHPASTE CONTAINING BETEL LEAF AND LIME TOWARDS THE DECREASE OF PLAQUE INDEX AMONG THE FIXED ORTHODONTIC USERS

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ABSTRACT

Background: The necessities of fixed orthodontic appliance is increasing nowadays. A fixed orthodontic appliance have more complicated components which makes them difficult to clean, so can increase the accumulation of the plaque. Plaque cumulation can be controlled by brushing the teeth. A toothpaste's herbal content is expected can inhibiting the growth of plaque, because related with the ability of herbal ingredients to inhibit microbial growth.

Purpose: To find out how the effectiveness comparison herbal toothpaste containing betel leaf and lime with non-herbal toothpaste to reduce plaque index among users of fixed orthodontic appliance.

Method: The research is using a quasy experimental through non equivalent control group design. The research was conducted during February until March 2020th. The population of this study were regular students orthodontic users with an old use of 12-36 months of Poltekkes Kemenkes Yogyakarta, with 60 students as total sample. 30 samples on experiment group were using the herbal toothpaste containing betel leaf and lime, and the other 30 samples on control group were using non-herbal toothpaste. Data analysis used Paired sample T-test and Independent sample T-test.

Results: The result of this research shows that there were an decreased plaque index on the treatment experiment group as much as 39,25%, meanwhile the control group only decreased as 28,00%. Statistic analysis using *paired T-Test* showed $p=0,000$ ($<0,05$) which mean there were some difference plague index before and after brushing teeth, on both of treatment group and control group. The result of difference test towards plague index between treatment group and control group using independent T-Test showed $p=0,049$ ($p<0,05$), which mean there were some difference plague index between the treatment group and the control group.

Conclusion:Herbal toothpaste which containing betel leaves and betel of lime can reduce the plaque index average as 39,25%, meanwhile non-herbal toothpaste 28,00%. The mean plaque index of herbal toothpaste which containing betel leaf and lime before and after brushing teeth from 1,09 turn into 0,08, meanwhile non-herbal toothpaste only turn from 0,92 into 0,29.

Keywords: toothpaste, betel leaf, lime, plaque, fixed orthodontic appliance.

