

***Effect of Dosage Variation of Pineapple Peel Dish Washing Soap on Plate  
Germ Count Reduction***

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***ABSTRACT***

**Background:** Pineapple peels are a significant source of organic waste from fruit vendors, but they are not yet optimally utilized. Pineapple peels contain antibacterial compounds such as bromelain, flavonoids, tannins, and saponins, which have the potential to be used as active ingredients in dishwashing soap. Preliminary tests by several pineapple vendors at the Pineapple Peel Kiosk on Jalan Palagan Tentara Pelajar and Jalan Godean showed that the pineapple peels produced total up to 28.4 kg per day, which are simply discarded and awaiting waste collection.

**Objective:** This study aimed to determine the effect of varying concentrations of pineapple peel dishwashing soap on the reduction of bacterial counts on plates.

**Methods:** This research employed a quasi-experimental method with a pre-test post-test group design, using three treatments of pineapple peel dishwashing soap at concentrations of 10%, 20%, and 30%. Samples were collected from Kuliner Sendowo, and microbial analysis was conducted at the Microbiology Laboratory of Poltekkes Kemenkes Yogyakarta. Data were analyzed descriptively and analytically using the Shapiro wilks, Wilcoxon, Levene, Kruskal-Wallis, dan Mann-Whitney.

**Results:** The results showed that pineapple peel dishwashing soap reduced bacterial counts on plates, with average reductions of 27.2% at 10%, 65.7% at 20%, and 54.3% at 30%. Statistical tests indicated a significant difference at the 20% concentration ( $p = 0.008$ ), while no significant difference was found between the 20% and 30% concentrations.

**Conclusion:** The conclusion of this study is that pineapple skin washing soap with dosage variations of 10%, 20%, and 30% has an effect on reducing the number of germs on plates, the percentage reduction in the number of germs on dinner plates after washing using pineapple skin washing soap with dosage variations of 10%, 20%, and 30%. Based on the graph, the 20% dosage shows the highest average reduction in the number of germs at 65.7%.

**Keywords:** *Dishwashing soap, pineapple peel, bacterial count, plate, antibacterial*

## PENGARUH VARIASI DOSIS SABUN CUCI KULIT NANAS TERHADAP PENURUNAN ANGKA KUMAN PIRING

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### ABSTRAK

**Latar Belakang:** Sampah organik dari kulit buah nanas banyak dihasilkan oleh pedagang buah, namun belum dimanfaatkan secara optimal. Kulit nanas mengandung senyawa antibakteri seperti bromelin, flavonoid, tanin, dan saponin, yang berpotensi digunakan sebagai bahan aktif dalam sabun cuci piring. Hasil uji pendahuluan beberapa pedagang buah nanas di Kios Nanas Kupas Jalan Palagan Tentara Pelajar dan Godean, menunjukkan bahwa kulit nanas yang dihasilkan mencapai total hingga 28,4 kg per hari yang hanya dibuang begitu saja dan menunggu pengangkutan sampah.

**Tujuan:** Penelitian ini bertujuan untuk mengetahui pengaruh variasi dosis sabun cuci kulit nanas terhadap penurunan angka kuman pada piring.

**Metode:** Penelitian ini menggunakan metode quasi eksperimen dengan desain pre-test post-test group design, menggunakan tiga perlakuan sabun cuci kulit nanas dengan konsentrasi 10%, 20%, dan 30%. Pengambilan sampel dilakukan di Kuliner Sendowo, dan pemeriksaan angka kuman dilakukan di Laboratorium Mikrobiologi Poltekkes Kemenkes Yogyakarta. Data dianalisis secara deskriptif dan analitik menggunakan uji *Shapiro wilks*, *Wilcoxon*, *Levene*, *Kruskal-Wallis*, dan *Mann-Whitney*.

**Hasil:** Hasil penelitian menunjukkan bahwa sabun cuci kulit nanas mampu menurunkan angka kuman pada piring, dengan penurunan rata-rata sebesar 27,2% pada konsentrasi 10%, 65,7% pada 20%, dan 54,3% pada 30%. Uji statistik menunjukkan adanya perbedaan yang signifikan pada konsentrasi 20% ( $p=0,008$ ), namun tidak terdapat perbedaan signifikan antara konsentrasi 20% dan 30%.

**Kesimpulan:** Kesimpulan dari penelitian ini adalah bahwa sabun cuci kulit nanas variasi dosis 10%, 20%, dan 30% memiliki pengaruh terhadap penurunan angka kuman pada piring, persentase penurunan angka kuman pada piring makan setelah dilakukan pencucian menggunakan sabun cuci kulit nanas dengan variasi dosis 10%, 20%, dan 30%. Berdasarkan grafik, dosis 20% menunjukkan rata-rata penurunan angka kuman tertinggi sebesar 65,7%.

**Kata Kunci:** Sabun cuci, kulit nanas, angka kuman, piring, antibakteri