

**EFFECTIVENESS OF LIME SOLUTION CONCENTRATION  
VARIATIONS (*CITRUS AURANTIIFOLIA*) IN LIQUID  
SOAP USED COOKING OIL BASED TO LOWER  
NUMBER OF PLATE GERMS  
IN RESTAURANT X**

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**ABSTRACT**

**Background:** Continuous use of used cooking oil will be harmful to the human body. Used cooking oil contains ingredients that are carcinogenic. If disposed of carelessly, it has the potential to become B3 waste, so it is necessary to use used cooking oil. One of the efforts to use used cooking oil is as a raw material in making liquid soap.

**Objective:** To determine the effect of adding variations in the concentration of lime juice (*Citrus aurantiifolia*) to liquid soap from used cooking oil on the reduction of plate germ rate

**Methods:** The type of research used was quantitative research with a Quasi-Experiment Design with a Non-Equivalent Control Group approach with sample members in the experimental group and the control was not randomized. This research was conducted in September 2024. The population in this study is 24 samples. Data analysis uses Paired T-test and One Way Anova.

**Results:** Liquid soap processed from used cooking oil and lime juice concentration of 15% before washing was 198 colonies/cm<sup>2</sup> and after washing was 95 colonies/cm<sup>2</sup>, the concentration of 20% before washing was 198 colonies/cm<sup>2</sup> and after washing was 61 colonies/cm<sup>2</sup>, the concentration of 25% before washing was 198 colonies/cm<sup>2</sup> and after washing was 44 colonies/cm<sup>2</sup>, the concentration of 30% before washing was 198 colonies/cm<sup>2</sup> and after washing was 15 colonies/cm<sup>2</sup>.

**Conclusion:** Liquid soap processed from used cooking oil and lime juice at a concentration of 15% decreased the germ rate by 52%, at a concentration of 20% it decreased the germ rate by 69%, at a concentration of 25% it decreased the germ rate by 78%, while at a concentration of 30% it decreased the germ rate by 93%.

**Keywords:** Used Cooking Oil, Lime Juice, Germ Rate.

**EFEKTIVITAS VARIASI KONSENTRASI LARUTAN JERUK NIPIS  
(*CITRUS AURANTIIFOLIA*) DALAM BAHAN SABUN CAIR  
BERBASIS MINYAK JELANTAH UNTUK MENURUNKAN  
ANGKA KUMAN PIRING DI RUMAH MAKAN X**

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**INTISARI**

**Latar Belakang:** Penggunaan minyak jelantah secara terus menerus akan berbahaya bagi tubuh manusia. Minyak jelantah mengandung bahan bersifat karsinogenik. Jika dibuang secara sembarangan berpotensi menjadi limbah B3, sehingga perlu dilakukan pemanfaatan minyak jelantah. Salah satu upaya pemanfaatan minyak jelantah yaitu sebagai bahan baku dalam pembuatan sabun cair.

**Tujuan:** Mengetahui pengaruh penambahan variasi konsentrasi perasan jeruk nipis (*Citrus Aurantiifolia*) pada sabun cair dari minyak jelantah terhadap penurunan angka kuman piring

**Metode:** Jenis penelitian yang digunakan yaitu penelitian kuantitatif dengan rancangan Eksperimen Semu (Quasi Eksperimen Design) dengan pendekatan Non Equivalent Control Group dengan anggota sampel pada kelompok eksperimen dan kontrol tidak dilakukan randomisasi. Penelitian ini dilakukan bulan September 2024. Populasi pada penelitian ini adalah Alat makan piring sebanyak 24 Sampel. Analisis data menggunakan Paired T-test dan One Way Anova.

**Hasil:** Sabun cair olahan minyak jelantah dan perasan jeruk nipis konsentrasi 15% sebelum pencucian adalah 198 koloni/cm<sup>2</sup> dan setelah pencucian adalah 95 koloni/cm<sup>2</sup> , konsentrasi 20% sebelum pencucian adalah 198 koloni/cm<sup>2</sup> dan setelah pencucian adalah 61 koloni/cm<sup>2</sup> , konsentrasi 25% sebelum pencucian adalah 198 koloni/cm<sup>2</sup> dan setelah pencucian adalah 44 koloni/cm<sup>2</sup> , konsentrasi 30% sebelum pencucian adalah 198 koloni/cm<sup>2</sup> dan setelah pencucian adalah 15 koloni/cm<sup>2</sup>.

**Kesimpulan:** Sabun cair olahan minyak jelantah dan perasan jeruk nipis konsentrasi 15% menurunkan angka kuman sebesar 52%, pada konsentrasi 20% menurunkan angka kuman sebesar 69%, pada konsentrasi 25% menurunkan angka kuman sebesar 78%, sedangkan pada konsentrasi 30% menurunkan angka kuman sebesar 93%.

**Kata Kunci:** Minyak Jelantah, Perasan Jeruk Nipis, Angka Kuman.