

## ABSTRACT

**Background:** *Matoa (Pometia pinnata)* is a plant of the family Sapindaceae. *Matoa* fruit has antibacterial activity because it contains flavonoids, tannins and saponins, while the rind contains compounds *matoa* tannins, saponins and alkaloids. Utilization of *matoa* can be used as a hand sanitizer. This study aims to determine the influence of *matoa (Pometia pinnata)* hand sanitizer fruit peels to the number of gram-negative bacteria hand isolate.

**Metode:** This study used a true experiment with a type of research study design pre-test and post-test. The subjects were janitor (Cleaning Staff) of University of Muhammadiyah Yogyakarta. The tools and materials were Mac Conkey media, incubator, hand sanitizer with *matoa* fruit peel extract 0.5% and 1%. The process by counting the number of gram negative bacteria before and after treatment. Data of germs number before-after treatment were analyzed using Wilcoxon, Kruskal-Wallis and Mann-Whitney test.

**Result:** The lowest number of bacteria found on palms untreated at 750 CFU / cm<sup>2</sup>. Hand sanitizer of *matoa* fruit peel increased numbers of gram-negative bacteria, it was proved by the highest number of bacteria in giving the treatment of *matoa* fruit peel hand sanitizer 0.5% at 1541.75 CFU / cm<sup>2</sup>. Result of statistical analysis using Wilcoxon and Kruskal Wallis test at  $p > 0,05$ , so this study proved that hand sanitizer *matoa* fruit peel with 0.5% and 1% concentration did not give influence in reducing the number of gram-negative bacteria hand isolates of cleaning staff.

**Conclusion:** Hand sanitizer of *matoa* fruit peels did not give influence in reducing the number of Gram-negative bacterial hand isolate of cleaning staff. *Matoa* fruit peels hand sanitizers with a concentration of 0.5% and 1% did not give influence in reducing the number of gram-negative bacteria hand isolate of cleaning staff.

**Key Words:** *Matoa, Pometia pinnata, hand sanitizer, gram-negative bacteria*

## INTISARI

**Latar Belakang:** Matoa (*Pometia pinnata*) merupakan salah satu tanaman dari famili *Sapindaceae*. Buah matoa memiliki daya antibakteri karena memiliki kandungan flavonoid, tannin, dan saponin, sedangkan kulit buah matoa mengandung senyawa tannin, saponin dan alkaloid. Pemanfaatannya bisa digunakan sebagai *hand sanitizer*. Studi ini bertujuan untuk mengetahui pengaruh *hand sanitizer* kulit buah matoa terhadap angka bakteri gram negatif isolat tangan.

**Metode:** Penelitian ini menggunakan jenis penelitian *true experiment* dengan rancangan penelitian *pre-test* dan *post-test*. Subjek penelitian ini adalah petugas kebersihan (*Cleaning Staff*) Universitas Muhammadiyah Yogyakarta. Alat dan bahan yang digunakan yaitu, media agar *Mac Conkey*, inkubator, *hand sanitizer* ekstrak kulit buah matoa 0,5% dan 1%. Proses dengan cara menghitung angka bakteri gram negatif sebelum dan sesudah perlakuan. Analisis data menggunakan uji *Wilcoxon* dan *Kruskal-Wallis*.

**Hasil:** Angka kuman terendah dijumpai pada telapak tangan yang tidak diberi perlakuan yaitu 750 CFU/cm<sup>2</sup>. *Hand sanitizer* kulit buah matoa meningkatkan angka kuman gram negatif, terbukti angka kuman tertinggi pada perlakuan pemberian *hand sanitizer* kulit buah matoa 0,5% yaitu 1541,75 CFU/cm<sup>2</sup>. Hasil analisis statistik dengan uji *Wilcoxon* dan *Kruskal Wallis*  $p > 0,05$  sehingga penelitian ini membuktikan bahwa *hand sanitizer* kulit buah matoa dengan konsentrasi 0,5% dan 1% tidak mampu menurunkan angka bakteri gram negatif isolat tangan *cleaning staff*.

**Kesimpulan:** *Hand sanitizer* kulit buah matoa tidak mempengaruhi angka bakteri gram negatif isolat tangan *cleaning staff*. *Hand sanitizer* kulit buah matoa dengan konsentrasi 0,5% dan 1% tidak mempengaruhi angka bakteri gram negatif isolat tangan *cleaning staff*.

**Kata kunci:** Matoa, *Pometia pinnata*, *hand sanitizer*, angka bakteri gram negatif