PENGARUH MESIN PENCACAH SAMPAH PLASTIK PET TERHADAP DENSITAS, DAN PENINGKATAN NILAI EKONOMI SAMPAH DI BANK SAMPAH PERMATA POLKESYO

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ABSTRAK

Latar Belakang : Sampah plastik terdiri dari material yang umumnya sulit diurai mikroorganisme, sehingga membutuhkan waktu puluhan – ratusan tahun untuk terurai. Salah satu metode pengelolaan sampah yaitu dengan pengoperasian Bank Sampah Permata Polkesyo. Data bulan Januari – Mei 2025 menyatakan ada 430,28 kg sampah botol plastik yang telah di tabung nasabah. Namun ditemukan kendala karena pengelolaan yang kurang baik, menimbulkan lonjakan tumpukan sampah botol plastik. Pengepulan dan pengemasan sampah botol cenderung menghasilkan volume yang besar, tetapi berat relatif ringan. Sehingga perlu metode dengan menggunakan mesin penghancur plastik, yang dapat mengubah sampah botol plastik menjadi cacahan kecil.
Tujuan : Mengetahui pengaruh penggunaan mesin pencacah sampah plastik PET (*polyethylene terephthalate*) terhadap densitas, dan peningkatan nilai ekonomi sampah di Bank Sampah Permata Polkesyo.
Metode : Metode yang digunakan *Quasi Eksperimen Design* dengan rancangan penelitian *One Group Pre Test – Post Test*. Penelitian ini dilaksanakan dari bulan Desember 2024 – Mei 2025 di Bank Sampah Permata Polkesyo, Poltekkes Kemenkes Yogyakarta. Analisis data menggunakan uji normalitas *Shapiro Wilk*, dan uji non-parametrik *Wilcoxon*.
Hasil : Rata-rata peningkatan densitas sampah sebesar 92,21%, rata-rata peningkatan berat sampah setelah dilakukan perlakuan dengan mesin pencacah sebesar 92,21% dan terjadi peningkatan harga sebesar 95,32%. Hasil penelitian menunjukkan adanya pengaruh penggunaan mesin pencacah sampah plastik PET terhadap peningkatan densitas dan nilai ekonomi sampah dengan nilai *asymp. Sig* (*p-value*) sebesar 0,005.
Kesimpulan : Ada pengaruh bermakna penggunaan mesin pencacah sampah plastik Pet terhadap densitas dan nilai ekonomi sampah plastik di Bank Sampah Permata Polkesyo.
Kata Kunci : mesin pencacah, plastik PET, densitas, nilai ekonomi

THE EFFECT OF PET PLASTIC WASTE SHREDDING MACHINE ON DENSITY, AND INCREASING THE ECONOMIC VALUE OF WASTE IN POLKESYO GEM WASTE BANK

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ABSTRACT

Background : Plastic waste consists of materials that are generally difficult for microorganisms to break down, requiring tens to hundreds of years to decompose. One method of waste management is through the operation of the Permata Polkesyo Waste Bank. Data from January to May 2025 indicates that 430.28 kg of plastic bottle waste has been collected by customers. However, challenges have arisen due to poor management, leading to a surge in plastic bottle waste accumulation. The collection and packaging of plastic bottles tend to result in large volumes but relatively light weight. Therefore, a method using a plastic shredder is needed to convert plastic bottle waste into small fragments.
Objective : To determine the impact of using a PET (polyethylene terephthalate) plastic waste shredder on density and the increase in the economic value of waste at the Permata Polkesyo Waste Bank.
Method: A quasi-experimental design with a one-group pre-test–post-test research design was used. The study was conducted from December 2024 to May 2025 at the Permata Polkesyo Waste Bank, Poltekkes Kemenkes Yogyakarta. Data analysis utilized the Shapiro-Wilk normality test and the non-parametric Wilcoxon test.
Results : The average increase in waste density was 92.21%, the average increase in waste weight after treatment with the shredder was 92.21%, and there was a price increase of 95.32%. The research results indicate a significant effect of using the PET plastic waste shredder on increasing waste density and economic value, with an asymp. Sig (p-value) of 0.005.
Conclusion : There is a significant effect of using a PET plastic waste shredder on the density and economic value of plastic waste at the Permata Polkesyo Waste Bank.
Keywords : shredder, PET plastic, density, economic value