

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh fermentor pumakkal pada kualitas pupuk kompos dengan parameter kadar N, P, K, C-Organik, rasio C/N, pH, dan kadar air kompos campuran kulit, batang, dan daun nanas sebagai parameter utama pupuk kompos. Penelitian ini menggunakan metode eksperimen dengan penelitian Rancangan Acak Lengkap (RAL) 1 kontrol dan 5 perlakuan. Formula bioremediator dibuat berdasarkan karakteristik bakteri, kemampuan enzim bakteri mendegradasi bahan organik dalam pemenuhan unsur hara makro N, P, dan K, meliputi P1 (3 isolat bakteri), P2 (6 isolat bakteri), P3 (9 isolat bakteri), P4 (12 isolat bakteri), dan P5 (15 isolat bakteri), masing-masing 5 ulangan. Sebanyak 30 sampel masing-masing 50 gram setelah 30 hari difermentasi dianalisis di Laboratorium Kimia Analitik Universitas Muhammadiyah Malang. Hasil penelitian menunjukkan bahwa fermentor pumakkal memberi pengaruh terhadap degradasi kompos campuran limbah kulit, batang, dan daun nanas. Formula terbaik pada kadar N adalah P5 (1,51%), kadar P adalah P5 (0,53%), kadar K adalah P5 (1,39%), C-organik adalah P5 (50,72%), rasio C/N adalah P5 (19,5), pH adalah P5 (5,63), sedangkan fermentor pumakkal tidak berpengaruh terhadap kadar air. Berdasarkan hasil penelitian tentang pemanfaatan limbah organik dapat dihasilkan panduan praktikum berbasis *Problem Based Learning* yang telah divalidasi oleh para ahli media dengan rata-rata nilai 87,5% dan ahli materi dengan rata-rata nilai 87,5% sehingga dikategorikan layak, dan Panduan Praktikum Berbasis *Problem Based Learning* dapat digunakan dalam proses pembelajaran.

Kata kunci: kualitas pupuk kompos, fermentor pumakkal, limbah kulit batang dan daun nanas

ABSTRACT

This research aims to determine the effect of the pumakkal fermenter on the quality of compost with parameters of N, P, K, C-Organic levels, C/N ratio, pH, and water content of compost mixture of bark, stem, and pineapple leaves as the main parameters of compost fertilizer. This research used an experimental method with a completely randomized design (CRD) with 1 control and 5 treatments. The bioremediator formula was made based on the characteristics of bacteria, the ability of bacterial enzymes to degrade organic matter in meeting the macronutrients N, P, and K, including P1 (3 bacterial isolates), P2 (6 bacterial isolates), P3 (9 bacterial isolates), P4 (12 bacterial isolates), and P5 (15 bacterial isolates), each with 5 replications. A total of 30 samples of 50 grams each after 30 days of fermentation were analyzed at the Laboratory of Analytical Chemistry, University of Muhammadiyah Malang. The results showed that the pumakkal fermenter had an effect on the degradation of the compost mixture of pineapple peel, stem, and leaf waste. The best formula for N content is P5 (1.51%), P content is P5 (0.53%), K content is P5 (1.39%), C-organic is P5 (50.72%), C ratio /N is P5 (19.5), pH is P5 (5.63), while the pumakkal fermenter has no effect on water content. Based on the results of research on the use of organic waste, it is possible to produce a practical guide based on Problem Based Learning which has been validated by media experts with an average value of 87.5% and material experts with a value of 87.5% so that it is categorized as feasible, and the practical guide can be used in the learning process.

Keywords: quality of compost, pumakkal fermenter, waste of pineapple bark and leaves