

Febrianita Br Ginting. (220311100080). Respon Pertumbuhan dan Hasil Pakcoy (*Brassica rapa* L.) Akibat Aplikasi Campuran Biochar Sekam Padi dan Vermikompos pada Tanah Mediteran Madura Dibimbing Oleh: Erick Yuhardi S.P., M.P dan Prof. Dr. Ir. Siti Fatimah, M.Si

ABSTRAK

Penurunan kualitas tanah akibat penggunaan pupuk kimia secara berlebihan mendorong pemanfaatan bahan organik untuk memperbaiki kesuburan tanah. Tanah mediteran umumnya memiliki kandungan bahan organik rendah, porositas terbatas, dan kemampuan menahan air yang rendah. Penelitian ini bertujuan menganalisis kandungan hara media tanam campuran tanah, biochar sekam padi, dan verмикompos serta menentukan komposisi terbaik terhadap pertumbuhan dan hasil tanaman pakcoy (*Brassica rapa* L.). Penelitian dilaksanakan di Greenhouse, Laboratorium Terpadu dan Laboratorium Tanah Program Studi Agroekoteknologi Fakultas Pertanian Universitas Trunojoyo Madura pada 05 Desember 2025 – 19 Januari 2026 menggunakan Rancangan Acak Lengkap (RAL) nonfaktorial dengan enam perlakuan: A0 (kontrol), A1 (biochar 100%), A2 (verмикompos 100%), A3 (biochar 75% dan verмикompos 25%), A4 (biochar 50% dan verмикompos 50%), dan A5 (biochar 25% dan verмикompos 75%), masing-masing empat ulangan. Data dianalisis menggunakan ANOVA dan uji DMRT 5%. Hasil penelitian menunjukkan bahwa aplikasi biochar sekam padi dan verмикompos mampu meningkatkan beberapa sifat kimia media tanam, terutama C-organik dan P-total dibandingkan kontrol (A0). Perlakuan terbaik diperoleh pada perlakuan A3 (biochar 75% dan verмикompos 25%) yang menghasilkan panjang tanaman (14-35 HST), bobot basah, bobot ekonomis, dan bobot kering taman tertinggi.

Kata Kunci: *Pakcoy, Tanah Mediteran, Biochar Sekam Padi, Vermikompos*

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ABSTRACT

The decline in soil quality due to excessive use of chemical fertilizers encourages the use of organic materials to improve soil fertility. Mediterranean soils generally have low organic matter content, limited porosity, and low water-holding capacity. This study aimed to analyze the nutrient content of planting media consisting of a mixture of soil, rice husk biochar, and vermicompost and to determine the best composition for the growth and yield of pakcoy (*Brassica rapa* L.). The research was conducted in the greenhouse and soil laboratory of the Agroecotechnology Study Program, Faculty of Agriculture, Universitas Trunojoyo Madura from December 05, 2025 to January 19, 2026. The experiment used a non-factorial Completely Randomized Design with six treatments: A0 (control), A1 (100% biochar), A2 (100% vermicompost), A3 (75% biochar and 25% vermicompost), A4 (50% biochar and 50% vermicompost), and A5 (25% biochar and 75% vermicompost), each with four replications. Data were analyzed using ANOVA followed by DMRT at the 5% significance level. The results showed that the application of rice husk biochar and vermicompost improved several chemical properties of the planting media, particularly organic carbon and total phosphorus compared to the control (A0). The best treatment was A3 (75% biochar and 25% vermicompost), which produced the highest plant height (14–35 days after planting), fresh weight, economic yield, and dry weight.

Keywords: *Pakcoy, Mediterranean soil, rice husk biochar, vermicompost*