

RINGKASAN

Ultisol merupakan jenis tanah yang memiliki banyak permasalahan dan untuk meningkatkan kualitasnya diperlukan penambahan bahan organik sebagai pembenah tanah salah satunya dengan menggunakan kompos yang berasal dari limbah ekstraksi minyak atsiri. Penelitian ini bertujuan untuk : (i) mempelajari pengaruh pemberian pupuk organik yang berasal dari limbah ekstraksi minyak atsiri terhadap beberapa sifat fisik Ultisol; (ii) mengetahui lama waktu inkubasi pupuk yang tepat untuk perbaikan sifat fisik Ultisol; (iii) mempelajari interaksi jenis pupuk organik yang berasal dari limbah ekstraksi minyak atsiri dan lama waktu inkubasi untuk perbaikan sifat fisik Ultisol.

Penelitian telah dilaksanakan pada bulan Januari 2020 sampai dengan Oktober 2020 di *screen house* yang bertempat di Dusun II, Kebanggan, Kecamatan Sumbang, Kabupaten Banyumas dan Laboratorium Ilmu Tanah dan Sumberdaya Lahan Fakultas Pertanian Universitas Jenderal Soedirman. Rancangan percobaan yang digunakan yaitu Rancangan Acak Kelompok Lengkap (RAKL) pola faktorial dengan 2 faktor. Faktor pertama yaitu macam pupuk kompos dari limbah ekstraksi minyak atsiri (P) yang terdiri dari P₀ = Tanpa pemberian pupuk, P₁ = Pupuk kompos dari biji tanaman kakao, P₂ = Pupuk kompos dari buah tanaman kemukus, P₃ = Pupuk kompos dari akar tanaman akar wangi, P₄ = Pupuk kompos dari biji tanaman kopi, P₅ = Pupuk kompos dari rimpang tanaman jahe, P₆ = Pupuk kompos dari endapan Instalasi Pengolahan Air Limbah (IPAL) dan faktor ke dua yaitu waktu inkubasi pupuk kompos (I), yang terdiri dari 4 dan 8 minggu. Jumlah perlakuan yaitu 14, masing-masing perlakuan dengan 3 kali ulangan sehingga menghasilkan 42 unit percobaan. Variabel yang diamati yaitu Batas Cair, Batas Lekat, Batas Gulung, Kadar Air Tanah (%), C-Organik (%), tinggi tanaman (cm) dan bobot tanaman segar (gram).

Hasil penelitian menunjukkan pemberian pupuk organik limbah hasil ekstraksi minyak atsiri memberikan hasil tertinggi pada variabel batas cair (BC) sebesar 72,34 (P1), batas lekat (BL) sebesar 69,04 (P6) dan 69 (P3), batas gulung (BG) sebesar 49,62 (P1), kadar air tanah sebesar 14,33% (P1) dan 14,39% (P6), kadar C-organik tanah sebesar 2,19 (P1), bobot segar tanaman sebesar 73,35 g (P1), dan tinggi tanaman dengan tinggi rata-rata 20,75 cm (P1). Pemberian perlakuan lama waktu inkubasi dengan waktu 4 minggu menghasilkan hasil tertinggi pada variabel batas cair (BC) sebesar 71,42, batas lekat (BL) sebesar 68,76, batas gulung (BG) sebesar 48,38, kadar air tanah sebesar 13,75% , dan tinggi tanaman sebesar 17,83 cm. Perlakuan lama waktu inkubasi dengan waktu 8 minggu menghasilkan nilai tertinggi pada variabel C-Organik dengan nilai 1,40% serta bobot tanaman segar sebesar 42,96 gram. Adanya interaksi nyata dan sangat nyata dari pemberian pupuk organik limbah ekstraksi minyak atsiri dan lama inkubasi terdapat pada variabel tinggi tanaman dan bobot segar tanaman. namun tidak berpengaruh nyata pada variabel pengukuran kadar air tanah, BC, BL, BG, dan kadar C-Organik.

Kata kunci: Ultisol, minyak atsiri, inkubasi, bahan organik, pakcoy.

SUMMARY

Ultisol is a type of soil that has many problems and to improve its quality, it is necessary to add organic matter as a soil enhancer, one of which is by using compost derived from essential oil extraction waste. This study aims to: (i) study the effect of organic fertilizer application from essential oil extraction waste on several physical properties of Ultisol; (ii) knowing the proper length of time for fertilizer incubation to improve the physical properties of Ultisol; (iii) studied the interaction of types of organic fertilizers derived from essential oil extraction waste and incubation time to improve the physical properties of Ultisol.

The research was carried out from January 2020 to October 2020 at a screen house located in Hamlet II, Kebanggan, Sub-District, Banyumas Regency and the Laboratory of Soil Science and Land Resources, Faculty of Agriculture, Jenderal Soedirman University. The experimental design used was a completely randomized block design (RAKL) with a factorial pattern of 2 factors. The first factor is the type of compost fertilizer from essential oil extraction waste (P) which consists of P0 = No fertilizer application, P1 = Compost fertilizer from cocoa beans, P2 = Compost fertilizer from cubeb fruit, P3 = Compost fertilizer from the roots of the vetiver plant, P4 = Compost fertilizer from coffee beans, P5 = Compost fertilizer from ginger rhizomes, P6 = Compost fertilizer from wastewater treatment plant sediment (IPAL) and the second factor is the incubation time of compost (I), which consists of 4 and 8 weeks. The number of treatments was 14, each treatment with 3 replications resulting in 42 experimental units. The variables observed were liquid limit variable (BC), sticky limit (BL), roll limit (BG), soil moisture content (%), C-Organic (%), high plants (cm) and fresh plant weight (grams).

The results showed that the application of organic fertilizer waste from essential oil extraction gave the highest yield on the liquid limit variable (BC) of 72.34 (P1), sticky limit (BL) of 69.04 (P6) and 69 (P3), roll limit (BG) of 49.62 (P1), soil moisture content of 14.33% (P1) and 14.39% (P6), soil organic-C content of 2.19 (P1), plant fresh weight of 73.35 g (P1), and plant height with an average height of 20.75 cm (P1). The treatment with a long incubation time of 4 weeks produced the highest yield on the variable liquid limit (BC) of 71.42, sticky limit (BL) of 68.76, rolling limit (BG) of 48.38, soil moisture content of 13, 75% , and plant height of 17.83 cm. Treatment of incubation time of 8 weeks resulted in the highest value on the C-Organic variable with a value of 1.40% and a fresh plant weight of 42.96 grams. The existence of significant and very significant interaction from the application of organic fertilizer from essential oil extraction waste and incubation time was found in the variables of plant height and plant fresh weight. but it has no significant effect on the variables measuring soil water content, BC, BL, BG, and C-Organic levels

Keywords: Ultisol, essential oil, incubation, organic matter, pakcoy.