

RINGKASAN

Bayam merah adalah salah satu komoditi sayuran sangat dibutuhkan dalam penyempurnaan gizi masyarakat, namun permintaan bayam merah tidak diiringi dengan jumlah produksi sayuran bayam di Indonesia yang masih mengalami fluktuasi. Produksi bayam merah di Indonesia dipengaruhi oleh penurunan kesuburan tanah, yang dapat diatasi dengan penggunaan pupuk organik kasgot hasil biokonversi limbah organik oleh larva lalat tentara hitam. Kasgot memiliki kandungan nutrisi seperti nitrogen, fosfor, dan kalium, yang telah terbukti meningkatkan pertumbuhan tanaman bayam merah dalam beberapa penelitian. Penelitian ini bertujuan untuk (1) mengetahui dan mendapatkan pengaruh aplikasi kasgot terhadap karakter fisiologi tanaman bayam merah, (2) mengetahui dan mendapatkan pengaruh aplikasi kasgot terhadap kandungan karotenoid tanaman bayam merah (3) mendapatkan dosis kasgot yang terbaik untuk meningkatkan pertumbuhan dan hasil tanaman bayam merah. Manfaat dari penelitian ini adalah menambah wawasan dan informasi mengenai pengaruh aplikasi kasgot terhadap karakter fisiologi tanaman bayam merah, menambah wawasan dan informasi mengenai pengaruh aplikasi kasgot terhadap kandungan karotenoid tanaman bayam merah, memperoleh informasi dan pengetahuan mengenai dosis kasgot yang terbaik untuk meningkatkan pertumbuhan dan hasil tanaman bayam merah.

Penelitian dilaksanakan di Desa Tambaksari Kidul, Kecamatan Kembaran, Kabupaten Banyumas, dengan persiapan dan analisis di Laboratorium Agronomi & Hortikultura, Fakultas Pertanian, Universitas Jenderal Soedirman. Pelaksanaan penelitian berlangsung dari bulan Desember 2022 hingga Maret 2023. Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) non faktorial dengan 7 perlakuan dan 4 ulangan. Perlakuan yang diujikan adalah 0 ton/ha Kasgot + 0 dosis anjuran N, P, K (A), 0 ton/ha Kasgot + 1 dosis anjuran N, P, K (B) 10 ton/ha Kasgot + $\frac{3}{4}$ dosis anjuran N, P, K (C) 5 ton/ha Kasgot + $\frac{3}{4}$ dosis anjuran N, P, K (D), 0 ton/ha Kasgot + $\frac{3}{4}$ dosis anjuran N, P, K (E), 15 ton/ha Kasgot + $\frac{3}{4}$ dosis anjuran N, P, K (F), dan 10 ton/ha Kasgot + 1 dosis anjuran N, P, K (G). Hasil penelitian akan dianalisis menggunakan uji statistik ANOVA dan uji jarak ganda Duncan (DMRT). Pelaksanaan penelitian mencakup persiapan alat dan bahan, pembuatan pupuk kasgot, persiapan benih, pengolahan lahan, penanaman, pemeliharaan, pemanenan, dan pengukuran hasil panen.

Aplikasi kasgot pada tanaman bayam merah memberikan pengaruh sangat nyata terhadap sejumlah parameter, termasuk tinggi tanaman, jumlah daun, luas daun, bobot kering tanaman, bobot kering akar tanaman, laju asimilasi bersih, laju pertumbuhan tanaman, kerapatan stomata, kandungan karotenoid, dan bobot segar tanaman. Meskipun demikian, aplikasi kasgot tidak memiliki pengaruh nyata pada kehijauan daun dan lebar bukaan stomata pada tanaman bayam merah. Dosis kasgot 5 ton/ha Kasgot + $\frac{3}{4}$ dosis anjuran N, P, K (D) menghasilkan pertumbuhan dan hasil yang terbaik.

SUMMARY

Red spinach is one of the most needed vegetable commodities in the nutritional perfection of society, but red spinach demand is not accompanied by the amount of vegetable spinach production in Indonesia that is still fluctuating. The production of red spinach in Indonesia is affected by soil fertility decline, which can be addressed through the use of organic fertilizer maggot frass produced by the bioconversion of organic waste by black soldier fly larvae. Maggot frass containing nutrients such as nitrogen, phosphorus, and potassium, has been proven to enhance the growth of red spinach in several research. This research aims to (1) determine and assess the effect of kasgot application on the physiological characteristics of red spinach plants, (2) determine and assess the effect of kasgot application on the carotenoid content of red spinach plants, and (3) determine the optimal dosage of kasgot to enhance the growth and yield of red spinach plants. The benefits of this research include enhancing insights and information regarding the impact of kasgot application on the physiological characteristics of red spinach plants, increasing knowledge about the influence of kasgot application on the carotenoid content of red spinach plants, and obtaining information and understanding about the best dosage of kasgot to improve the growth and yield of red spinach plants.

The research was carried out at the Tambaksari Kidul, Kembaran, Banyumas, with preparation and analysis conducted in the Agronomy & Horticulture Laboratory, Faculty of Agriculture, Universitas Jenderal Soedirman. The research start from December 2022 to March 2023, utilizing a non-factorial Randomized Complete Block Design (RCBD) with 7 treatments and 4 replications. The treatments tested were as follows: 0 tons/ha of maggot frass + 0 recommended doses of N, P, K (A), 0 tons/ha of maggot frass + 1 recommended dose of N, P, K (B), 10 tons/ha of maggot frass + $\frac{3}{4}$ recommended dose of N, P, K (C), 5 tons/ha of maggot frass + $\frac{3}{4}$ recommended dose of N, P, K (D), 0 tons/ha of maggot frass + $\frac{3}{4}$ recommended dose of N, P, K (E), 15 ton/ha of Kasgot + $\frac{3}{4}$ recommended dose of N, P, K (F), and 10 tons/ha of maggot frass + 1 recommended dose of N, P, K (G). The research results would be analyzed using ANOVA statistical tests and Duncan's Multiple Range Test (DMRT). The research implementation includes the preparation of tools and materials, making maggot frass, seed preparation, land preparation, planting, maintenance, harvesting, and yield measurement.

The application of maggot frass to red spinach plants has a very significant effect on various parameters, including plant height, leaf count, leaf area, plant dry weight, root dry weight, net assimilation rate, plant growth rate, stomatal density, carotenoid content, and plant fresh weight. However, maggot frass application does not have a significant effect on leaf greenness and stomatal aperture width in red spinach plants. The dose of 5 tons/ha of maggot frass + $\frac{3}{4}$ recommended dose of N, P, K (D) was produced the best growth and yield of red spinach.