RINGKASAN

Ubi jalar (*Ipomoea batatas* L.) merupakan tanaman umbi bernilai penting yang memiliki keunggulan dibanding umbi lainnya serta berpotensi mendukung pengembangan agroindustri melalui diversifikasi pangan. Namun, dalam beberapa tahun terakhir produksi ubi jalar mengalami fluktuasi. Upaya peningkatan produksi ubi jalar salah satunya dilakukan melalui pemupukan dan memperbaiki kualitas tanah melalui aplikasi bahan pembenah tanah. Penelitian ini bertujuan untuk mengetahui pengaruh aplikasi pupuk organik dan biochar terhadap pertumbuhan dan hasil ubi jalar putih.

Penelitian dilaksanakan pada bulan September 2024 - Juli 2025 di Desa Bobosan, Purwokerto Utara, Kabupaten Banyumas. Rancangan penelitian menggunakan Rancanga Percobaan Acak Kelompok (RAK) yang terdiri dari dua faktor yaitu pupuk organik dengan dosis 15 ton/ha (240 g/polibag) dan biochar dengan dosis 8 ton/ha (128 g/polibag). Masing-masing faktor terdiri dari tiga pupuk organik (tanpa pupuk organik, pupuk organik kambing, dan pupuk organik sapi) dan tiga jenis biochar (biochar, biochar + POC, dan biochar + *Azolla*). Diperoleh 9 kombinasi perlakuan pada setiap perlakuan pupuk organik dan biochar. Setiap perlakuan diulang sebanyak 3 kali ulangan, sehingga diperoleh 27 unit percobaan. Satu unit percobaan terdapat 4 tanaman, sehingga jumlah total sebanyak 108 tanaman. Pengamatan karakter pertumbuhan dilakukan pada saat tanaman memasuki fase pertumbuhan meliputi panjang tanaman, jumlah cabang, jumlah daun, dan luas daun per tanaman. Pada pengamatan hasil dilakukan ketika tanaman sudah dipanen meliputi jumlah ubi per tanaman, bobot segar ubi, diameter ubi terbesar, indeks panen, *grade* SNI, dan tingkat kemanisan.

Hasil penelitian menunjukkan bahwa aplikasi pupuk organik kambing atau sapi 15 ton/ha menghasilkan karakter pertumbuhan dan hasil ubi jalar putih yang setara dengan tanpa aplikasi pupuk organik. Aplikasi biochar menghasilkan karakter pertumbuhan dan hasil ubi jalar putih yang setara pada setiap perlakuan. Namun demikian, aplikasi biochar + Azolla mampu meningkatkan pertumbuhan panjang tanaman 10,85 %. Aplikasi pupuk organik kambing dan biochar + Azolla menunjukkan hasil terbaik pada variabel jumlah cabang umur 6 minggu setelah tanam dan *grade* SNI II.

SUMMARY

Sweet potato (Ipomoea batatas L.) is a valuable tuber crop that has advantages over other tubers and has the potential to support agro-industrial development through food diversification. However, in recent years, sweet potato production has fluctuated. Efforts to increase sweet potato production include fertilization and improving soil quality through the application of soil conditioners. This study aims to determine the effect of organic fertilizer and biochar applications on the growth and yield of white sweet potatoes.

The study was conducted from September 2024 to July 2025 in Bobosan Village, North Purwokerto, Banyumas Regency. The study design used a Randomized Block Design (RBD) consisting of two factors: organic fertilizer with a dose of 15 tons/ha (240 g/polybag) and biochar with a dose of 8 tons/ha (128 g/polybag). Each factor consisted of three organic fertilizers (no organic fertilizer, goat organic fertilizer, and cow organic fertilizer) and three types of biochar (biochar, biochar + POC, and biochar + Azolla). Nine treatment combinations were obtained for each organic fertilizer and biochar treatment. Each treatment was repeated 3 times, resulting in 27 experimental units. One experimental unit consisted of 4 plants, resulting in a total of 108 plants. Growth character observations were conducted when the plants entered the growth phase, including plant length, number of branches, number of leaves, and leaf area per plant. Yield observations were conducted after the plants were harvested, including the number of tubers per plant, fresh weight of tubers, diameter of the largest tuber, harvest index, SNI grade, and sweetness level.

The results showed that the application of 15 tons/ha of organic goat or cow fertilizer resulted in growth characteristics and yields of white sweet potatoes equivalent to those without organic fertilizer application. The application of biochar resulted in growth characteristics and yields of white sweet potatoes equivalent in each treatment. However, the application of biochar + Azolla was able to increase plant length growth by 10.85%. The application of organic goat fertilizer and biochar + Azolla showed the best results in the variable number of branches at 6 weeks after planting and SNI II grade.

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