

RINGKASAN

Kailan (*Brassica oleracea* var. *alboglabra*) merupakan salah satu jenis sayuran famili kubis-kubisan (Brassicaceae) yang berasal dari negara Cina. Produksi kailan dapat ditingkatkan dengan menerapkan sistem budidaya hidroponik di *greenhouse* dan pemberian Pupuk Organik Cair (POC). POC dapat meningkatkan fotosintesis tanaman serta mengurangi biaya produksi dan pencemaran lingkungan dalam teknik bertanam secara hidroponik. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian POC, pengurangan konsentrasi AB mix, dan interaksi keduanya terhadap pertumbuhan, fisiologi, dan hasil tanaman kailan pada hidroponik *wick system*.

Penelitian ini menggunakan Rancangan Acak Kelompok Lengkap (RAKL) yang terdiri dari dua faktor. Faktor pertama adalah jenis formula POC (P) yang terdiri dari tanpa POC (kontrol), POC urine kelinci + daun kipait, POC urine kelinci + daun trembesi, dan POC urine kelinci + tanaman azolla. Faktor kedua adalah pengurangan konsentrasi AB mix (M) yang terdiri dari tanpa pengurangan konsentrasi AB mix, pengurangan konsentrasi AB mix 25%, dan pengurangan konsentrasi AB mix 50%. Penelitian ini terdiri dari 12 kombinasi perlakuan dengan 3 kali ulangan menghasilkan 36 unit percobaan. Variabel yang diamati terdiri dari tinggi tanaman, jumlah daun, luas daun, tingkat kehijauan daun, kandungan klorofil, kerapatan stomata, lebar bukaan stomata, panjang akar, volume akar, bobot segar tajuk, bobot segar akar, bobot segar tanaman, bobot kering tajuk, bobot kering akar, dan bobot kering tanaman. Data hasil pengamatan dianalisis dengan menggunakan analisis sidik ragam (ANOVA) pada taraf kesalahan 5%. Apabila signifikan, dilakukan uji lanjutan dengan *Duncan's Multiple Range Test* (DMRT) pada taraf kesalahan 5%.

Hasil penelitian menunjukkan bahwa pemberian jenis formula POC dan pengurangan konsentrasi AB mix, serta interaksi antara pemberian jenis formula POC dan pengurangan konsentrasi AB mix memberikan pengaruh terhadap variabel pertumbuhan, fisiologi, dan hasil tanaman kailan pada hidroponik *wick system*. Pemberian jenis formula POC urine kelinci + daun trembesi memberikan hasil terbaik pada variabel tinggi tanaman, luas daun, tingkat kehijauan daun, kandungan klorofil, bobot segar tajuk, bobot segar tanaman, bobot kering tajuk, dan bobot kering tanaman. Pengurangan konsentrasi AB mix 25% memberikan hasil terbaik pada variabel tinggi tanaman dan tingkat kehijauan daun. Terjadi interaksi antara pemberian jenis formula POC dan pengurangan konsentrasi AB mix terhadap variabel tinggi tanaman 35 HST dan 42 HST, luas daun, bobot segar tajuk, bobot segar tanaman, bobot kering tajuk, dan bobot kering tanaman. Interaksi perlakuan POC urine kelinci + daun trembesi dan pengurangan konsentrasi AB mix 25% dapat dijadikan alternatif dalam budidaya kailan secara hidroponik karena memberikan hasil yang lebih tinggi dibandingkan perlakuan tanpa POC dan tanpa pengurangan konsentrasi AB mix.

SUMMARY

Kailan (Brassica oleracea var. alboglabra) is a type of vegetable of the cabbage family (Brassicaceae) originating from China. Kailan production can be increased by applying a hydroponic cultivation system in the greenhouse and Liquid Organic Fertilizer (POC). POC can increase plant photosynthesis and reduce production costs and environmental pollution in hydroponic growing techniques. This research aims to determine the effect of POC application, reduction of AB mix concentration, and their interaction on the growth, physiology, and yield of kailan plants in the hydroponic wick system.

This research used a Randomized Complete Block Design (RCBD) consisting of two factors. The first factor is the type of POC formula (P) consisting of no POC (control), rabbit urine + kipait leaves POC, rabbit urine + trembesi leaves POC, and rabbit urine + azolla plants POC. The second factor is the reduction of AB mix concentration (M) which consisted of no AB mix concentration reduction, 25% AB mix concentration reduction, and 50% AB mix concentration reduction. This study consisted of 12 treatment combinations with 3 replications, resulting in 36 experimental units. The observed variables consisted of plant height, number of leaves, leaf area, leaf greenness, chlorophyll content, stomatal density, stomatal opening width, root length, root volume, crown fresh weight, root fresh weight, plant fresh weight, crown dry weight, root dry weight, and plant dry weight. Observation data were analyzed using analysis of variance (ANOVA) at the 5% error level. If significant, further tests were conducted with Duncan's Multiple Range Test (DMRT) at the 5% error level.

The results showed that the type of POC formula and the reduction of AB mix concentration, as well as the interaction between the type of POC formula and the reduction of AB mix concentration, influenced the variables of growth, physiology, and yield of kailan plants in the hydroponic wick system. Giving the type of POC formula rabbit urine + trembesi leaves gives the best results on the variables of plant height, leaf area, leaf greenness, chlorophyll content, crown fresh weight, plant fresh weight, crown dry weight, and plant dry weight. Reducing the concentration of AB mix by 25% gives the best results in the variables of plant height and leaf greenness. There was an interaction between the type of POC formula and the reduction of AB mix concentration on the variables of plant height 35 DAP and 42 DAP, leaf area, crown fresh weight, plant fresh weight, crown dry weight, and plant dry weight. The interaction of rabbit urine + trembesi leaves POC and reducing the concentration of AB mix by 25% can be used as an alternative in hydroponic kailan cultivation because it gives higher results than the treatment without POC and without a reduction in AB mix concentration.