ABSTRAK

Penelitian ini bertujuan untuk: (1) mengetahui pengaruh konsentrasi POC NASA yang ditambahkan pada pupuk AB Mix terhadap pertumbuhan dan produktivitas kale, (2) mengetahui pengaruh konsentrasi ekstrak rumput laut yang ditambahkan pada pupuk AB Mix terhadap pertumbuhan dan produktivitas kale, dan (3) mengetahui pengaruh interaksi antar konsentrasi POC NASA dengan konsentrasi rumput laut yang ditambahkan pada pupuk AB Mix terhadap pertumbuhan dan produktivitas kale dalam budidaya hidroponik dengan sistem rakit apung. Penelitian ini dilaksanakan di *Screen House* Desa Pasir Kulon, Kecamatan Karanglewas, Kabupaten Banyumas, dan Laboratorium Agronomi dan Hortikultura, Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto pada bulan Maret 2023 sampai bulan Mei 2023. Rancangan yang digunakan yaitu RAK (Rancangan Acak Kelompok) dengan 2 faktor. Faktor pertama yaitu konsentrasi penambahan rumput laut yang terdiri dari 4 taraf: R0 (0 ppm), R1 (1.000 ppm), R2 (2.000 ppm), R3 (3.000 ppm). Faktor kedua yaitu konsentrasi penambahnan POC NASA yang terdiri dari 4 taraf: P0 (0 ml/l), P1 (5 ml/l), P2 (10 ml/l), dan P3 (15 ml/l). Ulangan sebanyak 3 kali. Data yang diperoleh dianalisis dengan uji F pada taraf 5, dilanjutkan dengan uji lanjut DMRT (*Duncan's Multiple Range Test*) pada taraf 5% jika nyata. Hasil penelitian menunjukkan bahwa konsentrasi POC NASA dan rumput laut secara mandiri hanya berpengaruh pada luas daun. Luas daun terbaik dicapai pada perlakuan P3 (POC NASA 15 ml), yaitu sebesar 135,93 cm^2, dan perlakuan R3 (ekstrak *Sargassum sp.* 3.000 ppm) sebesar 137,28 cm^2, sementara kontrol 34,35 cm^2. Kedua perlakuan tidak berpengaruh nyata terhadap parameter tinggi tanaman, diameter batang, jumlah daun, bobot segar, dan bobot kering. Interaksi konsentrasi POC NASA dan ekstrak *Sargassum sp.* hanya berpengaruh nyata terhadap jumlah daun tanaman kale, jumlah daun terbanyak dicapai pada perlakuan R2P2 (ekstrak *Sargassum sp.* 2.000 ppm + POC NASA 10 ml) yaitu sebanyak 18,33 helai, naik 34,18 % dibanding kontrol (13,66 helai).

Kata kunci : hidroponik, kale, POC NASA, *Sargassum sp.*

ABSTRACT

This study aims to: (1) to determine the effect of NASA liquid organic fertilizer concentration added to AB Mix fertilizer on kale growth and productivity, (2) to determine the effect of seaweed extract concentration added to AB Mix fertilizer on kale growth and productivity, and (3) to determine the effect of interaction between NASA liquid organic fertilizer concentration and seaweed concentration added to AB Mix fertilizer on kale growth and productivity in hydroponic cultivation with floating raft system. This research was conducted in the Screen House of Pasir Kulon Village, Karanglewas District, Banyumas Regency, and Agronomy and Horticulture Laboratory, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto from March 2023 to May 2023. The design used was RCBD (Randomized Complete Block Design) with 2 factors. The first factor is the concentration of seaweed addition which consists of 4 levels: R0 (0 ppm), R1 (1,000 ppm), R2 (2,000 ppm), R3 (3,000 ppm). The second factor is the concentration of NASA liquid organic fertilizer which consists of 4 levels: P0 (0 ml/l), P1 (5 ml/l), P2 (10 ml/l), and P3 (15 ml/l). Repeat as many as 3 times. The data obtained were analyzed by F test at level 5, followed by DMRT (Duncan's Multiple Range Test) further test at 5% level if significant. The results showed that the concentration of POC NASA and seaweed independently only affected the leaf area. The best leaf area was achieved in treatment P3 (NASA liquid organic fertilizer 15 ml), which amounted to 135.93 cm^2, and treatment R3 (Sargassum sp. extract 3,000 ppm) amounted to 137.28 cm^2, while the control was 34.35 cm^2. Both treatments did not significantly affect the parameters of plant height, stem diameter, number of leaves, fresh weight, and dry weight. The interaction of NASA liquid organic fertilizer concentration and Sargassum sp. extract only significantly affected the number of leaves of kale plants, the highest number of leaves was achieved in the R2P2 treatment (Sargassum sp. extract 2,000 ppm + NASA liquid organic fertilizer 10 ml) which was 18.33 strands, up 34.18% compared to the control (13.66 strands).

Keywords: kale, hydrophonics, NASA liquid organic fertilizer, Sargassum sp.