

RINGKASAN

Melon adalah salah satu komoditas buah dengan nilai komersil yang cukup tinggi di Indonesia, komoditas melon memiliki pasar penjualan yang beragam, dari pasar tradisional, pasar modern, restoran, dan hotel. Penelitian yang membandingkan formulasi larutan unsur hara dan bahan kimia murni dengan larutan unsur hara siap pakai belum banyak dilakukan, selain itu penggunaan media tanam *cocopeat*, zeolit dan kombinasi *cocopeat*:zeolit (rasio 50% : 50%) belum banyak diteliti dapat mempengaruhi kualitas buah melon. Tujuan dari penelitian ini adalah Mengetahui pengaruh pemberian nutrisi dan media tanam terhadap pertumbuhan, serapan P dan K oleh tanaman melon pada sistem fertigasi irigasi tetes. Mengetahui interaksi pemberian nutrisi modifikasi N dan media tanam terhadap pertumbuhan, serapan P dan K oleh tanaman melon pada sistem fertigasi irigasi tetes.

Penelitian dilaksanakan di *screenhouse* Fakultas Pertanian Universitas Jenderal Soedirman, Kabupaten Banyumas dan Laboratorium Tanah Fakultas Pertanian Universitas Jenderal Soedirman, Kabupaten Banyumas. Penelitian dilaksanakan pada bulan Oktober 2021 hingga Maret 2022. Penelitian ini menggunakan Rancangan Acak Kelompok Lengkap (RAKL) dengan dua faktor dan tiga ulangan. Faktor pertama media tanam yaitu P1: media *cocopeat* (100%), P2: media zeolit (100%) dan P3: media kombinasi *cocopeat*:zeolit (rasio 50% : 50%). Faktor kedua adalah formulasi nutrisi N F0 : Formula nutrisi AB-Mix merk “Mits Farm AB-Mix”, F1 : Pertumbuhan 6% nutrisi N, pembungaan 7,5% nutrisi N dan pengisian buah 5,5% nutrisi, F2 : Pertumbuhan 7,5% nutrisi N, pembungaan 9% nutrisi N dan pengisian buah 6,5% nutrisi N, F3 : Pertumbuhan 9% nutrisi N, pembungaan 10,5% nutrisi N dan pengisian buah 7,5% nutrisi N dan F4 : Pertumbuhan 10,5% nutrisi N, pembungaan 12% nutrisi N dan pengisian buah 8,5% nutrisi N. Variabel yang diamati yaitu pH H₂O, pH KCL, DHL, P total, K total, Kadar P tanaman, Kadar K tanaman, Serapan P, Serapan K, panjang akar dan diameter batang.

Hasil penelitian menunjukkan bahwa media tanam yang memiliki pengaruh nyata terhadap pH H₂O (7,05), pH KCL (6,17), DHL (740,53 μ S/cm), P total media tanam (0,121%), kadar P tanaman (3,78%), dan diameter batang (9,63mm). Pengaruh media tanam yang tidak memiliki pengaruh nyata yaitu terhadap K total media tanam, kadar K tanaman, serapan P, serapan K, dan panjang akar. Formula nutrisi N berpengaruh terhadap pH H₂O (6,79), DHL media tanam (858,77), P total media (0,0132), kadar P tanaman (1,41%), kadar K tanaman (3,864%), serapan P (3,54%), dan panjang akar (46,76cm); tidak berpengaruh terhadap pH KCL, K total media tanam, serapan K dan diameter batang. Interaksi antara media tanam dan formula nutrisi N tidak berpengaruh nyata terhadap K total media tanam, kadar K tanaman, serapan K, serapan P dan panjang akar; tetapi berpengaruh nyata pada variabel pH H₂O (7,63), pH KCL (6,56), DHL (1278,33), P total media tanam (0,0129), kadar P tanaman (1.904%) dan diameter batang (9,77mm).

SUMMARY

Melon is one of the fruit commodities with significant commercial value in Indonesia, with a diverse market ranging from traditional and modern markets to restaurants and hotels. The effects of different growing media, including cocopeat, zeolite, and a 50%:50% combination of cocopeat and zeolite, on melon fruit quality also have not been extensively studied. This study aims to examine the effects of nutrient application and growing media on the growth and phosphorus (P) and potassium (K) uptake of melon plants under a fertigation drip irrigation system. Furthermore, it seeks to determine the interaction between modified nitrogen (N) nutrition and growing media on the growth and nutrient uptake of melon plants in a fertigation drip irrigation system.

The study was conducted in the screenhouse of the Faculty of Agriculture, Jenderal Soedirman University, Banyumas Regency, and the Soil Laboratory of the Faculty of Agriculture, Jenderal Soedirman University, Banyumas Regency. The research was conducted from October 2021 to March 2022. This study employed a Completely Randomized Block Design (CRBD) with two factors and three replications. The first factor was the growing media, consisting of P1: 100% cocopeat, P2: 100% zeolite, and P3: a 50%:50% combination of cocopeat and zeolite. The second factor was the nitrogen (N) nutrient formulation, including F0: AB-Mix nutrient formula branded "Mits Farm AB-Mix"; F1: 6% N during the growth stage, 7.5% N during flowering, and 5.5% N during fruit development; F2: 7.5% N during growth, 9% N during flowering, and 6.5% N during fruit development; F3: 9% N during growth, 10.5% N during flowering, and 7.5% N during fruit development; and F4: 10.5% N during growth, 12% N during flowering, and 8.5% N during fruit development. The observed variables included pH H₂O, pH KCl, electrical conductivity (EC), total phosphorus (P), total potassium (K), plant P content, plant K content, P uptake, K uptake, root length, and stem diameter.

The findings indicate that the growing media had a significant effect on pH H₂O (7.05), pH KCl (6.17), electrical conductivity (740.53 μ S/cm), total phosphorus (0.121%), plant phosphorus content (3.78%), and stem diameter (9.63 mm). The growing media did not significantly affect total potassium, plant potassium content, phosphorus uptake, potassium uptake, or root length. The nitrogen (N) nutrient formulation influenced pH H₂O (6.79), electrical conductivity (858.77), total phosphorus (0.0132%), plant phosphorus content (1.41%), plant potassium content (3.864%), phosphorus uptake (3.54%), and root length (46.7cm) but did not affect pH KCl, total potassium, potassium uptake, or stem diameter. The interaction between the growing media and nitrogen nutrient formulation did not significantly influence total potassium, plant potassium content, potassium uptake, phosphorus uptake, or root length, but there were significant differences in pH H₂O (7.63), pH KCl (6.56), electrical conductivity (1278.33), total phosphorus (0.0129%), plant phosphorus content (1.904%), and stem diameter (9.77 mm) in relation to the chemical properties of the plants in this study.