RINGKASAN

Melon merupakan komoditas hortikultura yang banyak dikonsumsi masyarakat. Tanaman ini berpotensi menjadi produk unggulan di Indonesia. Peningkatan produksi buah ini diperlukan karena kebutuhan konsumsinya meningkat. Lahan pasir pantai di Indonesia belum digunakan secara optimal. Lahan ini memiliki tantangan seperti salinitas tanah tinggi, sumber air terbatas dan cukup besarnya angin yang mengandung garam. Penelitian ini bertujuan untuk membedakan respon pertumbuhan dan hasil tanaman melon dengan berbagai cara pemberian larutan salin, membedakan respon pertumbuhan dan hasil tanam melon pada berbagai konduktivitas listrik larutan, membedakan respon pertumbuhan dan hasil tanaman melon dengan berbagai frekuensi pemberian larutan salin, dan menjelaskan interaksi antara cara pemberian larutan salin, konduktivitas listrik larutan dan frekuensi pemberian larutan salin terhadap pertumbuhan dan hasil tanaman melon.

Penelitian dilaksanakan di screenhouse dan Laboratorium Agronomi dan Hortikultura Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto pada bulan Desember 2021 hingga Mei 2022. Penelitian ini dilakukan dengan metode Rancangan Acak Kelompok Lengkap (RAKL) dengan tiga faktor perlakuan dan tiga kali ulangan. Faktor pertama yaitu cara pemberian larutan salin (tanah dan udara), konduktivitas listrik larutan (0 dS/m, 9 dS/m dan 18 dS/m) dan frekuensi pemberian larutan salin (1 kali sehari, 2 kali sehari, 3 kali sehari). Analisis data penelitian menggunakan analisis ragam dan uji lanjut *Duncan's Multiple Range* (DMRT) pada taraf 5%.

Hasil penelitian menunjukkan bahwa cara pemberian larutan salin melalui udara lebih menurunkan kadar klorofil, tinggi tanaman, bobot segar dan kering batang, serta jumlah bunga tetapi menaikkan kadar prolin hingga 1,54 µmol prolin/g. Konduktivitas listrik larutan 18 dS/m lebih menurunkan bukaan stomata, kehijauan daun vegetatif, tinggi tanaman, jumlah daun, luas daun, bobot segar segar dan kering daun, bobot segar batang, bobot segar buah, bobot kering buah, bobot segar tanaman sebesar 325,67 g secara linier dengan y = -10,358x + 515,69, bobot kering tanaman sebesar 35,20 g secara linear dengan y = -0,6164x + 46,55, jumlah bunga sebanyak 28,17 bunga dengan persamaan linear y = -0,2884x + 32,44 dan produktivitas sebesar 4,87 t/ha secara linear dengan persamaan y = -0,2184x + 8,8731 tetapi menaikkan kadar prolin hingga 1,97 µmol prolin/g dengan persamaan linear y = 0,0815 + 0,569. Frekuensi pemberian larutan salin sebanyak 3 kali sehari lebih menurunkan bobot segar tanaman sebesar 329,47 g secara linear dengan persamaan y = -126,44x + 675,35, bobot kering tanaman sebesar 37,23 g secara linear dengan persamaan y = -5,3233x + 51,653, diameter buah, bobot segar buah, bobot kering buah, dan produktivitas hingga 4,86 ton/ha secara linear dengan pesamaan y = -3,1216x + 12,79, tetapi meningkatkan prolin hingga 1,77 µmol prolin/g secara linear dengan persamaan y = - 0,4628x + 0,3767. Interaksi cara pemberian larutan salin melalui tanah dengan konduktivitas listrik larutan 18 dS/m memberikan nilai konduktivitas listrik tanah tertinggi sebesar 3,78 dS/m dengan persamaan secara liniear y = 0,138x + 1,0834. Interaksi konduktivitas listrik larutan

18 dS/m dengan frekuensi pemberian larutan salin 3 kali sehari memberikan nilai kehijauan daun generatif terendah yaitu 28,97 spad unit dengan persamaan linear y = -0,4549x + 34,456.

SUMMARY

Melon is a horticultural commodity that is consumed by many people. This plant has potential become a superior product in Indonesia. This increase fruit production is needed because the consumption need increases. Indonesian sand beach has not been used optimally. This land has challenges such as high soil salinity, limited water sources and strong wind containing salt. This research aims to differentiate growth and yield respons of melon plants by various ways of giving saline solution, differentiate growth and yield respons of melon plants by various electrical conductivity (EC) solution, differentiate growth and yield respons of melon plants by various frequency of giving saline solution, and explain the interaction between ways of giving saline solution, electrical conductivity (EC) solution and frequency of giving saline solution on the growth and yield melon plants.

Research was carried out at the screenhouse and Laboratory of Agronomy and Horticulture, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto from December 2021 to May 2022. This research was conducted using completely randomized block design method with three factors and three replications. The first factor is ways of giving saline solution consisting of through the soil (A_1) and through the air (A_2). The second factor is electrical conductivity (EC) solution consisting of 0 dS/m (K_1), 9 dS/m (K_2) and 18 dS/m (K_3). The third factor is frequency of giving saline solution consisting of 1 times a day (F_1), 2 times a day (F_2), and 3 times a day (F_3). Analysis of research data using analysis of variance (ANOVA) and Duncan's Multiple Range (DMRT) at level 5%.

The results showed that ways of giving saline solution through air decreased chlorophyll content, plant height, stem fresh and dry weight, and number of flowers but increased proline content up to 1.54 µmol proline/g. The electrical conductivity solution 18 dS/m decreased stomata openings, green vegetative leaves, plant height, number of leaves, leaf area, leaf fresh and dry weight, stem fresh weight, fruit fresh weight, fruit dry weight, plant fresh weight by 325, 67 g with linear equation y = -10,358x + 515.69, plant dry weight of 35.20 g with linear equation y = -0.6164x + 46.55, number of flowers 28.17 flowers with linear equation y = - 0.2884x + 32.44 and productivity of 4.87 t/ha linearly with the equation y = -0.2184x + 8.8731 but increased proline content to 1.97 mol proline/g with the linear equation y = 0.0815 +0.569. The frequency of giving saline solution 3 times a day decreased plant fresh weight by 329.47 g with linear equation y = -126.44x + 675.35, plant dry weight by 37.23 g with linear equation y = -5.3233x + 51,653, fruit diameter, fruit fresh weight, fruit dry weight, and productivity up to 4.86 tons/ha with linear equation y = -3.1216x + 12.79, but increasing proline up to 1.77 mol proline/g with linear equation y = - 0.4628x + 0.3767. The interaction ways of giving saline solution through the soil with the electrical conductivity solution 18 dS/m gave the highest soil electrical conductivity value of 3.78 dS/m with linear equation y = 0.138x + 1.0834. The interaction of the electrical conductivity solution 18 dS/m with a frequency of giving saline solution 3 times a day gave the lowest green generative value 28.97 spad units with linear equation y = -0.4549x + 34,456.