

RINGKASAN

Stroberi merupakan salah satu komoditas buah sub tropis yang sangat potensial untuk dikembangkan di Indonesia, terutama di dataran tinggi. Stroberi memiliki kadar antioksidan dan nilai gizi yang tinggi. Ketersediaan benih stroberi berkualitas menjadi faktor pembatas bagi produksi stroberi berkelanjutan di Indonesia. Melihat permasalahan tanaman stroberi seperti yang diuraikan di atas maka dilakukan upaya untuk meningkatkan kualitas dan kuantitas bibit stroberi. Salah satu solusi yang dilakukan untuk memecahkan permasalahan tersebut yaitu dengan kultur jaringan. Penelitian ini bertujuan untuk 1) Mendapatkan konsentrasi jus tomat yang paling baik untuk pertumbuhan eksplan biji stroberi secara kultur jaringan, 2) Mendapatkan konsentrasi tripton yang paling baik untuk pertumbuhan eksplan biji stroberi secara kultur jaringan, 3) Mengetahui kombinasi konsentrasi jus tomat dan tripton yang paling baik untuk pertumbuhan eksplan biji stroberi secara kultur jaringan.

Penelitian ini dilaksanakan di Laboratorium Pemuliaan Tanaman, Fakultas Pertanian, Universitas Jenderal Soedirman pada bulan Desember 2022 hingga Mei 2023. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) yang terdiri atas dua faktor. Faktor pertama adalah jus tomat (Z), yaitu Z0 = 0 ml/L, Z1 = 50 ml/L, Z2 = 100 ml/L. Faktor kedua adalah tripton (T), yaitu T0 = 0 g/L, T1 = 1 g/L, T2 = 2 g/L, T3 = 3 g/L. Dua faktor tersebut dikombinasikan dan didapatkan 12 kombinasi perlakuan. Perlakuan diulang sebanyak 4 kali sehingga diperoleh 96 unit percobaan. Satu unit percobaan terdapat 3 tanaman sehingga diperoleh 288 tanaman. Variabel yang diamati yaitu daya berkecambah, laju pertumbuhan, tinggi tanaman, jumlah daun, jumlah cabang, lebar daun, panjang akar, dan jenis kontaminasi. Data yang diperoleh dianalisis ragam dengan uji F pada taraf 5%. Apabila berpengaruh nyata dilanjutkan dengan *Duncan's Multiple Range Test* (DMRT) pada taraf nyata 5%.

Hasil penelitian menunjukkan konsentrasi jus tomat 0 ml/L memberikan hasil terbaik pada daya kecambah benih memberikan hasil 0,524, tinggi tanaman 3,422 cm, jumlah daun 2,125, jumlah cabang 2,219, lebar daun 1,081 cm, dan panjang akar memberikan hasil 5,003 cm. Konsentrasi tripton 0 g/L memberikan hasil terbaik pada parameter antara lain daya kecambah benih yang memberikan hasil 0,528, tinggi tanaman 4,013 cm, jumlah daun 2,375, jumlah cabang 2,417, lebar daun 1,458, dan panjang akar 5,242 cm. Kombinasi konsentrasi jus tomat 50 ml/L + tripton 0 g/L (T0Z1) memberikan hasil terbaik pada parameter tinggi tanaman, jumlah daun, jumlah cabang, dan lebar daun. Kombinasi konsentrasi jus tomat 0 ml/L + tripton 2 g/L memberikan hasil terbaik pada variabel laju perkecambahan.

SUMMARY

Strawberry is one of the sub-tropical fruit commodities that has the potential to be developed in Indonesia, especially in the highlands. Strawberries have high levels of antioxidants and nutritional value. The availability of quality strawberry seeds is a limiting factor for sustainable strawberry production in Indonesia. Seeing the problem of strawberry plants as described above, efforts were made to increase the quality and quantity of strawberry seeds. One of the solutions to solve this problem is tissue culture. The purpose of this study was to 1) Obtain the best concentration of tomato juice for the growth of strawberry seed explants in tissue culture, 2) Obtain the best concentration of tomato juice for the growth of strawberry seed explants in tissue culture, 3) Determine the combination of concentrations of tomato juice and tryptone best for the growth of strawberry seed explants by tissue culture.

This research was conducted at the Plant Breeding Laboratory, Faculty of Agriculture, Jenderal Soedirman University from December 2022 to May 2023. This research used a Completely Randomized Design (CRD) which consisted of two factors. The first factor is tomato juice (Z), namely Z0 = 0 ml/L, Z1 = 50 ml/L, Z2 = 100 ml/L. The second factor is tryptone (T), namely T0 = 0 g/L, T1 = 1 g/L, T2 = 2 g/L, T3 = 3 g/L. The two factors were combined and 12 treatment combinations were obtained. The treatment was repeated 4 times to obtain 36 experimental units. One experimental unit contained 3 plants so that 288 plants were obtained. The variables observed were germination, growth rate, plant height, number of leaves, number of branches, leaf width, root length, and type of contamination. The data obtained were analyzed for variance with the F test at the 5% level. If it has a significant effect, continue with Duncan's Multiple Range Test (DMRT) at a significant level of 5%.

The results showed that the concentration of 0 ml/L tomato juice gave the best results on seed germination yielded 0.524, plant height 3.422 cm, number of leaves 2.125, number of branches 2.219, leaf width 1.081 cm, and root length yield 5.003 cm. Tryptone concentration of 0 g/L gave the best results on parameters including seed germination rate which yielded 0.528, plant height 4.013 cm, number of leaves 2.375, number of branches 2.417, leaf width 1.458, and root length 5.242 cm. The combination of tomato juice concentration of 50 ml/L + tryptone 0 g/L (T0Z1) gave the best results on the parameters of plant height, number of leaves, number of branches, and leaf width. The combination of 0 ml/L tomato juice concentration + 2 g/L tryptone gave the best results on the germination rate variable.