

RINGKASAN

Kubis merupakan tanaman hortikultura yang mampu meningkatkan kesejahteraan dan pendapatan petani. Budidaya komoditas kubis dihadapkan permintaan pasar yang terus meningkat setiap tahunnya. Kubis mengalami penurunan produksi, salah satu faktor penyebabnya yaitu penyempitan lahan akibat pembangunan fungsional lahan yang tidak optimal. Permasalahan ini dapat diatasi dengan memanfaatkan lahan sub-optimal seperti lahan pasir pantai. Pengembangan tanaman hortikultura di lahan pasir pantai dihadapkan pada berbagai permasalahan seperti ketersediaan air rendah, suhu tinggi, salinitas tinggi, kecepatan angin yang tinggi dan mengandung garam. Salah satu jenis tanaman yang masih dapat tumbuh di lahan pasir pantai adalah kubis. Tujuan penelitian ini adalah untuk: 1) menentukan pengaruh volume pembilasan terhadap pertumbuhan, fisiologi dan hasil tanaman kubis terpapar salinitas udara pada media tanah pasir pantai, 2) menentukan pengaruh waktu pembilasan terhadap pertumbuhan, fisiologi dan hasil tanaman kubis terpapar salinitas udara pada media tanah pasir pantai, dan 3) menentukan pengaruh volume pembilasan dan waktu pembilasan yang memberikan hasil terbaik bagi tanaman kubis terpapar salinitas udara.

Penelitian ini dilaksanakan dalam *screenhouse* Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto, Banyumas. Penelitian dilaksanakan selama 4 bulan mulai Juni sampai Oktober 2024. Penelitian dilakukan dengan menggunakan metode Rancangan Acak Kelompok Lengkap (RAKL) faktorial dengan 2 faktor. Faktor pertama adalah volume pembilasan terdiri atas 0 mm, 3,5 mm dan 7 mm dan faktor kedua adalah waktu pembilasan terdiri atas 0 menit, 45 menit dan 90 menit dengan tiga kali ulangan. Variabel yang diamati antara lain tinggi tanaman, jumlah daun, luas daun, bobot segar daun, bobot segar batang, bobot segar akar, bobot segar krop, bobot segar tanaman, bobot kering daun, bobot kering batang, bobot kering akar, bobot kering krop, bobot kering tanaman, diameter krop, umur pembentukan krop, hasil tanaman, kadar klorofil, nilai kehijauan daun, kadar prolin, bukaan stomata, dan kerapatan stomata. Hasil penelitian akan dianalisis menggunakan uji F dan diuji lanjut *Duncan's Multiple Range Test* (DMRT) pada taraf 5% apabila terdapat beda nyata.

Volume pembilasan 7 mm meningkatkan kerapatan dan bukaan stomata generatif. Peningkatan volume pembilasan menurunkan kadar prolin vegetatif mengikuti persamaan $y = -5,3806x + 47,033$ dan kadar prolin generatif mengikuti persamaan $y = -1,6921x + 23,893$, sedangkan pada bobot kering daun dicapai pada volume pembilasan 18,7 g/tanaman. Semakin lama waktu pembilasan sampai 90 menit menurunkan nilai kehijauan daun tanaman vegetatif mengikuti persamaan $y = -0,0745x + 61,749$ namun tidak menurunkan kadar klorofil daun vegetatif dengan kadar 25,00 $\mu\text{g/mL}$ dan generatif 18,87 $\mu\text{g/mL}$. Volume pembilasan tidak tergantung kepada waktu pembilasan yang menunjukkan tidak ada interaksi di antara keduanya.

SUMMARY

Cabbage is a horticultural crop that can contribute to improving farmers' welfare and income. The cultivation of cabbage is facing an increasing market demand each year. However, cabbage production has been declining, with one of the contributing factors being land shrinkage due to suboptimal land-use development. This issue may be addressed by utilising suboptimal land, such as coastal sandy soils. The development of horticultural crops on coastal sandy soils faces various challenges, including low water availability, high temperatures, elevated salinity, and strong, saline winds. Cabbage is one of the few crops that can still grow under such conditions. The objectives of this study are to: 1) determine the effect of flushing volume on the growth, physiology, and yield of cabbage plants exposed to airborne salinity in coastal sandy soil; 2) determine the effect of flushing timing on the growth, physiology, and yield of cabbage plants exposed to airborne salinity in coastal sandy soil; and 3) identify the combination of flushing volume and timing that provides the optimal results for cabbage plants exposed to airborne salinity.

This study was conducted in a screenhouse at the Faculty of Agriculture, Jenderal Soedirman University, Purwokerto, Banyumas. The research was carried out over a period of four months, from June to October 2024. A factorial Complete Randomised Block Design (CRBD) was employed, consisting of two factors. The first factor was flushing volume, comprising 0 mm, 3.5 mm, and 7 mm, while the second factor was flushing time, comprising 0 minutes, 45 minutes, and 90 minutes, with three replications. The observed variables included plant height, number of leaves, leaf area, fresh weight of leaves, stems, roots, heads, and total plant, as well as dry weight of leaves, stems, roots, heads, and total plant. Additional parameters observed were head diameter, time to head formation, crop yield, chlorophyll content, leaf greenness index, proline content, stomatal aperture, and stomatal density. The data were analysed using an F-test, and if significant differences were found, further analysis was performed using Duncan's Multiple Range Test (DMRT) at the 5% significance level.

A flushing volume of 7 mm increased stomatal density and aperture during the generative phase. Increasing the flushing volume decreased proline content during the vegetative phase, following the regression equation $y = -5.3806x + 47.033$, and during the generative phase, following the equation $y = -1.6921x + 23.893$. The highest leaf dry weight was achieved at a flushing volume of 18.7 g/plant. Prolonging the flushing time up to 90 minutes reduced the greenness value of vegetative leaves, following the equation $y = -0.0745x + 61.749$, but did not decrease the chlorophyll content of vegetative leaves, which remained at 25.00 µg/mL, and generative leaves at 18.87 µg/mL. Flushing volume was independent of flushing time, indicating no interaction between the two factors.