

RINGKASAN

Kentang merupakan komoditas hortikultura penting yang berperan sebagai sumber pangan alternatif setelah beras, gandum, dan jagung. Peningkatan permintaan kentang di Indonesia belum sepenuhnya diimbangi dengan peningkatan produksi. Kendala utama budidaya kentang antara lain keterbatasan lahan dataran tinggi, penurunan kesuburan tanah, keterbatasan bibit berkualitas, serta rendahnya toleransi tanaman kentang terhadap suhu tinggi. Oleh karena itu, pembibitan kentang di dataran medium dapat menjadi alternatif. Penelitian ini bertujuan untuk mengetahui pengaruh variasi media tanam terhadap pertumbuhan dan produksi bibit kentang dengan sistem fertigasi sumbu kapiler dan pendinginan media tanam di dataran medium. Penelitian dilaksanakan di dalam *screenhouse*, Kec. Paguyangan, Kab. Brebes, Jawa Tengah, 342 mdpl, dari bulan Juni hingga Oktober 2025. Bahan tanam yang digunakan adalah bibit kentang G1 varietas Granola dan menggunakan nutrisi AB *Mix* dengan konsentrasi EC 2 mS/cm.

Penelitian menggunakan Rancangan Acak Lengkap (RAL) 1 faktor dengan 4 perlakuan media tanam, yaitu *cocopeat*, arang sekam, tanah utuh, dan pasir utuh, masing-masing 7 kali pengulangan sehingga terdapat 28 kombinasi perlakuan. Pendinginan dilakukan dengan penyemprotan air bersuhu 15°C ke media tanam untuk menurunkan suhu media tanam. Parameter yang diamati meliputi tinggi tanaman, jumlah daun, jumlah batang, diameter batang, *Leaf Area Index* (LAI), biomassa total, bobot umbi, dan jumlah umbi. Data dianalisis menggunakan uji ANOVA dan uji Kruskal Wallis, serta uji lanjut DMRT 5%.

Media tanam memberikan pengaruh yang berbeda terhadap beberapa parameter pertumbuhan dan produksi tanaman kentang yaitu tinggi tanaman, jumlah daun, LAI, dan bobot umbi. *Cocopeat* memberikan hasil terbaik pada pertumbuhan vegetatif dan produksi, yaitu pada tinggi tanaman tertinggi, jumlah daun terbanyak, nilai LAI tertinggi, biomassa total terbesar, serta bobot umbi tertinggi. Arang sekam menunjukkan respon yang baik terhadap pertumbuhan akar, sedangkan tanah utuh dan pasir utuh memberikan hasil terendah pada sebagian besar parameter, terutama bobot umbi.

SUMMARY

Potato is an important horticultural commodity that serves as an alternative food source after rice, wheat, and maize. The increasing demand for potatoes in Indonesia has not been fully matched by an increase in production. Major constraints in potato cultivation include limited highland areas, declining soil fertility, limited availability of high-quality seed tubers, and the low tolerance of potato plants to high temperatures. Therefore, potato seed production in medium-altitude areas may serve as an alternative approach. This study aimed to determine the effect of different planting media on the growth and production of potato seed tubers using a capillary wick fertigation system combined with planting media cooling under medium-altitude conditions. The research was conducted in a screenhouse located in Paguyangan District, Brebes Regency, Central Java, at an altitude of 342 meters above sea level, from June to October 2025. The planting material used was G1 potato seed tubers of the Granola variety, supplied with AB Mix nutrient solution at an electrical conductivity (EC) concentration of 2 mS/cm.

The experiment employed a Completely Randomized Design (CRD) with a single factor consisting of four planting media treatments, namely cocopeat, rice husk charcoal, intact soil, and intact sand, each replicated seven times, resulting in 28 experimental units. Media cooling was applied by spraying water at a temperature of 15°C onto the planting media to reduce media temperature. Observed parameters included plant height, number of leaves, number of stems, stem diameter, Leaf Area Index (LAI), total biomass, tuber weight, and tuber number. Data were analyzed using ANOVA and the Kruskal–Wallis test, followed by Duncan’s Multiple Range Test (DMRT) at a 5% significance level.

The planting media significantly affected several growth and production parameters of potato plants, including plant height, number of leaves, LAI, and tuber weight. Cocopeat produced the best results in both vegetative growth and production, showing the highest plant height, greatest number of leaves, highest LAI value, largest total biomass, and highest tuber weight. Rice husk charcoal demonstrated a favorable response in root growth, whereas intact soil and intact sand resulted in the lowest performance across most parameters, particularly tuber weight.