

ABSTRAK

PERTUMBUHAN DAN PRODUKTIVITAS TANAMAN PAKCOY (*BRASSICA RAPA L*) MENGGUNAKAN HIDROPONIK SUBSTRAT DENGAN METODE *CAPILLARY MAT* PADA BEBERAPA MEDIA TANAM

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Pertanian modern menghadapi tantangan seperti keterbatasan lahan dan kebutuhan efisiensi penggunaan sumber daya. Hidroponik substrat menjadi solusi alternatif yang menjanjikan, terutama dengan penggunaan sistem irigasi kapiler. Penelitian ini bertujuan untuk mengevaluasi pengaruh tiga jenis media tanam—cocopeat, arang sekam, dan pasir malang—terhadap pertumbuhan dan produktivitas tanaman pakcoy (*Brassica rapa L*) pada sistem hidroponik substrat dengan metode capillary mat. Penelitian dilaksanakan di Greenhouse Fakultas Pertanian Universitas Lampung selama 40 hari dengan rancangan acak lengkap non-faktorial, tiga perlakuan, dan tiga ulangan. Parameter yang diamati meliputi tinggi tanaman, jumlah daun, diameter kanopi, bobot dan panjang akar, bobot total tanaman, konsumsi air, dan produktivitas air. Hasil menunjukkan bahwa cocopeat memberikan hasil pertumbuhan dan biomassa terbaik, dengan tinggi tanaman (24 cm) dan bobot total (108,75 g), namun konsumsi air tertinggi (1,075 L/tanaman). Pasir malang menghasilkan produktivitas air tertinggi (158,56 g/L) dan konsumsi air paling efisien (0,658 L/tanaman). Arang sekam menghasilkan panjang akar terpanjang (17,33 cm) namun bobot tanaman terendah. Pemilihan media tanam sebaiknya disesuaikan dengan tujuan budidaya, apakah untuk hasil maksimal atau efisiensi air.

Kata kunci: pakcoy, hidroponik, media tanam, *capillary mat*, efisiensi air

ABSTRACT

GROWTH AND PRODUCTIVITY OF PAKCOY PLANTS (BRASSICA RAPA L) USING HYDROPONIC SUBSTRATE WITH THE CAPILLARY MAT METHOD ON SEVERAL PLANTING MEDIA

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*Modern agriculture faces challenges such as limited land and the need for efficient use of resources. Substrate hydroponics is a promising alternative solution, especially with the use of capillary irrigation systems. This study aims to evaluate the effect of three types of planting media—cocopeat, rice husk charcoal, and Malang sand—on the growth and productivity of pak choy (*Brassica rapa* L.) plants in a substrate hydroponic system using the capillary mat method. The study was conducted at the Greenhouse of the Faculty of Agriculture, University of Lampung for 40 days with a completely randomized non-factorial design, three treatments, and three replications. The parameters observed included plant height, number of leaves, canopy diameter, root weight and length, total plant weight, water consumption, and water productivity. The results showed that cocopeat gave the best growth and biomass results, with plant height (24 cm) and total weight (108.75 g), but the highest water consumption (1.075 L/plant). Malang sand produced the highest water productivity (158.56 g/L) and the most efficient water consumption (0.658 L/plant). Rice husk charcoal produced the longest root length (17.33 cm) but the lowest plant weight. The selection of planting media should be adjusted to the purpose of cultivation, whether for maximum results or water efficiency.*

Keywords: pak choy, hydroponics, planting media, capillary mat, water efficiency.