

ANALISIS VARIASI DAYA DAN JARAK LAMPU TERHADAP PERTUMBUHAN TANAMAN SELADA (*Lactuca Sativa L.*) PADA SISTEM HIDROPONIK RAKIT APUNG DALAM RUANGAN

*The analysis of variations in power and distance from the lamp on the growth of lettuce (*Lactuca sativa l.*) in an indoor floating hydroponic system*

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ABSTRAK

LED *Grow light* merupakan sumber cahaya buatan yang dimanfaatkan untuk membantu pertumbuhan tanaman. Perpaduan warna merah dan biru pada lampu LED memberikan dampak yang sangat baik pada pertumbuhan tanaman. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh variasi daya lampu dan jarak lampu LED terhadap pertumbuhan tanaman selada (*Lactuca sativa L.*) pada sistem hidroponik dalam ruangan. Penelitian ini menggunakan lampu LED *growlight* merah-biru dengan variasi daya lampu yaitu 18 watt dan 28 watt. Perlakuan variasi jarak yaitu 10 cm, 15 cm, dan 20 cm. Setiap perlakuan terdiri dari 9 tanaman dengan total 54 tanaman. Data hasil penelitian dianalisis dengan *Analysis of Variance* (ANOVA) dan uji *Duncan Multiple Range Test* (DMRT) pada taraf 5%. Parameter penelitian yang diamati yaitu intensitas cahaya, konsumsi air, tinggi tanaman, berat segar tanaman, jumlah dan luas daun. Hasil penelitian menunjukkan perlakuan daya lampu LED memberikan pengaruh nyata terhadap parameter pertumbuhan tanaman meliputi tinggi tanaman, jumlah dan luas daun dan berat segar tanaman. Perlakuan jarak lampu tidak memberikan pengaruh yang nyata terhadap parameter yang diamati. Lampu LED 28 watt dengan jarak lampu 15 cm memberikan hasil terbaik bagi pertumbuhan dan produksi tanaman selada.

Kata kunci: hidroponik indoor, lampu LED, selada

ABSTRACT

*LED Grow light is an artificial light source that is used to help plant growth. The combination of red and blue colors in LED Grow light has a very good impact on plant growth. The aim of this research was to determine the effect of variations in power LED power and distance on the growth of lettuce (*Lactuca sativa L.*) in an indoor hydroponic system. The study used a red-blue LED Grow light with 2 variations in lamp power: 18 watts and 28 watts. The treatments for lamp distance from the plant were 10 cm, 15 cm and 20 cm. Each treatment consisted of 9 plants, for a total of 54 plants. The research data were analyzed by *Analysis of Variance* (ANOVA) and continued with the *Duncan Multiple Range Test* (DMRT) at a 5%. The research parameters*

observed were light intensity, water consumption, plant height, fresh weight, and the number and area of leaves. The results showed LED Power treatment had significant effect on plant growth parameters, including plant height, number and area of leaves, and the fresh weight. The lamp distance treatment did not have a significant effect on the observed parameters. 28 watts LED power with a lamp spacing of 15 cm provides the best results for lettuce growth and production.

Keywords: *indoor hydroponics; LED lamp; lettuce*