Studi Penerapan Lampu Pertumbuhan Fotosintesis terhadap Pertumbuhan Sawi Pagoda (*Brassica narinosa* L.) dengan Teknik Hidroponik *Indoor*

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ABSTRAK

Sawi pagoda merupakan jenis tanaman sawi yang memiliki nilai ekonomi tinggi namun luas lahan pertanian indonesia mengalami penurunan sehingga perlu dilakukan inovasi teknologi salah satunya yaitu budidaya hidroponik secara *indoor*. Budidaya hidroponik secara *indoor* terdapat kendala yaitu belum diketahui formula lama penyinaran dan rasio warna lampu pertumbuhan yang sesuai untuk pertumbuhan sawi pagoda Penelitian ini bertujuan untuk mengkaji pengaruh perlakuan lama penyinaran perbandingan warna lampu pertumbuhan terhadap pertumbuhan tanaman sawi pagoda. Metode penelitian yang digunakan adalah percobaan lapangan yang disusun secara *Split plot* dengan rancangan lingkungan RAL (Rancangan Acak Lengkap) diulang sebanyak 3 kali. Perlakuan lama penyinaran (F) terdiri dari 3 aras, yaitu 12 jam, 16 jam, dan 20 jam. Perlakuan rasio warna lampu pertumbuhan (D) terdiri dari 3 aras, yaitu perbandingan warna ungu dan putih berturut-turut 2:0, 1:1, dan 0:2. Data yang diperoleh dianalisis menggunakan sidik ragam atau *analysis of variance* (ANOVA) untuk mengetahui perbedaan antar perlakuan maka dilakukan uji *Duncan Multiple Range Test* (DMRT) pada taraf uji 5%. Hasil menunjukkan bahwa pada parameter tinggi tanaman umur 1 MST, 2 MST, 3 MST, 4 MST, dan 5 MST, jumlah daun 2 MST, 3 MST, 4 MST, dan 5 MST, bobot segar tajuk, bobot kering tajuk, bobot kering akar, dan luas daun terbaik terdapat pada kombinasi perlakuan penyinaran 20 jam dengan rasio lampu pertumbuhan 0:2 (F3D3).
Kata Kunci : Sawi Pagoda, Lampu Pertumbuhan, Hidroponik, *Indoor*

Study on the Application of Photosynthetic Growth Lamps on the Growth of Pagoda Mustard (*Brassica narinosa* L.) Using Indoor Hydroponic Techniques

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ABSTRACT

Pagoda mustard is a type of mustard plant with high economic value; however, the agricultural land area in Indonesia has been declining, necessitating technological innovations such as indoor hydroponic cultivation. Indoor hydroponic systems face a challenge in that the optimal formula for photoperiod duration and the appropriate ratio of growth-lamp colors for pagoda mustard growth is not yet known. This study aimed to examine the effects of photoperiod duration and growth-lamp color ratio treatments on the growth of pagoda mustard. The research method used was a field experiment arranged in a Split Plot design within a Completely Randomized Design (CRD), repeated three times. The photoperiod duration treatment (F) consisted of three levels: 12 hours, 16 hours, and 20 hours. The growth-lamp color ratio treatment (D) consisted of three levels with purple:white ratios of 2:0, 1:1, and 0:2, respectively. The collected data were analyzed using analysis of variance (ANOVA), and to determine differences between treatments, Duncan's Multiple Range Test (DMRT) was applied at the 5% significance level. The results showed that the best outcomes for plant height at 1, 2, 3, 4, and 5 weeks after planting (WAP); number of leaves at 2, 3, 4, and 5 WAP; shoot fresh weight; shoot dry weight; root dry weight; and leaf area were obtained from the combination of a 20-hour photoperiod with a 0:2 growth-lamp ratio (F3D3).

Keywords : Pagoda mustard greens, growth lights, hydroponics, *indoor*