

## **PERTUMBUHAN DAN KADAR STEVIOSIDA TANAMAN STEVIA (*Stevia rebaudiana* Bertoni) PADA INTENSITAS CAHAYA DAN KETERSEDIAAN AIR BERBEDA**

### **INTISARI**

*Stevia rebaudiana* Bertoni memiliki potensi yang cukup besar untuk dibudidayakan dan dikembangkan sebagai bahan baku gula (pemanis) alami, pendamping gula tebu, dan pengganti gula sintetis karena memiliki tingkat kemanisan 300 kali dibandingkan gula tebu. Teknik budidaya yang tepat diperlukan untuk meningkatkan produktivitas tanaman. Faktor lingkungan seperti intensitas cahaya dan ketersediaan air berperan penting pada pertumbuhan dan perkembangan tanaman. Penelitian ini bertujuan untuk mengetahui pertumbuhan dan kadar steviosida tanaman stevia yang ditanam pada kondisi intensitas cahaya dan ketersediaan air berbeda. Penelitian disusun dalam Rancangan Acak Kelompok (RAK) yang terdiri dari dua faktor yaitu intensitas cahaya (100%, 50%, dan 25%) dan ketersediaan air (100%, 75%, 50%, dan 25% KL). Variabel yang diamati meliputi tinggi tanaman, jumlah nodus, jumlah daun, biomassa tanaman, rasio tajuk-akar, kadar klorofil, stomata (kerapatan, indeks, dan ukuran), serta kadar steviosida dan rebaudiosida A. Data dianalisis menggunakan Anova kemudian dilanjutkan dengan uji DMRT pada taraf kepercayaan 95% untuk mengetahui beda nyata antar perlakuan. Hasil penelitian menunjukkan bahwa intensitas cahaya dan ketersediaan air berpengaruh nyata terhadap tinggi tanaman, jumlah nodus, jumlah daun, biomassa tanaman, dan ukuran stomata, tetapi tidak berpengaruh terhadap kadar klorofil a dan total serta kerapatan dan indeks stomata. Intensitas cahaya 100% dan ketersediaan air 100% KL meningkatkan tinggi tanaman, jumlah nodus, jumlah daun, dan biomassa tanaman. Intensitas cahaya 25% meningkatkan kadar steviosida dan rebaudiosida A. Kadar steviosida dan rebaudiosida A tidak dipengaruhi oleh ketersediaan air. Perlakuan yang optimal dalam meningkatkan produktivitas tanaman stevia yaitu intensitas cahaya 100% dan ketersediaan air 100% KL.

**Kata kunci : stevia, cahaya, air, pertumbuhan, steviosida**

## **GROWTH AND STEVIOSIDE LEVELS OF STEVIA (*Stevia rebaudiana* Bertoni) AT DIFFERENT LIGHT INTENSITY AND WATER AVAILABILITY**

### **ABSTRACT**

*Stevia rebaudiana* Bertoni has a great potency to be cultivated and developed as a raw material for natural sweetener, sugar cane substitution, and as synthetic sugar substitution because it has the sweetness level of 300 times higher than cane sugar. Suitable cultivation techniques are needed to increase crop productivity. Environmental factors such as light intensity and the availability of water play an important role on plant growth and development. This research aimed to study the growth response and stevioside level of stevia grown at different light intensities and water availability. Research was designed in Completely Randomized Design (RCBD) which consists of two factors: light intensities (100%, 50%, and 25%) and water availability (field capacity of 100%, 75%, 50%, and 25%). The variables observed were the plant height, number of nodes, number of leaves, plant biomass, ratio of shoots-roots, chlorophyll content, stomata (density, index and stomatal size), stevioside and rebaudiosidaA level. Data were analyzed using ANOVA followed by DMRT at 95% confidence level to determine the significant difference between treatments. The results showed that the intensity of light and the availability of water significantly affected plant height, number of nodes, number of leaves, biomass plants, and stomatal size, but no effect on levels of chlorophyll a and total chlorophyll as well as the density and stomatal index. Light intensity of 100% and water availability of 100% increased plant height, number of nodes, number of leaves, and plant biomass. Light intensity 25% increased stevioside and rebaudiosidaA level. Stevioside and rebaudiosidaA level were not influenced by the availability of water. The optimal treatments in improving the productivity of the stevia plant was a combination of light intensity 100% and water availability 100%.

**Keywords: stevia, light, water, growth, stevioside**