

RINGKASAN

Leucobryum javense merupakan salah satu spesies lumut yang banyak ditemukan di daerah tropis, termasuk di Kebun Raya Baturraden. Kandungan klorofil dan karakter mikromorfologi lumut dapat dipengaruhi oleh faktor lingkungan, seperti ketinggian dan substrat tempat tumbuh. Namun, penelitian terkait masih terbatas, sehingga diperlukan kajian lebih lanjut untuk memahami bagaimana faktor-faktor tersebut memengaruhi lumut ini. Penelitian ini bertujuan untuk mengetahui pengaruh ketinggian lokasi dan jenis substrat tumbuh terhadap karakter mikromorfologi dan kandungan klorofil *Leucobryum javense* di Kebun Raya Baturraden serta menentukan kandungan klorofil tertinggi *L. javense* berdasarkan lokasi tumbuh dan substrat tumbuh.

Penelitian dilakukan pada tiga titik elevasi (500-600, 601-700, dan 701-800 mdpl) dengan dua jenis substrat utama, yaitu tanah dan kulit pohon, menggunakan metode Rancangan Acak Lengkap (RAL) pola faktorial. Data yang dikumpulkan mencakup karakter mikromorfologi dan kandungan klorofil a, b, serta total. Analisis data menggunakan ANOVA pada taraf signifikansi 5% dan 1 %. Jika terdapat perbedaan signifikan maka dilakukan uji lanjut DMRT pada taraf signifikansi 5%.

Hasil penelitian menunjukkan bahwa tidak ada pengaruh interaksi antara ketinggian dan substrat terhadap kandungan klorofil total. Kandungan klorofil tertinggi ditemukan pada lumut yang tumbuh di substrat tanah pada ketinggian 500-600 mdpl sebesar 25,06 mg/L, sedangkan yang terendah pada substrat kulit pohon di ketinggian (701-800 mdpl) sebesar 12,91 mg/L. Variasi ini dipengaruhi oleh intensitas cahaya, suhu, dan kandungan hara NPK substrat. Mikromorfologi filoid juga menunjukkan variasi bentuk dan ukuran berdasarkan substrat dan ketinggian; bentuk lanceolate banyak ditemukan pada substrat vertikal (kulit pohon) sedangkan *ovate* lebih umum pada substrat tanah.

Kata kunci: *Kandungan klorofil, karakter mikromorfologi, Kebun Raya Baturraden, ketinggian lokasi, Leucobryum javense*

SUMMARY

Leucobryum javense was one of the moss species commonly found in tropical regions, including the Baturraden Botanical Garden. The chlorophyll content and micromorphological characteristics of mosses could be influenced by environmental factors such as altitude and substrate. However, related research was still limited; therefore, further studies were needed to better understand how these factors affected this species. This study aimed to determine the influence of altitude and substrate type on the micromorphological characteristics and chlorophyll content of *Leucobryum javense* in the Baturraden Botanical Garden, as well as to identify the conditions under which the highest chlorophyll content occurred based on growth location and substrate type.

The study was conducted at three elevation points (500–600, 601–700, and 701–800 m above sea level) with two main substrate types, namely soil and tree bark, using a completely randomized design (CRD) with a factorial pattern. The data collected included micromorphological characteristics and chlorophyll a, b, and total chlorophyll content. Data analysis was performed using ANOVA at the 5% and 1% significance levels. If significant differences were found, further DMRT tests were conducted at the 5% significance level.

The results showed that there was no interaction between altitude and substrate on total chlorophyll content. The highest chlorophyll content (25.06 mg/L) was found in moss growing on a soil substrate at an altitude of 500–600 m above sea level, while the lowest (12.91 mg/L) was found on a tree bark substrate at an altitude of 701–800 m above sea level. This variation was influenced by light intensity, temperature, and NPK nutrient content of the substrate. The micromorphology of the phylloids also showed variations in shape and size depending on substrate and altitude: lanceolate shapes were commonly found on vertical substrates (tree bark), while ovate shapes were more common on soil substrates.

Keywords: *altitude, Baturraden Botanical Garden, chlorophyll content, Leucobryum javense, micromorphology, substrate type*