

RINGKASAN

Lumut memiliki peranan penting dalam ekosistem terutama sebagai penyerap air dan polutan, salah satunya *Pogonatum aloides* (Hedw.) P. Beauv yang tumbuh di kawasan Kebun Raya Baturraden. Kawasan ini diketahui memiliki topografi landai sampai berbukit sehingga terdapat gradien ketinggian tempat yang mempengaruhi pertumbuhan dan perkembangan lumut. Faktor lingkungan salah satunya ketinggian tempat menyebabkan karakteristik morfologis dan fisiologis seperti kandungan flavonoid pada lumut bervariasi. Minimnya informasi mengenai analisis kandungan flavonoid dan karakter mikromorfologi pada *P. aloides* di Kebun Raya Baturraden melatarbelakangi dilakukannya penelitian ini. Penelitian ini bertujuan untuk mengetahui pengaruh ketinggian tempat tumbuh terhadap kandungan flavonoid dan mengetahui karakteristik mikromorfologi *P. aloides* di Kawasan Kebun Raya Baturraden serta menentukan kandungan flavonoid tertinggi berdasarkan ketinggian tempat tumbuhnya.

Penelitian ini dilakukan di Laboratorium Fisiologi Tumbuhan dan Laboratorium Struktur dan Perkembangan Tumbuhan, Fakultas Biologi, Universitas Jenderal Soedirman selama enam bulan. Prosedur yang dilakukan meliputi pengambilan sampel, ekstraksi flavonoid, dan pengamatan mikromorfologi *P. aloides*. Pengambilan sampel dilakukan menggunakan teknik *purposive sampling* pada kisaran ketinggian 600-900 mdpl di Kebun Raya Baturraden. Kandungan flavonoid *P. aloides* dianalisis menggunakan *Analysis of Variance* (ANOVA) pada taraf uji 5% dan 1%. Jika hasil uji ANOVA menunjukkan adanya perbedaan signifikan, maka analisis dilanjutkan dengan uji *Duncan's Multiple Range Test* (DMRT) pada taraf 5%. Karakteristik *P. aloides* diamati secara mikromorfologi yang meliputi karakter gametofit dan sporofit kemudian dianalisis secara deskriptif.

Hasil penelitian didapatkan bahwa ketinggian tempat tumbuh berpengaruh terhadap kandungan flavonoid *P. aloides* di Kawasan Kebun Raya Baturraden. Kandungan flavonoid *P. aloides* meningkat seiring dengan peningkatan ketinggian tempat tumbuh. Ketinggian tempat tumbuh juga berpengaruh terhadap pertumbuhan *P. aloides* yang ditandai dengan adanya panjang tubuh gametofit, panjang filoid, serta keberadaan sporofit. Kandungan flavonoid tertinggi *P. aloides* ditemukan pada Stasiun III yaitu pada ketinggian 801-900 mdpl sebesar $81,15 \pm 2,22$ mg QE/g.

Kata kunci: *Baturraden, Bryophyta, flavonoid, mikromorfologi, Pogonatum aloides*

SUMMARY

Moss plays an important role in the ecosystem, particularly as an absorber of water and pollutants, one of which is *Pogonatum aloides* (Hedw.) P. Beauv, which grows in the Baturraden Botanical Garden area. This area is known to have a gentle to hilly topography, resulting in a height gradient that influences the growth and development of moss. Environmental factors, such as elevation, cause variations in morphological and physiological characteristics, including flavonoid content, in mosses. The lack of information on flavonoid content analysis and micromorphological characteristics of *P. aloides* in the Baturraden Botanical Garden prompted this study. This study aims to determine the effect of elevation on flavonoid content and to identify the micromorphological characteristics of *P. aloides* in the Baturraden Botanical Garden area, as well as to determine the highest flavonoid content based on elevation.

This study was conducted at the Plant Physiology Laboratory and the Plant Structure and Development Laboratory, Faculty of Biology, Jenderal Soedirman University for six months. The procedures involved sampling, flavonoid extraction, and micromorphological observation of *P. aloides*. Sampling was performed using purposive sampling techniques at an altitude range of 600-900 m above sea level in the Baturraden Botanical Garden. The flavonoid content of *P. aloides* was analyzed using Analysis of Variance (ANOVA) at a 5% and 1% significance level. If the ANOVA test results showed significant differences, the analysis was continued with Duncan's Multiple Range Test (DMRT) at a 5% significance level. The characteristics of *P. aloides* were observed micromorphologically, including gametophyte and sporophyte characteristics, and then analyzed descriptively.

The results of the study indicate that the altitude of the growing site affects the flavonoid content of *P. aloides* in the Baturraden Botanical Garden area. The altitude of the growing site also affects the growth of *P. aloides*, as indicated by differences in the length of the gametophyte, the length of the phylloid, and the presence of sporophytes.. The highest flavonoid content of *P. aloides* was found at Station III, at an elevation of 801–900 m.a.s.l level, at 81.15 ± 2.22 mg QE/g.

Keywords: *Baturraden*, *Bryophyta*, *flavonoid*, *micromorphology*, *Pogonatum aloides*