

# Adaptasi anatomi daun dan karakter rizom pada lima spesies paku epifit famili polypodiaceae di beberapa wilayah Universitas Indonesia = Anatomical adaptation of leaf and rhizome character in five species of epiphytic ferns polypodiaceae family in several areas of Universitas Indonesia

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## Abstrak

Penelitian mengenai adaptasi anatomi daun dan karakter rizom pada lima spesies paku epifit famili Polypodiaceae di beberapa wilayah Universitas Indonesia telah dilakukan. Penelitian dilakukan untuk mengetahui strategi adaptasi pada paku epifit terhadap lingkungan kering. Spesies yang digunakan adalah *Pyrrosia piloselloides*, *Pyrrosia lanceolata*, *Platynerium bifurcatum*, *Drynaria sparsisora*, dan *Phymatosorus scolopendria*. Masing-masing spesies diamati bentuk epidermis, bentuk stomata, posisi stomata, bentuk trikoma sebagai data kualitatif. Ketebalan kutikula, ketebalan epidermis, ketebalan mesofil, ketebalan daun, luas berkas pembuluh angkut, luas stomata serta kerapatan stomata, luas permukaan melintang rizom, dan kapasitas kandungan air sebagai data kuantitatif. Daun pada lima spesies disayat dengan metode sayatan segar. Rizom dipotong secara melintang, difoto, kemudian diukur dengan aplikasi ImageJ. Berat turgid dan berat kering daun diukur untuk mendapatkan kapasitas kandungan air daun. Hasil menunjukkan terdapat perbedaan adaptasi anatomi dan karakter rizom. Spesies *Pyrrosia piloselloides* dan *P. lanceolata* memiliki anatomi daun yang menyerupai daun tumbuhan succulent dengan memiliki kapasitas kandungan air yang tinggi yaitu, 0,149 dan 0,133. *Drynaria sparsisora* memiliki anatomi ketebalan daun yang tipis  $2,6 \times 10^2$  m, kerapatan stomata yang tinggi  $51,33/\text{mm}^2$ , serta rizom yang luas dengan nilai rerata  $3,43 \times 10^2$  mm<sup>2</sup>. *Platynerium bifurcatum* memiliki anatomi daun relatif tebal dengan nilai rerata  $1,23 \times 10^3$  m, dan pembuluh angkut primer relatif sempit dengan nilai rerata  $2,63 \times 10^4$  m. *Phymatosorus scolopendria* memiliki luas stomata besar  $1,97 \times 10^3$  m<sup>2</sup> dan rizom relatif tebal.

.....The research regarding anatomical adaptation of leaf and rhizome characteristics of five epiphytic fern species of Polypodiaceae family in several areas of Universitas Indonesia has been carried out. This research was aimed to knowing epiphytic ferns strategies against dry environment. Five species used in these research are *Pyrrosia piloselloides*, *Pyrrosia lanceolata*, *Platynerium bifurcatum*, *Drynaria sparsisora*, dan *Phymatosorus scolopendria*. The epidermal shape, stomatal shape, and type of trichome was observed as the qualitative data. Quantitative data includes cuticle thickness, epidermal thickness, mesophyll thickness, leaf thickness, vascular bundle area, stomatal area, stomatal frequency, and rhizome surface area. The leaves of five species was cut using fresh slice method. Rhizome was cut in cross section and photographed. Visual measurements of leaf and rhizome were measured using Image J. Turgid and dry weight of leaf was collected to measure leaf water capacity. The results show there were differences in the anatomical adaptation and rhizome character. In the species *Pyrrosia piloselloides* and *P. lanceolata* have leaf anatomy that resembles the leaves of succulent plants with higher leaf water capacity, 0.149 dan 0.133. *Drynaria sparsisora* has a thin leaf anatomy with mean value of  $2.6 \times 10^2$  m, high stomata density with mean value of  $51.33/\text{mm}^2$  and broad rhizome with mean value of  $3.43 \times 10^2$  mm<sup>2</sup>. *Platynerium bifurcatum* has a relatively thick leaf anatomy with mean value of  $1.23 \times 10^3$  m, and a narrow primary vascular bundle with mean value

of  $2.63 \times 10^4$  m. *Phymatosorus scolopendria* has a large stomata area mean value of  $1.97 \times 10^3$  m<sup>2</sup> and rhizomes is relatively thick.