

## INTISARI

Ordo Polypodiales merupakan kelompok tanaman paku dengan banyak spesies kriptik. Potensi ekonomi dan konservasinya patut dikembangkan melalui pemuliaan tanaman, khususnya terkait keragaman. Akan tetapi, identifikasi keragaman Polypodiales masih terbatas, salah satu alasannya yaitu memiliki morfologi yang plastis dan keterbatasan kajian molekuler. Penelitian ini bertujuan untuk: (1) mendeskripsikan variasi fenotipik 21 spesies Polypodiales berdasarkan 12 karakter morfologi daun; (2) mengidentifikasi keragaman genetik dan polimorfisme menggunakan penanda SRAP; dan (3) membandingkan pola kekerabatan morfologi dan molekuler melalui analisis Procrustes. Penelitian dilaksanakan pada Oktober 2024-Juli 2025 di Laboratorium Genetika dan Pemuliaan, Fakultas Pertanian, UGM. Sejumlah 21 aksesori Polypodiales dan lima kombinasi primer SRAP digunakan. Data dianalisis dengan *software* Gel Analyzer, NTSys, GenAIEX, dan R Studio. Hasil menunjukkan bahwa warna daun adalah karakter morfologi dengan variasi tertinggi (tujuh subkarakter). Analisis SRAP menghasilkan 100% polimorfisme, dengan keragaman antarpopulasi 11% dan dalam populasi 89%. Analisis Procrustes menunjukkan perbedaan pola kluster antara data morfologi dan molekuler ( $m12^2 = 0,5793$ ,  $r = 0,6482$ , dan  $p\text{-value}=0,001$ ) menandakan keduanya saling melengkapi dalam mengungkap keragaman.

**Kata kunci:** molekuler, morfologi, Polypodiales, SRAP

## ABSTRACT

The order Polypodiales comprises a group of ferns with numerous cryptic species. Its economic and conservation potential merits development through plant breeding, particularly with regard to diversity. However, identification of Polypodiales diversity remains limited, partly due to their morphological plasticity and limited molecular studies. This study aims to: (1) describe the phenotypic variation of 21 Polypodiales species based on 12 leaf morphological characters; (2) identify genetic diversity and polymorphism using SRAP markers; and (3) compare morphological and molecular clustering patterns using Procrustes analysis. The research was conducted from October 2024 to July 2025 at the Laboratory of Genetics and Plant Breeding, Faculty of Agriculture, Universitas Gadjah Mada. A total of 21 Polypodiales accessions and five SRAP primer combinations were used. Data were analyzed using Gel Analyzer, NTSys, GenALEX, and R Studio. Results showed that leaf color exhibited the highest morphological variation (seven subcharacters). SRAP analysis revealed 100% polymorphism, with 11% among-population and 89% within-population genetic variation. Procrustes analysis indicated a notable difference in clustering patterns between morphological and molecular data ( $m12^2 = 0.5793$ ,  $r = 0.6482$ ,  $p\text{-value} = 0.001$ ), suggesting that both approaches complement each other in revealing Polypodiales diversity.

**Keywords:** molecular, morphology, Polypodiales, SRAP