

Keanekaragaman Spesies dan Hubungan Kekerabatan Fenetik *Begonia* Berdasarkan Karakter Morfologis dan Penanda ISSR

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INTISARI

Begonia merupakan salah satu tumbuhan Angiospermae yang memiliki keanekaragaman tinggi di Indonesia. *Begonia* memiliki potensi sebagai komoditas tanaman hias daun. Penelitian ini bertujuan mendokumentasikan keanekaragaman dan hubungan kekerabatan *Begonia* berdasarkan karakter morfologis dan molekuler dengan penanda ISSR. Sampel *Begonia* dikoleksi dari Kebun Raya Baturraden dan *nursery* di wilayah Cianjur. Pembuatan preparat anatomi dan pengamatan venasi daun dilakukan di Laboratorium Struktur dan Perkembangan Tumbuhan, analisis karakter morfologis dilakukan di Laboratorium Sistematika Tumbuhan, sedangkan analisis karakter molekuler dilakukan di Laboratorium Mikrobiologi, Pusat Studi Bioteknologi UGM. Karakteristik morfologi yang diamati berupa 29 karakter makro- dan mikro-morfologis berupa pola venasi daun. Karakter molekuler yang digunakan berupa *fingerprinting* penanda ISSR yang diamplifikasi menggunakan 5 primer. Data morfologi dan molekuler ditransformasikan dengan metode taksonomi numerik ke dalam bentuk skor untuk penentuan hubungan kekerabatan menggunakan Analisis Klaster dan Analisis Komponen Utama. Hasil penelitian pada 19 koleksi *Begonia* menunjukkan variasi morfologis pada bentuk, ukuran, warna, motif dan venasi pada daun. Variasi pada karakter molekuler ditunjukkan dengan rerata persentase polimorfisme sebesar 99,2%. Pola pengelompokan dan hubungan kekerabatan fenetik *Begonia* koleksi Kebun Raya Baturraden dan *nursery* di wilayah Cianjur berdasarkan karakter morfologis dan penanda ISSR ditemukan berbeda.

Kata kunci: *Begonia*, morfologi, ISSR, kekerabatan fenetik, taksonomi

Species Diversity and Phenetic Relationship of *Begonia* Based on Morphological Characters and ISSR Markers

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ABSTRACT

Begonia is one of the most diverse Angiosperms in Indonesia. *Begonia* has the potential use as ornamental plant commodity. This study aimed to determine the species diversity and phenetic relationship of *Begonia* based on morphological characters and ISSR markers. Samples of *Begonia* collected from Baturraden Botanical Garden and nursery in Cianjur. Anatomical slides of leaf venation preparation and observation was conducted in Laboratory of Plant Structure and Development, morphological characters analysis was conducted in Plant Systematic Laboratory, while molecular characters analysis was conducted in Microbiology Laboratory, Biotechnology Study Center, Universitas Gadjah Mada. Morphological observation used 29 macro- and micro-morphological characters of leaf venation patterns. Molecular data generated from ISSR fingerprinting amplified using 5 primers. Morphological and molecular data were transformed by numerical taxonomic methods into scores to determine phenetic relationship using Cluster Analysis and Principal Component Analysis. The results on 19 collections of *Begonia* showed morphological variations in the shape, size, color, variegation and venation pattern on the leaves. Variations in molecular characters are indicated by the average polymorphism percentage of 99.2%. The grouping pattern and phenetic relationship of *Begonia* collection of Baturraden Botanical Gardens and nursery in Cianjur based on morphological characters and ISSR markers were found different.

Keywords: *Begonia*, morphology, ISSR, phenetic relationship, taxonomy