

VARIASI DAN HUBUNGAN FENETIK AKSESI KUNYIT (*Curcuma longa* L.) DI EMPAT KABUPATEN DAERAH ISTIMEWA YOGYAKARTA BERDASARKAN KARAKTER MORFOLOGIS, ANATOMIS DAUN DAN RIMPANG

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INTISARI

Kunyit (*Curcuma longa* L.) merupakan tumbuhan yang banyak dimanfaatkan secara tradisional maupun modern. Riset ini akan menjawab permasalahan mengenai variasi morfologis dan anatomis tiap aksesori *Curcuma longa*, serta hubungan fenetik pada spesies antar aksesori *Curcuma longa*. Sebanyak 13 sampel dikoleksi di Empat kabupaten Daerah Istimewa Yogyakarta. Karakter morfologis yang dibandingkan bersumber dari akar, rimpang, daun meliputi bentuk dan ukuran. Karakter anatomis diamati pada daun dan rimpang utama. Hubungan fenetik menggunakan perbandingan karakter morfologis dan anatomis spesies *Curcuma longa* yang diteliti. Pembuatan preparat untuk pengamatan anatomis menggunakan metode preparat semi permanen. Hasil penelitian menunjukkan variasi morfologis *Curcuma longa* di Empat kabupaten Daerah Istimewa Yogyakarta memiliki perbedaan tinggi tanaman, lebar helaian daun, pola venasi, pola batang semu, bentuk tepi daun, kerimbunan akar dan rimpang, warna rimpang samping, serta bentuk rimpang samping. Variasi karakter anatomis *Curcuma longa* memiliki ketebalan epidermis adaksial lamina, ukuran dan densitas stomata, ketebalan berkas pengangkut, ketebalan epidermis dan hipodermis rimpang. Analisis fenetik *Curcuma longa* berdasarkan karakter morfologis menghasilkan dua klaster utama dan empat klaster dengan aksesori 12 dan 11 serta 10 dan 4 memiliki nilai indeks similaritas tertinggi. Analisis fenetik berdasarkan karakter anatomis menghasilkan dua klaster utama dan lima klaster dengan aksesori 11 dan 9, 8 dan 7, serta 4 dan 1 memiliki nilai similaritas tertinggi. Kesimpulan dari penelitian ini adalah variasi morfologis *Curcuma longa* terdapat pada tinggi tanaman, warna rimpang samping, dan ukuran organ. Variasi anatomis yang diperoleh adalah ketebalan epidermis, ketebalan berkas pengangkut, serta ukuran dan densitas stomata. Analisis fenetik berdasarkan karakter morfologis dihasilkan dua klaster utama dan empat klaster, sedangkan berdasarkan karakter anatomis dihasilkan dua klaster utama dan lima klaster.

Kata kunci: *Curcuma longa* L., keanekaragaman, morfologis, anatomis, hubungan fenetik.

VARIATION AND PHENETIC RELATIONSHIP OF TURMERIC (*Curcuma longa* L.) ACCESSIONS IN FOUR DISTRICTS OF SPECIAL REGION OF YOGYAKARTA BASED ON MORPHOLOGICAL, LEAF AND RHIZOME ANATOMICAL CHARACTERS

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ABSTRACT

Turmeric (*Curcuma longa* L.) is widely used in traditional or modern ways. This research will answer problems regarding the morphological and anatomical variations of each *Curcuma longa* accession, as well as the phenetic relationship between species of *Curcuma longa* accessions. A total of 13 samples were taken in Bantul, Kulon Progo, Gunung Kidul, Sleman, and Temanggung districts. The morphological characters compared came from roots, rhizomes, leaves including shape and size. Anatomical characters were observed in the main leaves and rhizomes. Comparison of morphological and anatomical characters of *Curcuma longa* accessions used for phenetic relationship analysis. Semi-permanent preparation method was used for anatomical observation. The results showed that *Curcuma longa* in Bantul, Kulon Progo, Gunung Kidul, Sleman, and Temanggung districts had differences morphological variations in plant height, leaf width, venation pattern, pseudostem pattern, leaf edge shape, root and rhizome dense, side rhizome color and shape. Variations in anatomical character of *Curcuma longa* showed differences in thickness of the adaxial epidermis in lamina, size and density of the stomata, thickness of the carrier bundles, thickness of the epidermis and hypodermis of rhizome. Two main clusters and four clusters with accessions 12 & 11 and 10 & 4 which are the highest similarity index values was resulted for phenetic analysis of *Curcuma longa* based on morphological characters. Two main clusters and five clusters with accessions 11 & 9, 8 & 7, and 4 & 1 which are the highest similarity values was resulted for phenetic analysis of *Curcuma longa* based on anatomical characters. The conclusion of this study are the morphological variations of *Curcuma longa* were found in plant height, side rhizome color, and organ size. The anatomical variations obtained were epidermal thickness, carrier beam thickness, and stomata size and density. Phenetic analysis based on morphological characters resulted in two main clusters and four clusters, while based on anatomical characters two main clusters and five clusters were generated.

Keywords : *Curcuma longa* L., diversity, morphological, anatomical, phenetic.