

VARIASI DAN HUBUNGAN FENETIK KULTIVAR UBI JALAR (*Ipomoea batatas* (L.) Lam.) DI KUTAI DAN KARANGANYAR BERDASARKAN KARAKTER MORFOLOGIS DAN MOLEKULER

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INTISARI

Ubi jalar merupakan salah satu bahan pangan penting di Indonesia karena memiliki kandungan multivitamin, metabolit sekunder dan karbohidrat serta protein yang berguna bagi tubuh manusia. Tujuan penelitian adalah untuk menentukan variasi genetik ubi jalar di Kutai, Kalimantan Timur dan Karanganyar. Penelitian ini dilakukan pada 19 sampel ubi jalar. Karakter morfologis digunakan untuk melihat variasi pada kultivar ubi jalar dan diperkuat menggunakan analisis molekuler *Inter Simple Sequence Repeat* (ISSR). Sejumlah 31 karakter morfologis dan mikromorfologis telah diamati serta tujuh primer ISSR digunakan untuk mengamplifikasikan DNA ubi jalar di Kutai dan Karanganyar. Data yang diperoleh dianalisis kualitatif dan kuantitatif deskriptif, indeks similaritas antar OTU's ditentukan berdasarkan rumus *Gower general similarity* untuk karakter morfologis dan *Jaccard similarity* untuk karakter molekuler, clustering dengan algoritma UPGMA. Hasil penelitian menunjukkan variasi warna daging umbi berupa warna ungu, oranye, krem dan putih. Bentuk daun pada kultivar ubi jalar yang ditemukan berupa menjantung, segitiga, berlobus, *hastate* dan berbagi. Bentuk umbi yang ditemukan berupa elips, elips memanjang, oblong, oblong memanjang, bundar dan bulat telur tebalik. Variasi penanda molekuler ditunjukkan dengan adanya pita polimorfik yang memiliki presentase 93,3%-100%. Karakterisasi morfologis membentuk tiga klaster utama berdasarkan warna daging umbi sedangkan karakterisasi molekuler membentuk tiga klaster utama berdasarkan asal wilayah tumbuh.

Kata Kunci: *Ipomoea batatas* (L.) Lam., Morfologis, Molekuler, Kekerabatan Fenetik, Kutai, Karanganyar

VARIATIONS AND PHENETIC RELATIONSHIP OF SWEET POTATO CULTIVARS (*Ipomoea batatas* (L.) Lam.) IN KUTAI AND KARANGANYAR BASED ON MORPHOLOGICAL AND MOLECULAR CHARACTERS

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ABSTRACT

Sweet potatoes are one of the important food ingredients in Indonesia because they contain multivitamins, secondary metabolites and carbohydrates and proteins that are useful for the human body. The aim of the research was to determine the genetic variation of sweet potatoes in Kutai, East Kalimantan and Karanganyar. This research was conducted on 19 sweet potato samples. Morphological characters were used to see variations in sweet potato cultivars and were strengthened using Inter Simple Sequence Repeat (ISSR) molecular analysis. A total of 31 morphological and micromorphological characters were observed and seven ISSR primers were used to amplify sweet potato DNA in Kutai and Karanganyar. The data obtained was analyzed qualitatively and descriptively quantitatively, the similarity index between OTUs was determined based on the Gower general similarity formula for morphological characters and Jaccard similarity for molecular characters, clustering using the UPGMA algorithm. The research results showed variations in the color of the tuber flesh in the form of purple, orange, cream and white. The leaf shapes of the sweet potato cultivars found were heart, triangular, lobed, hastate and almost devide. The shapes of the tubers found were elliptical, elongated elliptical, oblong, elongated oblong, round and thick ovate. Variations in molecular markers were shown by the presence of polymorphic bands which had a percentage of 93.3%-100%. Morphological characterization formed three main clusters based on the color of the tuber flesh, while molecular characterization formed three main clusters based on the region of origin of growth.

Keywords: *Ipomoea batatas* (L.) Lam., Morphology, Molecular, Phenetic relationship, Kutai, Karanganyar