

**VARIASI GENETIK MELON (*Cucumis melo* L. 'Hikapel' dan 'Meloni')
BERDASARKAN *INTER-SIMPLE SEQUENCE REPEAT*
DAN KARAKTER FENOTIPIK**

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INTISARI

Melon 'Hikapel' dan 'Meloni' merupakan kultivar hibrida yang dikembangkan oleh Laboratorium Genetika dan Pemuliaan Fakultas Biologi Universitas Gadjah Mada yang berpotensi sebagai melon premium Indonesia. Pengembangan 'Hikapel' dan 'Meloni' memasuki tahap uji pelepasan varietas tanaman melalui serangkaian uji karakter fenotip dan molekular. Penelitian ini bertujuan untuk mengetahui variasi genetik dan kestabilan karakter pada 'Hikapel' dan 'Meloni' berdasarkan karakter fenotip dan penanda molekular ISSR (*Inter-Simple Sequence Repeat*). Melon komersial sebagai pembanding adalah kultivar 'Moonlight', 'Sonya', 'Kirani', 'Kinanti', dan 'Alisha'. Primer ISSR yang digunakan adalah UBC 807, UBC 808, UBC 810, UBC 812, dan UBC 825. Metode penelitian karakter fenotip meliputi; penanaman, koleksi data, dan analisis karakter kualitatif dan kuantitatif dengan pengujian ONEWAY ANOVA pada taraf signifikansi 1%. Metode pengujian karakter molekular meliputi; isolasi DNA, spektrofotometri, amplifikasi DNA, elektroforesis dan visualisasi fragmen DNA dengan GelDoc serta analisis menggunakan program *Multi Variate Statistical Package* MVSP 3.1. Hasil analisis kestabilan karakter menunjukkan bahwa karakter fenotip 'Hikapel' dan 'Meloni' tergolong stabil, seragam, dan dipertahankan pada lokasi dan metode budidaya yang berbeda. Analisis kestabilan karakter molekular pada 'Hikapel' dan 'Meloni' yang dibudidayakan dengan lokasi dan metode yang berbeda diperoleh tingkat polimorfisme rendah yaitu 3,3% pada 'Hikapel' dan 25,3% pada 'Meloni' dengan indeks similaritas 96% dan 81%. Hasil analisis variasi genetik melon kandidat dengan melon pembanding berdasarkan 5 primer ISSR dihasilkan 45 fragmen DNA dengan persentase polimorfisme 85%. Indeks similaritas antara 'Hikapel' dan 'Meloni' dan kultivar melon komersial bertipe *winter melon* adalah 34%. Sedangkan indeks similaritas dibandingkan kultivar melon komersial bertipe *netted melon* adalah 30%.

Kata kunci: 'Hikapel', 'Meloni', ISSR, keseragaman, keanekaragaman

**GENETIC VARIATION OF MELON (*Cucumis melo* L. 'Hikapel' and
'Meloni') BASED ON INTER-SIMPLE SEQUENCE REPEAT
AND PHENOTYPICAL CHARACTERS**

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ABSTRACT

The 'Hikapel' and 'Meloni' melons are hybrid cultivars developed by the Laboratory of Genetics and Breeding, Faculty of Biology, Gadjah Mada University which have the potential to become Indonesia's premium melons. The development of 'Hikapel' and 'Meloni' entered the release test stage of plant varieties through a series of phenotypic and molecular character tests. This study aims to determine the genetic variation and character stability of 'Hikapel' and 'Meloni' based on phenotypic characters and ISSR (Inter-Simple Sequence Repeat) molecular markers. Commercial melons for comparison are the cultivars "Moonlight", "Sonya", "Kirani", "Kinanti", and "Alisha". The ISSR primers used were UBC 807, UBC 808, UBC 810, UBC 812, and UBC 825. The phenotypic character research methods included; planting, data collection, and qualitative and quantitative character analysis with *Oneway Anova* testing at the 1% significance level. Molecular character testing methods include; DNA isolation, spectrophotometry, DNA amplification, electrophoresis, and visualization of DNA fragments with GelDoc and analysis using the *Multi-Variate Statistical Package* MVSP 3.1 program. The results of the character stability analysis showed that the phenotypic characters of 'Hikapel' and 'Meloni' were classified as stable, uniform, and maintained at different locations and cultivation methods. The stability analysis of the molecular character of 'Hikapel' and 'Meloni' cultivated with different locations and methods obtained a low polymorphism level of 3.3% for 'Hikapel' and 25.3% for 'Meloni' with a similarity index of 96% and 81%. The results of the analysis of genetic variation of candidate melons with comparable melons based on 5 ISSR primers resulted in 45 DNA fragments with a polymorphism percentage of 85%. The similarity index between 'Hikapel' and 'Meloni' compare to commercial melon cultivars with the type of winter melon was 34%. Meanwhile, the similarity index compared to commercial melon with the type of netted melon cultivars was 30%.

Keywords: 'Hikapel', 'Meloni', ISSR, uniformity, diversity