KARAKTER FENOTIPIK DAN DETEKSI GEN KETAHANAN TERHADAP *POWDERY MILDEW* PADA MELON (*Cucumis melo* L. 'GMP')

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INTISARI

Gama Melon Parfum (GMP) merupakan kultivar hasil persilangan melon Natsu no Omoide ♀NO3 yang berasal dari Turkmenistan dengan melon Miyamauri ♂MR5 yang berasal dari Jepang. Proses produksi melon dihadapkan dengan kendala penyakit seperti infeksi jamur. *Powdery mildew* merupakan penyakit karena infeksi jamur *Podosphaera xanthii* dan *Golovinomyces cichoracearum* yang sulit untuk dikontrol. Infeksi *powdery mildew* menyebabkan penurunan produktivitas tanaman dan kualitas hasil panen. Pengendalian *powdery mildew* dilakukan dengan pemuliaan tanaman menggunakan gen ketahanan terhadap *powdery mildew.* Penelitian ini dilakukan untuk mengetahui perbedaan karakter fenotipik melon 'GMP' sehat dan terinfeksi *powdery mildew,* mengetahui tingkat ketahanan melon 'GMP' terhadap *powdery mildew* dan mendeteksi gen ketahanan terhadap *powdery mildew*. Metode yang dilakukan meliputi penanaman tanaman melon, inokulasi jamur tepung, skoring, analisis karakter fenotipik dengan uji *Independent T test*, dan deteksi gen ketahanan terhadap *powdery mildew* dengan metode PCR menggunakan penanda SCAR. Hasil penelitian menunjukkan bahwa karakter fenotipik tanaman melon 'GMP' yang terinfeksi *powdery mildew* berbeda nyata pada taraf 0,05 dengan tanaman melon 'GMP' sehat. Tingkat ketahanan melon 'GMP' pada tingkat daun, tanaman, dan populasi dikategorikan *moderately resistance group* (toleran) terhadap infeksi *powdery mildew*. Hasil analisis secara molekuler ditemukan gen ketahanan terhadap *powdery mildew* pada melon 'GMP' yang ditandai dengan munculnya band DNA target pada 1058 bp. Hasil ini menunjukkan bahwa melon 'GMP' tahan terhadap infeksi *powdery mildew.*

Kata Kunci : *Cucumis melo* L. , Melon 'GMP', *Powdery Mildew,* SCAR

PHENOTYPICAL CHARACTER AND DETECTION OF POWDERY MILDEW RESISTANCE GENE IN MELON (*Cucumis melo* L. 'GMP')

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ABSTRACT

Gama Melon Parfum (GMP) is a cultivar resulting from crossing the Natsu no Omoide ♀NO3 melon originating from Turkmenistan with the Miyamauri ♂MR5 melon originating from Japan. The melon production process is faced with disease constraints such as fungal infections. Powdery mildew is a disease caused by infection with the fungus *Podosphaera xanthii* and *Golovinomyces cichoracearum* which is difficult to control. Powdery mildew infection causes a decrease in plant productivity and crop quality. Powdery mildew control is carried out by plant breeding using powdery mildew resistance genes. This research was conducted to determine the differences in the phenotypical characters of healthy 'GMP' melons and those infected with powdery mildew, to determine the level of resistance of 'GMP' melons to powdery mildew and to detect resistance genes to powdery mildew. The methods used included planting melons, inoculation of powdery mildew, scoring, analysis of phenotypic characters using the Independent T Test, and detection of resistance genes to powdery mildew by the PCR method using the SCAR marker. The results showed that the phenotypic characters of the 'GMP' melon plants infected with powdery mildew were significantly different at the 0.05 level from those of the healthy 'GMP' melon plants. The resistance level of the 'GMP' melon at the leaf, plant, and population level was categorized as a moderately resistance group (tolerance) to powdery mildew infection. The results of molecular analysis found resistance genes to powdery mildew which was indicated by the appearance of the target DNA band at 1058 bp. These results indicate that the 'GMP' melon is resistant to powdery mildew infection.

Keywords : *Cucumis melo* L. 'GMP' Melon, Powdery Mildew, SCAR