

**IDENTIFIKASI PENANDA MOLEKULAR TERPAUT GEN  
KETAHANAN TERHADAP *BEGOMOVIRUS* PADA  
TANAMAN CABAI (*Capsicum annuum* L.)**

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**ABSTRAK**

Cabai (*Capsicum annuum* L.) merupakan tanaman hortikultura yang bernilai ekonomi dan gizi tinggi serta bermanfaat dalam berbagai bidang. Cabai bersifat rentan terhadap infeksi penyakit, terutama *Begomovirus*. Infeksi *Begomovirus* menyebabkan tanaman mengalami klorosis, keriting dan kerdil, sehingga produktivitas cabai menurun. Tanaman cabai TM 999 generasi kelima (F<sub>5</sub>) adalah hasil seleksi alami di lahan dari tetua yang telah menunjukkan ketahanannya terhadap infeksi *Begomovirus*. Tujuan penelitian ini adalah mengidentifikasi penanda molekular terpaud gen ketahanan terhadap *Begomovirus* pada tanaman cabai TM 999 generasi kelima (F<sub>5</sub>). Penelitian ini menggunakan metode PCR dengan penanda molekular *Simple Sequence Repeats* (SSR). Hasil menunjukkan bahwa penanda molekular SSR Hpms 1-111 motif (AAT)<sub>11</sub> dapat diaplikasikan pada tanaman cabai F<sub>5</sub> dan F<sub>1</sub> TM 999 serta menghasilkan fragmen DNA berukuran 159 bp dan 300 bp, tetapi tidak dapat membedakan tanaman tahan dan rentan *Begomovirus*. Selain itu, amplifikasi DNA partikel *Begomovirus* dilakukan dengan primer spesifik PYLCV menghasilkan fragmen DNA berukuran 840 bp. Hasil deteksi menunjukkan bahwa *Begomovirus* yang menginfeksi tanaman cabai sumber inokulum serta tanaman cabai F<sub>5</sub> dan F<sub>1</sub> TM 999 adalah *Pepper yellow leaf curl virus*. Hasil uji *One Way ANOVA* menunjukkan bahwa terdapat perbedaan signifikan rata-rata intensitas penyakit pada keempat kelompok uji tanaman cabai TM 999. Berdasarkan uji lanjut *DMRT* pada taraf kepercayaan 95% diketahui bahwa ada perbedaan signifikan antara intensitas penyakit pada tanaman cabai F<sub>5</sub> dan F<sub>1</sub> TM 999 yang diinokulasi *Begomovirus*. Hasil akhir penelitian ini menyimpulkan bahwa tanaman cabai F<sub>5</sub> lebih tahan terhadap *Begomovirus* dibanding F<sub>1</sub>.

Kata kunci: Cabai TM 999, *Begomovirus*, SSR, Intensitas penyakit, Gen ketahanan

**IDENTIFICATION OF MOLECULAR MARKER LINKED TO  
RESISTANCE GENE AGAINST *BEGOMOVIRUS*  
IN PEPPER (*Capsicum annuum* L.)**

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**ABSTRACT**

Pepper (*Capsicum annuum* L.) is a horticultural crops which it has high nutrition and economic with beneficial in several sectors. Pepper is susceptible to diseases infection, especially *Begomovirus*. *Begomovirus* infection causes plants become chlorotic, curly and stunted, hence decreasing pepper productivities. Fifth generation of TM 999 pepper plants as natural selection in field has shown its resistance to *Begomovirus* infection. The purpose of this study is to identify the molecular marker linked to resistance gene against *Begomovirus* in fifth generation of TM 999 pepper plants. This study was conducted PCR method with Simple Sequence Repeats (SSR) molecular marker. SSR analysis was applied in fifth and first generation of TM 999 pepper plants. The results showed that the Hpms 1-111 motif (AAT)<sub>11</sub> SSR marker could be applied in fifth and first generation of TM 999 pepper plants generating DNA fragments size of 159 bp and 300 bp, but it was unable to distinguish resistance and susceptible plants to *Begomovirus*. In addition, detection DNA particles of *Begomovirus* in TM 999 pepper plants was carried out using PYLCV spesific primers generating DNA fragment size of 840 bp. The results showed that *Begomovirus* againts fifth and first generation TM 999 pepper plants was *Pepper yellow leaf curl virus*. One Way ANOVA test results showed that there was significant differences in average diseases intensity in all four test groups of TM 999 pepper plants. Based on DMRT test (with  $\alpha=0,05$ ) was known that there was significant differences between diseases intensity in fifth generation and first generation of TM 999 pepper plants inoculated *Begomovirus*. The final results of this study concluded that the fifth generation plants was more resistance to *Begomovirus* than first generation plants.

Key words: TM 999 pepper, *Begomovirus*, SSR, Diseases intensity, Resistance gene