

**GEJALA INFEKSI DAN DETEKSI GEN *COAT PROTEIN* PEPAYA
RINGSPOT VIRUS PADA PEPAYA (*Carica papaya* L.) HASIL BUDIDAYA
DI JAWA TENGAH**

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INTISARI

Tanaman pepaya termasuk salah satu komoditas pertanian yang digemari oleh masyarakat Indonesia. Peningkatan produksi pepaya diperlukan untuk memenuhi kebutuhan masyarakat Indonesia. Namun sekarang ini terdapat penyakit pepaya baru yaitu *Papaya ringspot virus* (PRSV). PRSV merupakan salah satu agensia penyakit yang menjadi ancaman bagi penurunan produktivitas buah tanaman pepaya di seluruh dunia. PRSV dilaporkan telah menginfeksi pertanaman pepaya di beberapa wilayah Indonesia yaitu Nangroe Aceh Darussalam, Bogor Jawa Barat dan Daerah Istimewa Yogyakarta. Persebaran PRSV yang relatif cepat di daerah tropis mengkhawatirkan Provinsi Jawa Tengah sebagai penghasil buah pepaya nasional dan secara geografis, dekat dengan D.I. Yogyakarta yang telah diketahui terdapat keberadaan PRSV. Deteksi PRSV pada pepaya Jawa Tengah perlu dilakukan untuk mengetahui jenis virus yang menginfeksi dan frekuensi infeksi yang terjadi. Deteksi virus dilakukan dengan teknik *Reverse Transcription Polymerase Chain Reaction* (RT-PCR). Sampel pepaya dengan gejala infeksi PRSV dikoleksi dari Balai Karantina Semarang, Jawa Tengah dan dilakukan isolasi RNA, sintesis cDNA secara *Reverse Transcription*, Amplifikasi cDNA menggunakan pasangan primer CP-*gene* PRSV dan Visualisasi DNA dengan Elektroforesis. Hasil menunjukkan bahwa gejala infeksi PRSV yang terjadi meliputi mosaik pada daun, klorosis dan deformasi daun serta berkas menyerupai cincin pada permukaan buah. Dari 16 sampel dengan gejala infeksi PRSV ringan terdeteksi gen *coat protein* dengan ukuran pita DNA sebesar ± 449 bp pada sampel daun pepaya asal Desa Kemiri Mojosongo Boyolali, Jawa Tengah. Hal ini membuktikan bahwa infeksi PRSV telah menyebar ke daerah Provinsi Jawa Tengah dan perlu dilakukan tindakan yang lebih lanjut.

Kata Kunci: *Papaya ringspot virus*, *Pepaya*, *Reverse Transcription Polymerase Chain Reaction*.

**INFECTION SYMPTOM AND DETECTION OF COAT PROTEIN GENE OF
Papaya ringspot virus ON PAPAYA CULTIVATION (*Carica papaya* L.) IN
CENTRAL JAVA**

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ABSTRACT

Papaya is one of agricultural commodities relished by Indonesian people. The increasing of the papaya production is necessitated to fill the Indonesian people needs. Nowadays, the new papaya disease is appearing and detected as *Papaya ringspot virus* (PRSV). PRSV is one of disease agent which become a threat for decreasing of the papaya fruits productivity in the worldwide. PRSV was reported has infected papaya plantation in some of areas in Indonesia, namely Province of Nangroe Aceh Darussalam, West Java (Bogor) and Yogyakarta. The rapidness of PRSV dissemination in tropical region brings the anxiousness, particularly in Central Java as one of provinces producing the papaya fruits on a national scale. Geographically, Central Java is near to Yogyakarta that has investigated the presence of PRSV. Hence, the detection of PRSV on the papaya of Central Java is needed to determine the type of virus that infects and the frequency of infections. Papaya samples with PRSV infection symptoms were collected from Semarang Quarantine Office and the virus was detected by using a Reverse Transcription Polymerase Chain Reaction (RT-PCR) technique. The steps of detection was RNA isolation, cDNA Synthesis by Reverse Transcription, Amplification of cDNA was using CP-*gene* PRSV primer by Polymeration Chain Reaction and visualization of DNA by Electrophoresis. The result showed that PRSV infection symptoms were mosaic on leaves, chlorosis and leaf deformation and ringspot on the surface of fruit. Of the 16 samples with mild symptoms of infection PRSV, coat protein gene was detected and has size of DNA about 449 bp on papaya leaves of Kemiri Village, Mojosongo, Boyolali, Central Java. This proves that PRSV infection has spread to the area of Central Java province and advanced action is needed quickly.

Keywords: *Papaya ringspot virus, Papaya, Reverse Transcription Polymerase Chain Reaction*