Intisari

Pepper yellow leaf curl virus (PYLCV) merupakan salah satu virus dalam genus *Begomovirus* famili *Geminiviridae* penyebab penyakit daun keriting kuning pada tanaman cabai. Sejak tahun 2006 gejala penyakit ini ditemukan di area tanaman cabai rawit di Pulau Lombok, Provinsi Nusa Tenggara Barat. Penelitian ini bertujuan untuk mengidentifikasi dan mengkarakterisasi secara molekuler *Begomovirus* cabai rawit asal Pulau Lombok, mengetahui keragaman genetik, memperoleh klon rekombinan gen penyandi protein selubung (*coat protein*) *Begomovirus*, dan mengetahui hubungan kekerabatan isolat *Begomovirus* asal Pulau Lombok dengan anggota *Begomovirus* isolat Jawa Tengah (Jateng) dan Daerah Istimewa Yogyakarta (DIY) serta isolat *Begomovirus* lainnya berdasarkan *database GenBank*. Metode penelitian meliputi pengambilan sampel dan pengamatan gejala di tiga Kabupaten yaitu Lombok Barat (LB), Lombok Tengah (LTG) dan Lombok Timur (LT), deteksi *Polymerase Chain Reaction* (PCR), analisis *Restriction Fragment Length Polymorphisme* (RFLP), kloning, sekuensing, dan analisis filogenetik. Hasil identifikasi secara molekuler dengan PCR berhasil mengidentifikasi isolat *Begomovirus* asal Pulau Lombok dengan produk amplifikasi berukuran masing-masing 580 bp untuk primer Krusty&Homer, 1600 bp untuk primer pAL IV 1978&pARIC 715, dan 840 bp untuk primer PYLVC. Hasil analisis PCR-RFLP dengan enzim restriksi *Hae*III menunjukkan adanya keragaman genetik antara isolat dari Pulau Lombok dan isolat Jateng serta DIY. Gen protein selubung *Begomovirus* isolate Pulau Lombok berhasil diklon ke dalam plamid *pGEM-T E*asy dalam inang *Escherichia coli* DH5α. Hasil analisis sekuensing berdasarkan sekuen nukleotida sebagian (*partial*) *coat protein* menunjukkan ketiga isolat asal Pulau Lombok (LB, LTG, dan LT) mempunyai hubungan kekerabatan dengan isolat Ngluwar, Prambanan dan Bandung (AB267836). Berdasarkan sekuen nukleotida penuh (*Full*) *coat protein*, isolat (NTB2/Lombok Timur) menunjukkan adanya hubungan kekerabatan dengan PYLCV Indonesia virus (AB267834).

Kata kunci : *Begomovirus*, identifikasi molekuler, penyakit daun keriting kuning

Abstract

Pepper yellow leaf curl virus (PYLCV) is a virus of the genus *Begomovirus*, Familly *Geminiviridae*, causing leaf curl disease on chili pepper. Since 2006 the symptoms of this disease are found in chili pepper plant area in Lombok Island, West Nusa Tenggara Province. The aim of this research are to identify *Begomovirus* with molecular approach, to find out the variabilities genetic of *Begomovirus* from Lombok Island, Central Java, and DIY with DNA fingerprint pattern based on *Polymerase Chain Reaction* (PCR) and *Reaction Fragment Length Polymorphisme* (RFLP), to clone gene encode major capsid protein of *Begomovirus* with direct PCR product cloning approach and to know the proximity nucleotide sequence of *Begomovirus* infecting chilli crop in Lombok Island with the kind of *Begomovirus* from Central Java and DIY and with other. This research conducted with this following step : sampling in three districs are Lombok Barat (LB), Lombok Tengah (LTG) and Lombok Timur (LT), observation of symptoms in the fields, detection using PCR, RFLP analysis, cloning, sequensing, and filogenetic analysis. The results of molecular identification using PCR with all primers (K/H, PAL/PAR and PYLCV) in sample plant which been picked up from three different location at Lombok Islands are detected the *Begomovirus* existence on plant that have yellowing leaf curl symptoms and the amplification products sized 580 bp, 1600 bp and 840 bp. The analysis results of PCR-RFLP using restriction enzymes *Hae*III have shown the genetic variability between isolate from Lombok Island, Centre of Java, and Yogyakarta. Coat protein coding genes *Begomovirus* origin Lombok Island successfully cloned in p*GEM-T Easy* plasmid in *Escherichia coli* DH5α host. The result of analysis sequencing from partial nucleotide sequence showed that three isolates was closely related. The result of analysis sequencing from full nucleotide sequence showed that NTB2 (Lombok Timur) was closely related to PYLCV Indonesia virus *Begomovirus* (AB267834).

Key words: *Begomovirus,* molecular identification, pepper yellow leaf curl diseases