

Intisari

Bean common mosaic virus (BCMV, *Potyvirus phaseovulgaris*) merupakan salah satu virus dari genus *Potyvirus* pertama kali dilaporkan oleh Stewart dan Reddic pada tahun 1917 menginfeksi tanaman kacang di Amerika Serikat. Keberadaan BCMV di Indonesia belum banyak di laporkan. Dengan demikian, penelitian ini dilakukan dengan tujuan untuk mengidentifikasi serta mengetahui kekerabatan isolat BCMV pada tanaman Fabaceae di Jawa Tengah dan Daerah Istimewa Yogyakarta. Identifikasi dilakukan secara molekuler dengan metode *Polymerase Chain Reaction* (PCR). Ekstraksi RNA sampel menggunakan mini kit Plant (GeneAid, Taiwan) dan RT kit (Toyobo, Japan) sesuai dengan prosedur. Amplifikasi RNA sampel menggunakan primer spesifik BCMV yaitu D1BCMV dan RU yang mengamplifikasi 469 bp bagian *coat protein*. Berdasarkan hasil dari deteksi molekuler yang telah dilakukan didapatkan hasil bahwa sebanyak 17 sampel yang diuji, menunjukkan hasil 14 sampel positif terinfeksi BCMV dan 3 sampel negatif BCMV. Hasil filogenetik membuktikan bahwa isolat penelitian ini memiliki kekerabatan dekat dengan isolat no. KC832502 di China, isolat no. FJ157245 di India serta no. KT175569 di USA dan kekerabatan nya lebih jauh dengan isolat no. NC 003397 di China serta isolat no. PV158717 di China. Berdasarkan dari analisis persentase identitas didapatkan hasil bahwa kelima isolat yang diamati memiliki presentase identitas nukleotida 96%-100% diantara mereka sendiri. Antara isolat penelitian ini dan isolat BCMV di Genbank memiliki identitas nukleotida antara 89%-100%. Nilai tertinggi ketika isolat penelitian ini dibandingkan dengan isolat YBMV sebesar 83%, sedangkan nilai terendah sebesar 81%. Dengan demikian, penelitian ini dapat memperbanyak informasi molekuler isolat BCMV pada daerah pengamatan.

Kata kunci: BCMV, *polymerase chain reaction* (PCR), analisis filogenetik, *sequence demarcation tool* (SDT).

Abstract

Bean common mosaic virus (BCMV, *Potyvirus phaseovulgaris*) is a virus from the genus Potyvirus first reported by Stewart and Reddic in 1917 infecting bean plants in the United States. The presence of BCMV in Indonesia has not been widely reported. Thus, this study was conducted with the aim of identifying and determining the kinship of BCMV isolates in Fabaceae plants in Central Java and the Special Region of Yogyakarta. Identification was carried out molecularly using the Polymerase Chain Reaction (PCR) method. Sample RNA extraction used the Plant mini kit (GeneAid, Taiwan) and RT kit (Toyobo, Japan) according to the procedure. Sample RNA amplification used BCMV-specific primers, namely D1BCMV and RU, which amplify 469 bp of the *coat protein*. Based on the results of the molecular detection that has been carried out, it was found that a total of 17 samples were tested, showing that 14 samples were positive for BCMV infection and 3 samples were negative for BCMV. Phylogenetic results prove that this study isolate has a close kinship with isolate no. KC832502 in China, isolate no. FJ157245 in India and no. KT175569 in the USA, and its kinship is more distant with isolate no. NC 003397 in China and isolate no. PV158717 in China. Based on the percentage identity analysis, the results showed that the five isolates observed had a nucleotide identity percentage of 96%-100%. Between the isolates in this study and the BCMV isolates in Genbank, the nucleotide identity was between 89%-100%. The highest value when this isolate was compared with the YBMV isolate was 83%, while the lowest value was 81%. Thus, this study can increase the molecular information of BCMV isolates in the observation area.

Keywords: BCMV, *polymerase chain reaction* (PCR), phylogenetic analysis, *sequence demarcation tool* (SDT).