

INTISARI

Alexivirus, *Carlavirus*, dan *Potyvirus* merupakan patogen penting pada tanaman *Allium* terutama bawang merah (*Allium cepa* var. *aggregatum*) di berbagai negara, termasuk Indonesia. Infeksi dari beberapa virus ini menyebabkan penurunan produksi bawang merah di Indonesia. Untuk itu, dilakukan penelitian mengenai deteksi dan analisis molekuler ketiga virus tersebut di Kabupaten Bantul, Kulon Progo dan Nganjuk. Semua sampel penelitian bergejala infeksi virus berupa klorosis, mosaik, dan kerdil, serta terdapat sampel yang tidak bergejala (*asymptomatic*). Sampel kemudian diuji secara molekuler dengan universal primer: Poty1 sebagai primer reverse, dan pGV3t (950 bp) untuk *Alexivirus*, AlcarF (715 bp) untuk *Carlavirus*, dan U341 (600-800 bp) untuk *Potyvirus* sebagai primer forward. Hasil menunjukkan adanya infeksi *Alexivirus* di Bantul, *Carlavirus* di ketiga kabupaten, dan *Potyvirus* di Bantul dan Kulon Progo. Hasil analisis sekuens dengan BLAST menunjukkan bahwa spesies *Alexivirus* adalah *Garlic virus C* (GarVC), spesies *Carlavirus* adalah *Shallot latent virus* (SLV), dan spesies *Potyvirus* adalah *Shallot yellow stripe virus* (SYSV). Ditemukan pula *mix infection* dari sampel Bantul dan Kulon Progo. Hasil analisis filogenetik menunjukkan bahwa isolat GarVC dekat dengan isolat India, isolat SLV dengan isolat Indonesia dan India, serta isolat SYSV dengan isolat Indonesia. Hasil analisis homologi menunjukkan isolat GarVC memiliki homologi tertinggi sebesar 84,1% dengan isolat India (OP288957), isolat SLV dalam penelitian ini sebesar 98,7%, serta isolat SYSV dalam penelitian ini sebesar 98,8%. Dengan demikian, penelitian ini menambah informasi dan data mengenai infeksi spesies dari *Alexivirus*, *Carlavirus*, dan *Potyvirus* pada bawang merah di area pengamatan.

Kata kunci: *Alexivirus*, bawang merah, *Carlavirus*, *Potyvirus*, RT-PCR

ABSTRACT

Allexivirus, *Carlavirus*, and *Potyvirus* are important pathogens of *Allium* plants especially shallots (*Allium cepa* var. *aggregatum*) in many countries, including Indonesia. Infection of these viruses causes a decrease in shallot production. For this reason, this research was conducted to detect and analyze the molecular characteristic of these three viruses in Bantul, Kulon Progo and Nganjuk regencies. All the samples showed symptoms of virus infection such as chlorosis, mosaic, and stunting, and there were asymptomatic samples. Samples were then tested molecularly with universal primers: Poty1 as reverse primer, and pGV3t (950 bp) for *Allexivirus*, AlcarF (715 bp) for *Carlavirus*, and U341 (600-800 bp) for *Potyvirus* as forward primer. Results showed the presence of *Allexivirus* infection in Bantul, *Carlavirus* in all three regencies, and *Potyvirus* in Bantul and Kulon Progo. Sequence analysis with BLAST showed that the *Allexivirus* species was *Garlic virus C* (GarVC), *Carlavirus* species was *Shallot latent virus* (SLV), and *Potyvirus* species was *Shallot yellow stripe virus* (SYSV). Mixed infections were also found from Bantul and Kulon Progo samples. Phylogenetic analysis results showed that GarVC isolates were close to Indian isolates, SLV isolates with Indonesian and Indian isolates, and SYSV isolates with Indonesian isolates. The results of homology analysis showed that GarVC isolate had the highest homology of 84,1% with Indian isolates (OP288957), SLV isolates in this study were 98,7%, and SYSV isolates in this study were 98,8%. Thus, this study adds information and data on the infection of *Allexivirus*, *Carlavirus*, and *Potyvirus* species in shallots in the observation area.

Keywords: *Allexivirus*, *Carlavirus*, *Potyvirus*, RT-PCR, shallot