

## INTISARI

Bawang putih (*Allium sativum* L.) merupakan tanaman bernilai ekonomi tinggi dan telah banyak dibudidayakan di berbagai negara. Dalam budidaya bawang putih terdapat berbagai patogen yang menyerang seperti nematoda, jamur, bakteri, dan virus. Genera *Potyvirus* dan *Carlavirus* telah bertahun-tahun dilaporkan menginfeksi tanaman bawang putih di berbagai negara. Indonesia telah mengimpor bawang putih untuk ditanam dan dikonsumsi selama bertahun-tahun. Oleh karena itu, deteksi dini benih bawang putih diperlukan untuk mencegah infeksi tanaman bawang putih dari virus tersebut. *Reverse Transcription - Polymerase Chain Reaction* (RT-PCR) dipilih karena mampu mendeteksi virus dengan lebih spesifik, andal, dan sensitif dibandingkan teknik sebelumnya. Penelitian ini bertujuan untuk mendeteksi *Onion yellow dwarf virus* (OYDV) dan *Shallot latent virus* (SLV) yang menginfeksi bawang putih menggunakan RT-PCR dengan dua pasang primer spesifik. Sampel daun dan umbi bawang putih diperoleh dari Enrekang (Sulawesi Selatan), Magelang, Temanggung, Tawangmangu (Jawa Tengah), pasar tradisional Yogyakarta, dan umbi yang ditanam dari Tawangmangu. Umbi ditanam dan setelah 32 hari daunnya digunakan untuk ekstraksi. Total RNA diperoleh dari hasil ekstraksi daun dan umbi menggunakan kit komersial. Kemudian dilanjutkan dengan RT-PCR menggunakan dua pasang primer spesifik (OYDV-F/OYFV-R dan SLV-F/SLV-R). Hasil penelitian menunjukkan bahwa RT-PCR berhasil mendeteksi 112 bp untuk OYDV dan 276 bp untuk SLV. Semua sampel terinfeksi virus bawang putih, 80% terinfeksi OYDV dan SLV, sedangkan 20% terinfeksi OYDV. Berdasarkan hasil penelitian, banyak ditemukan infeksi ganda pada bawang putih.

Kata kunci: bawang putih, OYDV, RT-PCR, SLV

## ABSTRACT

Garlic (*Allium sativum* L.) is a plant with high economic value and has been widely cultivated in various countries. In garlic cultivation, there are various invading pathogens such as nematodes, fungi, bacteria, and viruses. The genera *Potyvirus* and *Carlavirus* have for many years reported infecting garlic plants in various countries. Indonesia has been importing garlic for planted and consumption for many years. Therefore, early detection for garlic seeds is needed to prevent the infection of garlic plants from those viruses. Reverse Transcription - Polymerase Chain Reaction (RT-PCR) was chosen due capable to detect viruses more specific, reliable, and sensitive than previous techniques. This study aims to detect *Onion yellow dwarf virus* (OYDV) and *Shallot latent virus* (SLV) that infects garlic using RT-PCR with two pairs of specific primers. Samples of garlic leaves and bulbs were collected from Enrekang (South Sulawesi), Magelang, Temanggung, Tawangmangu (Central Java), Yogyakarta traditional markets, and replanted cloves from Tawangmangu. The cloves were planted and after 32 days the leaves were used for extraction. Total RNA from leaves and cloves was extracted using a commercial kit. Then followed by RT-PCR using two pairs of specific primers (OYDV-F/OYFV-R and SLV-F/SLV-R). The results showed that the RT-PCR has successfully detected 112 bp for OYDV and 276 bp for SLV. All samples were infected with garlic viruses, 80% infected by OYDV and SLV, while 20% infected by OYDV. Based on the results of the study, multiple infections were often found in garlic.

Keywords: garlic, OYDV, RT-PCR, SLV