ABSTRACT

Shallot (*Allium cepa* L. Aggregatum group) is a horticultural commodity with important values for Indonesian people. The supply shortage and price fluctuation are the problems to meet the demand of shallot. Despite being the largest shallot-producing area of the Special Region of Yogyakarta, Bantul Regency is highlighted because its shallot production continued to decline. The effects of severe weather, armyworms, fungi, and bacteria which reduced the quality and yield of shallot have been recognized by the farmers. Nevertheless, the lack of information about virus disease leads to the low level of farmers' awareness of virus effect to shallot production. This study aimed to detect the viruses infecting shallot crops in Bantul, to evaluate the virus infection levels, and to identify the selected virus isolates. A total of 100 leaf composite samples were collected randomly from 10 shallot crops in Kretek, Sanden, Imogiri, and Jetis Districts. These samples were assessed using molecular methods in Laboratory of Clinical Plant Disease, Faculty of Agriculture, Universitas Gadjah Mada, Yogyakarta. *Carlavirus* and *Potyvirus* were detected in single and multiple infection, whereas *Allexivirus* was found in a single infection with the lowest infection level (2%). Infection level of *Carlavirus* and *Potyvirus* in wet season, 78% and 62% respectively, were higher than those in dry season, i.e. 60% and 46% respectively. The local Parangkusumo and Biru cultivars were more resistant to viral infections than Tiron, Bauji, and Crok Kuning cultivars. The virus isolates from Bantul were identified as *Shallot yellow stripe virus* (SYSV) and *Onion yellow dwarf virus* (OYDV) of the genus *Potyvirus*, and *Shallot latent virus* (SLV) of the genus *Carlavirus*.

Keywords: *Allexivirus*, Bantul, *Carlavirus*, *Potyvirus*, shallot

INTISARI

Bawang merah (*Allium cepa* L. Aggregatum group) adalah komoditas hortikultura yang bernilai penting bagi masyarakat Indonesia. Kelangkaan pasokan dan fluktuasi harga menjadi masalah dalam pemenuhan kebutuhan bawang merah. Kabupaten Bantul sebagai penghasil bawang merah terbanyak di Daerah Istimewa Yogyakarta kini disorot karena jumlah produksinya cenderung menurun. Para petani menganggap bahwa penurunan mutu dan jumlah panenan bawang merah dipengaruhi oleh cuaca yang buruk, serangan ulat, jamur, maupun bakteri. Keterbatasan informasi mengenai virus menyebabkan penurunan produksi bawang merah akibat infeksi virus kurang disadari oleh para petani. Penelitian ini bertujuan untuk mendeteksi keberadaan virus yang menginfeksi pertanaman bawang merah, mengetahui tingkat infeksi virus, serta mengidentifikasi jenis virus yang ditemukan di Kabupaten Bantul. Pengujian secara molekuler di Laboratorium Ilmu Penyakit Tumbuhan Klinik, Fakultas Pertanian UGM, Yogyakarta, dilakukan terhadap 100 komposit sampel daun yang diambil secara acak dari 10 pertanaman bawang merah di Kecamatan Kretek, Sanden, Imogiri, dan Jetis. *Carlavirus* dan *Potyvirus* terdeteksi dalam bentuk infeksi tunggal dan campuran, sedangkan infeksi tunggal *Allexivirus* ditemukan dengan tingkat infeksi terendah (2%). Tingkat infeksi *Carlavirus* dan *Potyvirus* pada musim hujan, berturut-turut 78% and 62%, lebih tinggi daripada saat kemarau, yaitu 60% dan 46%. Varietas lokal Parangkusumo dan Biru lebih tahan terhadap infeksi virus, dibandingkan dengan varietas Tiron, Bauji, dan Crok Kuning. Isolat virus dari Bantul teridentifikasi sebagai *Shallot yellow stripe virus* (SYSV) dan *Onion yellow dwarf virus* (OYDV) dari genus *Potyvirus*, serta *Shallot latent virus* (SLV), anggota genus *Carlavirus*.

Kata kunci: *Allexivirus*, Bantul, bawang merah, *Carlavirus*, *Potyvirus*