Blackberry virus Y

- Virus/pathogen name, including accepted acronyms and synonyms

  Blackberry virus Y is an RNA virus in the family *Potyviridae*, Genus *Brambyvirus*. While the acronym BVY is used in a number of publications, the ICTV formally accepted acronym is BlVY.

- Host range, including resistance or tolerance within the crop hosts, alternate hosts

  BlVY has been found in both cultivated and wild blackberry. Both 'Chickasaw' and 'Chester' cultivars are known to be susceptible (Susaimuthu et al., 2008b, 2008a). Wild blackberry plants (*Rubus fructicosus)* were also found to be coinfected with BYVaV and BlVY, and showed BYDV symptoms (Susaimuthu et al., 2008b, 2007).

  Mechanical inoculation of BlYV into the following herbaceous hosts has been successful; *Chenopodium quinoa* Willd., *C. amaranticolor* Coste and Reyn, *Nicotiana benthaminana* Domin, *N. rustica* L., *N. glutinosa* L., *N. clevelandii* Gray., *N. tabacum* L. 'Kentucky-16', *Phaseolus vulgaris* L. 'Black Valentine', *Pisum sativum* L., *Vigna unguiculata* (L.) Walp. ssp. *Unguiculata* 'Georgia 21', *Cucumus sativus* L. 'Boston Pickling', *C. melo* L., *Lycopersicon esculentum* Mill., *Petunia lybrida* Vilm. 'Dream Rose', with all herbaceous hosts asymptomatic. (Susaimuthu et al., 2008b).

- Symptoms on crop host including varietal differences with images of symptoms when available

  When BlYV is present in a mixed infection with BYVaV, Blackberry plants show BYVD symptoms, however when present in a single infection, plants are symptomless (Susaimuthu et al., 2008a, 2008b). It should be mentioned that blackberry with BYVD symptoms have been identified without BlYV, so BlYV is not the causal agent of the disease (Susaimuthu et al., 2008b). As mentioned earlier, all mechanically inoculated herbaceous hosts showed no symptom development (Susaimuthu et al., 2008a)

- Geographic distribution:

  BlVY is only known to occur in the USA, where it has been found in Arkansas, North and South Carolina, Georgia, Illinois, West Virginia and Florida (Khadgi, 2015; Poudel, 2015; Susaimuthu et al., 2008b). It should be noted that in some states, only a single plant was identified as positive for BlVY.

- Means of spread:

Due to the use of sentinel plants placed on pedestals in the field, BlVY is presumed to have an aerial vector (Susaimuthu et al., 2008b), but as yet, none have been identified. Transmission tests with two aphid species (*Myzus persicae* and *Amphorophora agathonica*) and several eriophyid mite species were carried out, but were unsuccessful (Susaimuthu et al., 2008b). BlVY has been shown to be graft transmissible (Susaimuthu et al., 2008a).

- Recognized diagnostic tests with cited references:

  Three different methods have been used to detect BlVY; RT-PCR, qRT-PCR and Nucleic acid spot hybridization (NASH) (Susaimuthu et al., 2008b, 2008a)

- Sampling recommendations for each pathogen including timing and tissue to be sampled
  Spring to early summer (May-June) is the ideal time for sampling. Ideally, the samples should be taken from young but fully expanded leaves. Sampling from different sites of the same plant increases chances of detection since BVY may not be evenly distributed within plants.

- Management strategies for the pathogen and the vector(s) of the pathogen
  Given the lack of knowledge on the epidemiology of the virus the use of certified virus-tested planting material is highly recommended as the virus may be distributed in infected planting material and be asymptomatic.

Khadgi, A., 2015. Blackberry Virosome: A Micro and Macro Approach. University of Arkansas.

Poudel, B., 2015. The detection and characterization of some viruses infecting blackberry and cherry in South Carolina. Clemson University.

Susaimuthu, J., Gergerich, R.C., Bray, M.M., Clay, K.A., Clark, J.R., Tzanetakis, I.E., Martin, R.R., 2007. Incidence and Ecology of Blackberry yellow vein associated virus. Plant Disease 91, 809–813. https://doi.org/10.1094/PDIS-91-7-0809

Susaimuthu, J., Tzanetakis, I.E., Gergerich, R.C., Kim, K.S., Martin, R.R., 2008a. Viral Interactions Lead to Decline of Blackberry Plants. Plant Disease 92, 1288–1292. https://doi.org/10.1094/PDIS-92-9-1288

Susaimuthu, J., Tzanetakis, I.E., Gergerich, R.C., Martin, R.R., 2008b. A member of a new genus in the Potyviridae infects Rubus. Virus Res 131, 145–151. https://doi.org/10.1016/j.virusres.2007.09.001

Names of reviewers: Ioannis E. Tzanetakis

Date of last update: August 2024