Diseases Caused by Viruses

First Report of Dasheen mosaic virus Infecting Taro (*Colocasia esculenta*) in Louisiana

Cesar Escalante,¹ David Galo,¹ Rodrigo Diaz,² and Rodrigo A. Valverde^{1,†}

¹Department of Plant Pathology and Crop Physiology, Louisiana State University Agricultural Center, Baton Rouge, LA 70803

²Department of Entomology, Louisiana State University Agricultural Center, Baton Rouge, LA 70803

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Taro [*Colocasia esculenta* (L.) Schott], also called dasheen or malanga, is an important staple crop in many tropical and subtropical countries (Chair et al. 2016). In October 2020, taro plants showing foliar symptoms consisting of mosaic, feathery mottle, and vein clearing patterns were observed in the Hilltop Arboretum, the Bluebonnet Swamp Nature Center, the Louisiana State University Agricultural Center Botanic Gardens, and University Lake, in Baton Rouge, LA. Unidentified aphids were also observed infesting the plants showing the described symptoms. From each location, two foliar samples from symptomatic and two from asymptomatic plants were collected and tested by ELISA using antiserum for general potyvirus group (Agdia, Elkhart, IN). Seven of eight symptomatic samples tested positive while the asymptomatic samples were negative. The seven positive samples were used to perform an additional ELISA test using antiserum specific for dasheen mosaic virus (DsMV) (Agdia). All seven samples tested positive for DsMV. To confirm the identity of the virus, total RNA was extracted from the seven samples using the PureLink Plant RNA Reagent Kit (Invitrogen, Carlsbad, CA). After DNA digestion with PerfeCta DNase I (Qiagen, Beverly, MA), the RNA was used to perform reverse transcription PCR (RT-PCR) with primer set DMV

5708-5731-F/DMV 6131-6154-R, which is specific for DsMV (Wang et al. 2017). RT-PCR was performed using the AccessQuick RT-PCR System (Promega, Madison, WI) following the reaction conditions described by Wang et al. (2017). PCR products of the expected size (~447 bp) were obtained with all seven samples and were Sanger-sequenced. A consensus sequence (MW284936) was obtained with the two sequences from samples collected at University Lake and aligned with other sequences available in GenBank using BLASTn. Our isolate of DsMV showed 90.6% nt identity to an isolate of DsMV from Ethiopia (MG602229). Mechanical inoculations to healthy taro plants were conducted using leaf tissue of symptomatic plants as source of inoculum. Inoculated plants exhibited mosaic symptoms 3 weeks after inoculation and were ELISA-positive for DsMV. Symptomatology, serological tests, RT-PCR testing, and DNA sequencing of RT-PCR products support that the symptomatic taro plants were infected with DsMV. Taro is a crop in Hawaii, but in the contiguous United States, it is mostly grown as an ornamental and is considered an invasive species. Its distribution is restricted to the southern continental states and Hawaii (Cozad et al. 2018). CABI EPPO (1998) lists the presence of DsMV in several states of the United States, including Louisiana; however, there is no record in the literature of the identification of this virus in Louisiana. The potential impact of DsMV in taro and related ornamental species in southern United States is unknown. To the best of our knowledge, this is the first report documenting DsMV infecting taro in Louisiana.

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[†]Indicates the corresponding author.
R. Valverde; rvalverde@agcenter.lsu.edu