Received: 18 February 2023 | Accepted: 2 July 2023

DOI: 10.1002/ndr2.12203

New Disease Reports Open Access BSPP WILEY

NEW DISEASE REPORT

First report of *Tomato brown rugose fruit virus* in tomato in Argentina

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KEYWORDS
horticulture, tobamovirus

Tomato brown rugose fruit virus (ToBRFV) causes severe crop losses worldwide, infecting primarily tomato (*Solanum lycopersicum*) and pepper (*Capsicum annuum*). It was detected for the first time in 2014 in Israel (Luria *et al*., 2017), then in 2015 in Jordan (Salem *et al*., 2016), and has since spread rapidly to other countries. In the Americas, it was reported in Mexico (Cambrón-Crisantos *et al*., 2018) and USA (Ling *et al*., 2019). In December 2022, greenhouse-grown tomato plants from three different growers from Santa Lucía and Lavalle (Corrientes, Argentina) showed similar symptoms to those caused by tobamoviruses. The plants showed mosaic and leaf mottling, narrowing (needle-like) and chlorosis in young leaves. The fruits exhibited necrotic lesions and blotchy ripening (Figures 1–3). More than 50% of the plants in the affected greenhouses showed symptoms, the large incidence being consistent with mechanical transmission of the disease.

One leaf sample from each of the three sites was collected and tested for *Cucumber mosaic virus*, *Pepper mild mottle virus* (PMMoV), *Tobacco mosaic virus* (TMV), *Tomato spotted wilt virus* and ToBRFV with ImmunoStrip® tests (Agdia, USA). Only the tests for PMMoV, ToBRFV and TMV were positive. Due to cross-reactions observed for these serological test kits, a tobamovirus RT-PCR assay (Maroon & Zavriev, 2002) was performed and the PCR products were sequenced (GenBank Accession No. OR225613). The RT-PCR confirmed infection with a tobamovirus; sequence analyses showed that the amplicons from all three leaf samples had 99% sequence identity to ToBRFV (OM515256.1). To demonstrate pathogenicity, symptomatic leaves were ground in a phosphate buffer solution (pH 7) and the resulting suspension was inoculated onto healthy three-week-old tomato plants (cv. Río Grande) grown in pots containing a sterile growing substrate in a growth chamber with 12 hours of light/dark at 26±2°C. Ten days post inoculation, the inoculated leaves began to show mosaic symptoms. An ImmunoStrip® test (Agdia, USA) for ToBRFV was conducted on symptomatic leaves, resulting in a positive test.

FIGURE 1 Leaf mosaic and mottling symptoms caused by *Tomato brown rugose fruit virus* in tomato.

FIGURE 2 Symptoms of brown lesions on green tomato fruits caused by *Tomato brown rugose fruit virus*.

FIGURE 3 Blotchy ripening symptoms caused by *Tomato brown rugose fruit virus* in tomato fruits.

Phytosanitary measures, including tool disinfection, roguing of symptomatic plants and delimitation of quarantine areas, were implemented in the affected greenhouses to prevent the virus from spreading. Santa Lucía and Lavalle are the most important areas of tomato production in Corrientes, therefore during the next production season, field monitoring will be conducted and samples collected for further analysis. To our knowledge, this is the first report of ToBRFV in Argentina.

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How to cite this article: Obregón, V.G., Ibañez, J.M., Lattar, T.E., Juszczak, S. & Groth-Helms, D. (2023) First report of *Tomato brown rugose fruit virus* in tomato in Argentina. *New Disease Reports*, 48, e12203. https://doi.org/10.1002/ndr2.12203