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► To cite this version:

Jean-Michel Lett, Murielle Hoareau, Babbitha Fenelon, Pierre Lefeuvre, E. Parvedy, et al.. First report of tobacco mild green mosaic virus on eggplants in Reunion Island. *Plant Disease*, 2024, 108 (9), p. 2938. <10.1094/PDIS-01-24-0252-PDN>. <hal-05182774>

HAL Id: hal-05182774

<https://hal.science/hal-05182774v1>

Submitted on 23 Jul 2025

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First Report of Tobacco Mild Green Mosaic Virus on Eggplants in Reunion Island

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Funding: Funding was provided by European Regional Development Funds, Région Réunion and CIRAD (ERDF contract GURDT I2016-1731-0006632). *Plant Dis.* 108:2938, 2024; published online as <https://doi.org/10.1094/PDIS-01-24-0252-PDN>. Accepted for publication 15 July 2024.

In February and March 2023, unusual virus-like disease symptoms such as mild mosaic and yellowing were observed on eggplant (*Solanum melongena*) leaves in a field plot of 233 m² in size located in the locality of St. Paul in Reunion Island (20°58.394'S, 55°19.019'E). The eggplant field showed a disease incidence of approximately 50%. The recent description of emerging tobamoviruses on solanaceous plants in several parts of the world (Salem et al. 2023), including the sister island of Mauritius (Maudarbaccus et al. 2021), suggested the possible involvement of a tobamovirus. To identify the potential agent(s) causing these symptoms, samples from eight symptomatic plants were collected, dehydrated, and subjected to total RNA extraction using the RNeasy Plant Extraction Kit (Qiagen, France). The presence of tobamoviruses was tested by RT-PCR using generic primers designed to amplify a fragment of the RNA-dependent RNA polymerase (RdRp) of tobamoviruses, which was previously shown to detect 32 tobamoviruses (Li et al. 2018). RT-PCR amplicons of the expected size (880 bp) were obtained from six samples and subjected to direct sequencing in both directions. BLASTn analysis showed that all six assembled nucleotide sequences (GenBank accession nos. PP198308 to PP198313) were very similar to each other (>98.8%) and shared 98.2 to 99.8% similarity to tobacco

mild green mosaic virus (TMGMV) genome sequences (GenBank accession nos. MW012408, OK149280, and OK558783) described on pepper (*Capsicum annuum* L.) in Vietnam (Choi et al. 2020) and tobacco (*Nicotiana* spp.) in Turkey and Canada, respectively. To obtain a full genome sequence of a Reunion isolate of TMGMV, Illumina RNA sequencing was performed by GeneWiz (Leipzig, Germany) following ribodepletion. A total of ~54M 2 × 150-nt paired-end reads was obtained. A partial genome sequence of 5,687 nucleotides of the TMGMV isolate Reunion-C23-180-St-Paul-2023 (GenBank accession no. PP198314) was assembled using SPAdes v3.13 (Bankevitch et al. 2012) with a mean position coverage of ~885,000. The sequence shares the highest nucleotide identity (98.8%) with the isolate “U2” of TMGMV collected in Canada in 2001. Maximum-likelihood phylogenetic analysis confirms that the Reunionese isolate of TMGMV is closely related to isolates of TMGMV from several countries from different continents collected on different solanaceous plants. To confirm that these diseased eggplants were infected by TMGMV, the six positive samples were inoculated into 2-week-old healthy eggplants and tobacco (*Nicotiana tabacum* cv. Xanthi) plants using mechanical inoculation, according to Ogwok et al. (2010). Two weeks later, mild mosaic symptoms on eggplants (16/16) and tobacco (6/16) were observed on the leaves of the inoculated plants. Moreover, the presence of TMGMV genomic RNA on the symptomatic leaves of the inoculated plants was confirmed by RT-PCR. To our knowledge, this is the first report of TMGMV infecting eggplants in Reunion. Since tobamoviruses are seed-transmitted (Salem et al. 2022), this description represents a first warning signal about the risk of introducing in Reunion Island the highly infectious and rapidly spreading tomato brown rugose fruit virus, which represents a major threat for many tomato growing regions of the world (Salem et al. 2023).

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The author(s) declare no conflict of interest.

e-Xtra

Keywords: emerging disease, tobamovirus, vegetables

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