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# plant disease

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## Disease Notes

### First Report of *Potato virus Y* in *Nicotiana mutabilis* in France

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*Nicotiana mutabilis* Stehmann & Semir is a recently described perennial plant species from southern Brazil that produces long floral stems with white to deep pink flowers and is used for its ornamental quality. In 2003, leaf mosaic symptoms were observed in all 30 *N. mutabilis* plants in a nursery in the south of France. Observation of crude sap preparations with the electron microscope revealed numerous flexuous particles, 700 to 730 nm long and approximately 11 nm wide, associated with "pinwheel"-like cytoplasmic inclusions, typical of the family *Potyviridae*. A range of plant species inoculated with extracts from five of the symptomatic plants showed reactions typical of *Potato virus Y* (PVY) (2), and the presence of the virus was confirmed by positive reactions in double-antibody sandwich (DAS)-ELISA with polyclonal antibodies raised against PVY. To test if PVY was responsible for the symptoms observed in *N. mutabilis*, an isolate was multiplied in *N. tabacum* cv. Xanthi plants after isolation from local lesions on *Chenopodium amaranticolor* and was then mechanically inoculated to 12 seedlings of *N. mutabilis* cv. Marshmallow. After 3 weeks, the 12 inoculated plants showed systemic vein clearing symptoms and PVY was detected by DAS-ELISA. Reverse transcription (RT)-PCR tests using PVY-polyvalent primers (5'-GATGGTTGCCTTGGATGATG and 5'-TAAAAGTAGTACAGGAAAAGCCA) covering the coat protein (CP) coding region amplified a single DNA fragment of the expected 900 bp from total RNA extracts from Xanthi plants inoculated with the five isolates. One of these DNA products was directly sequenced (GenBank Accession No. EU252529) and several accepted methods of phylogenetic analysis compared this sequence to 80 available PVY CP coding sequences and showed that the *N. mutabilis* PVY belonged to the C1 group (1). Similar to the other PVY strains in the C group, the *N. mutabilis* isolate was able to induce hypersensitive local lesions in leaves of potato genotypes carrying the *Nc gene*. However, contrary to the other characterized C1 isolates (1), it was unable to infect systemically cv. Yolo Wonder pepper plants. That peculiar behavior makes the *N. mutabilis* isolate a tool to identify the viral determinants controlling the host range of PVY.

**References:** (1) B. Blanco-Urgoiti et al. J. Gen. Virol. 79:2037, 1998. (2) C. Kerlan. No. 414 in: Descriptions of Plant Viruses. CMI/AAB, Kew, Surrey, UK, 2006.

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