



First report of tobacco rattle virus in *Aquilegia* sp. in France

Loïc Cardin, Jean-Paul Onesto, Isabelle Bornard, Benoît Moury

► To cite this version:

Loïc Cardin, Jean-Paul Onesto, Isabelle Bornard, Benoît Moury. First report of tobacco rattle virus in *Aquilegia* sp. in France. *Journal of Plant Pathology*, 2008, 90 (3), pp.586. 10.4454/jpp.v90i3.704 . hal-02666702

HAL Id: hal-02666702

<https://hal.inrae.fr/hal-02666702>

Submitted on 31 May 2020

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - ShareAlike 4.0 International License

DISEASE NOTE

**FIRST REPORT OF TOBACCO RATTLE
VIRUS IN *AQUILEGIA* sp. IN FRANCE**L. Cardin¹, J.-P. Onesto¹, I. Bornard² and B. Moury²¹INRA, URIH Phytopathologie, BP167,
F-06903 Sophia-Antipolis cedex, France²INRA, UR407 Pathologie Végétale, Domaine St Maurice,
BP94, F-84143 Montfavet cedex, France

In 2002, mosaic and yellow ringspot symptoms were observed in the leaves of each of 20 columbine plants (*Aquilegia* sp., family *Ranunculaceae*) in a garden in Alsace (France). Electron microscopy revealed that sap extracts of these plants contained rod-shaped particles 22 nm wide and either 200 to 210 nm or 90 to 100 nm long, which were typical of tobnavirus particles. *Nicotiana tabacum* 'Xanthi', *Chenopodium quinoa* and *C. amaranticolor* plants inoculated manually with extracts of infected *Aquilegia* plants developed necrotic local lesions five days after inoculation. A semi-purified virus preparation from tobacco reacted in DAS-ELISA with antibodies to Tobacco rattle virus (TRV) (Loewe, Germany). RT-PCR with RNA extracts of the original and inoculated plants using TRV RNA 1 specific primers (Robinson, 1992) yielded 464 nucleotide-long amplicons, one of which had a sequence identical to parts of those of TRV isolates PPK20 and SYM (GenBank accession Nos AF166084 and X06172). No *Cucumber mosaic virus* or potyviruses were detected in the original plants by DAS-ELISA. Among 80 one-year-old seedlings of *Aquilegia* hybrid cultivars McKana, Kristall and Biedermeier inoculated by root wounding or leaf rubbing with inocula from infected 'Xanthi', *C. quinoa* or *Aquilegia* sp. plants using phosphate buffer (0.02 M) containing 0.5% (vol/vol) 2-mercaptoethanol, 2% (w/vol) polyvinylpyrrolidone (25,000 M) and 2% (w/vol) sodium bisulfite, none developed symptoms and no virus was detected in these plants for up to one year post inoculation.

Robinson D.J., 1992. Detection of tobacco rattle virus by reverse transcription and polymerase chain reaction. *Journal of Virological Methods* 40: 57-66.

Corresponding author: B. Moury
Fax: +33. 4. 32 72 28 42
E-mail: moury@avignon.inra.fr

Received April 8, 2008
Accepted May 21, 2008