



First report of *Potato aucuba mosaic virus* in *Solanum jasminoides* in the United Kingdom

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In March 2016, samples of eight *Solanum jasminoides* plants were submitted to Fera Science Ltd., from a nursery in southeast England. The samples were sent to the laboratory as part of plant health monitoring for latent viral diseases, although they were exhibiting slight leaf mottling. Samples were tested by ELISA for the presence of *Tobacco mosaic virus*, *Tomato black ring virus*, *Tomato mosaic virus*, *Tomato spotted wilt virus* and potyviruses (DSMZ, Germany), *Alfalfa mosaic virus*, *Impatiens necrotic spot virus*, *Potato virus Y* and *Tomato black ring virus* (Bioreba, Switzerland), *Cucumber mosaic virus* and *Tobacco ringspot virus* (Agdia, USA), *Tobacco etch virus* and *Tomato ringspot virus* (Loewe Biochemica, Germany) and begomoviruses (Neogen Europe, Scotland). In each case the samples were negative. Additionally, samples were screened for the presence of pospiroviruses using generic RT-PCR primers (Mumford *et al.*, 2000; Verhoeven *et al.*, 2004) for which they also tested negative.

To provide a broad non-targeted screen for viral pathogens, samples were mechanically inoculated onto *Chenopodium quinoa*, *Nicotiana benthamiana*, *N. hesperis* and *N. occidentalis* P1. Plants of *N. hesperis* developed systemic chlorotic spotting (Fig. 1) and plants of *N. occidentalis* P1 developed necrotic local lesions (Fig. 2) ten days after inoculation. Symptomatic leaf samples were collected from the inoculated plants and screened using next generation sequencing (NGS; Adams *et al.*, 2014). A putative genome of a potexvirus was recovered from the sample having 90% similarity to that of *Potato aucuba mosaic virus* (PAMV) (GenBank Accession No. S73580). A neighbour-joining tree constructed using RdRp proteins from the recovered sequence (KY123701), PAMV (S73580) and related potexviruses identified the current sequence as PAMV (Fig. 3). To confirm the finding, the mechanical inoculations were repeated and PAMV symptoms were reproduced. Additionally, *Capsicum annuum* plants were also inoculated, which exhibited systemic necrotic lesions/patches associated with PAMV.

All the symptomatic sap-inoculated plants, including the inoculated *N. occidentalis* sample used in NGS, were also tested by DAS ELISA (DSMZ, Germany, reference number AS-1075) with a positive control (reference number PC-0007) for the presence of PAMV, with positive results.

PAMV has been previously recorded affecting potato in the UK (Brenchley & Wilcox, 1979) but it is considered to be uncommon. This finding in *S. jasminoides* is believed to be the first record of a naturally occurring infection of PAMV outside of potato.

Acknowledgements

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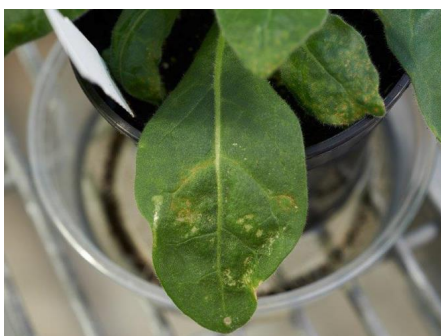


Figure 1



Figure 2

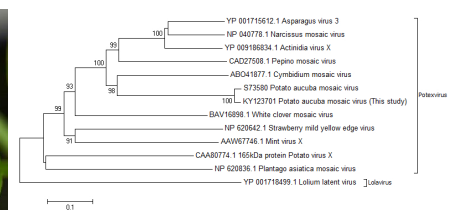


Figure 3

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