



First report of Bean yellow mosaic virus on Cape gooseberry in India

Charanjeet Kaur, Rashmi Raj, Susheel Kumar and SK Raj*

Plant Molecular Virology Laboratory, CSIR-National Botanical Research Institute, Rana Pratap Marg, Lucknow-226001, UP, India

*E-mail: skraj2@rediffmail.com

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Cape gooseberry (*Physalis peruviana*, Solanaceae) is an important crop cultivated in tropical, subtropical and temperate areas for nutritional and medicinal purposes. During a survey in April 2013, a severe mosaic disease was observed on most of the *P. peruviana* plants growing in a farmer's field at Barabanki, India. Naturally infected plants exhibited mosaic, leaf distortion and stunting symptoms (Fig. 1a). Sap from infected leaves of *P. peruviana* was inoculated on seedlings of *P. peruviana*, *Chenopodium amaranticolor*, *Datura inoxia*, *Petunia hybrida* and *Nicotiana glutinosa*. Sap inoculations resulted in local lesions on *C. amaranticolor* 10 days post inoculation (dpi), and systemic mosaic and leaf crinkling on *P. peruviana*, *D. inoxia* and *P. hybrida* (Fig. 1b-d), but not on *N. glutinosa* 30 dpi. The symptoms on inoculated *P. peruviana* were similar to those of naturally infected *P. peruviana*. Flexuous filamentous virus particles of ~750 x 12 nm were observed in leaf dip preparations using an electron microscope, indicating the presence of a potyvirus.

Total RNA was extracted from leaf samples of three symptom-bearing and one healthy *P. peruviana* plant and tested by RT-PCR using degenerate potyvirus primers (Ha *et al.*, 2008). A ~700 bp band was amplified from all three plants with symptoms but not from the healthy sample, suggesting potyvirus infection. All amplicons were cloned and sequenced (GenBank Accession Nos. KJ191461- KJ191463). The sequences were 98-99% identical to each other and had the highest identity (99%) and a close phylogenetic relationship with an isolate of Bean yellow mosaic virus (BYMV; JX177278) isolated from *Diuris* sp. in Australia (Fig. 2). Therefore, the virus associated with mosaic disease of *P. peruviana* was identified as BYMV. According to the literature, *Cucumber mosaic virus* in

India (Gupta & Singh, 1996), Colombian datura virus in Hungary (Salamon & Palkovics, 2005), *Tomato spotted wilt virus* in Transkei (da Graça, *et al.*, 1985) and a tospovirus in Brazil (Eiras *et al.*, 2012) have been found to infect *P. peruviana*. However, the natural occurrence of BYMV has not been previously reported. To our knowledge, this is the first report of natural occurrence of BYMV on *P. peruviana*.

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Figure 1

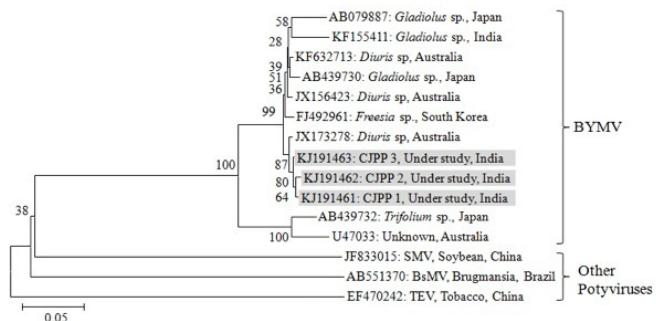


Figure 2

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