



First report of tomato leaf curl New Delhi virus infecting Tinda (*Benincasa fistulosa*) in India

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Received: 20 May 2020 / Accepted: 10 September 2020 / Published online: 15 September 2020
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Keywords *Benincasa fistulosa* · Tomato leaf curl New Delhi virus · Yellows and leaf curl · India

In January 2018, severe symptoms of virus(es) and heavy infestation of whitefly (*Bemisia tabaci*) were observed on Tinda (*Benincasa fistulosa*) crop grown in vegetable research farm of

Punjab Agricultural University. The infected crop symptoms consisted of severe yellowing and curling of leaves. These symptoms resembled to those which were described recently for the infection of tomato leaf curl New Delhi virus (ToLCNDV) on other cucurbit crop in Italy (Trisciuzzi et al. 2018). Eight per cent of 100 plants observed were showing these symptoms. DNA from six symptomatic samples was tested by PCR, with primer pair PALIc and PARIv specific for AV1 region of CP, AC5, AC3, AC2 and some part of AC1 gene of begomovirus (Rojas et al. 1993). This primer pair amplified specific product of 1280 bp in three samples out of six. To further identify the associated begomovirus species, PCR amplicon from one selected sample was cloned in pTZ57R/T vector (Thermo Scientific, USA) and sequenced. The obtained sequences were analyzed by BLASTn tool and compared with existing corresponding sequences of the same viral species available in the GenBank database. Cloned amplicon (MH845616) from infected sample showed 99.5% nucleotide similarity with ToLCNDV (AY939926) infecting *Luffa cylindrical* in North India and 98.5% sequence similarity with ToLCNDV (HM989845) reported to infect *Luffa acutangula* at New Delhi. To further confirm this results,

primer pairs specific for the major tomato leaf curl begomoviruses *viz.* tomato leaf curl New Delhi virus (ToLCNDV), tomato leaf curl Gujarat virus (ToLCGV), tomato leaf curl Karnataka virus (ToLCKV) and tomato leaf curl Bangalore virus (ToLCBV) were tested (Reddy et al. 2005) but only primer pair CRNDv30 and CRNDc1181, specific for ToLCNDV, amplified specific product of 1180 bp in all three positive samples thus reconfirming the association of ToLCNDV with samples. To the best knowledge, this is the first report of *Benincasa fistulosa* plants infected by ToLCNDV.

Acknowledgements Authors are thankful to Department of Science and Technology for providing and “Innovation in Science Pursuit for Inspired Research (INSPIRE)” fellowship to Manmohan Dhkal.

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