

PLDIDE 95(11) 1325-1488(2011)  
ISSN 0191-2917  
VOLUME 95, NUMBER 11  
NOVEMBER 2011

# plant disease

AN INTERNATIONAL JOURNAL OF APPLIED PLANT PATHOLOGY





cherries are important crops in China and LChD has the potential to cause significant economic losses. Thus, certified clean stock should be used to establish new orchards. To our knowledge, this is the first report of LChV-2 in cherries in China.

**References:** (1) N. B. Bajet et al. *Plant Dis.* 92:234, 2008. (2) W. Jelkmann et al. *Acta Hort.* 781:321, 2008. (3) B. Komarowska and M. Cieřlińska, *Plant Dis.* 92:1366, 2008. (4) M. E. Rott and W. Jelkmann. *Arch. Virol.* 150:107, 2005.

**First Report of Moroccan pepper virus on Lisianthus in Iran and Worldwide.** N. Beikzadeh, Hasheminejad, Higher Education Center, P.O. Box 91375-4887, Mashhad, Iran; and D. Peters and A. Hassani-Mehraban, Laboratory of Virology, Department of Plant Sciences, Wageningen University, Droevendaalsesteeg 1, 6708 PB Wageningen, the Netherlands. *Plant Dis.* 95:1485, 2011; published online as doi:10.1094/PDIS-04-11-0342. Accepted for publication 25 July 2011.

During the last decade, lisianthus (*Eustoma grandiflorum*) has been introduced in Iran in the horticultural cut-flower industry. This crop is currently produced in more than 800 small greenhouses on a surface of an estimated 0.8 km<sup>2</sup> in the Pakdasht region (southeast of Teheran Province). Plants exhibiting virus-like symptoms were observed in several greenhouses in 2010. The infected plants produced yellow and necrotic spots on the leaves and became severely deformed because of a strong leaf curling and the production of shorter internodes. Flower breaking has not been observed in the blue flowering plants. Approximately 85% of the plants were apparently infected in the inspected greenhouses. Extracts of infected material inoculated onto some indicator plant species induced mosaic and leaf malformation on *Nicotiana benthamiana*, mottling on *Capsicum annuum*, necrotic lesions on *Datura stramonium*, chlorotic local spots on *Vigna unguiculata*, systemic necrotic spots on *Emilia sonchifolia*, chlorotic local spots on *Cucumis sativus*, and necrotic local lesions on *Petunia hybrida*. Back-inoculation of infected material on lisianthus seedlings resulted in several chlorotic spots on the inoculated leaves and a severe downward curling of the systemic infected leaves. No symptoms were observed after inoculation of *Pisum sativum*, *Phaseolus vulgaris*, *Vicia faba*, and *Chrysanthemum* spp. The virus could also be transferred from infected to healthy *N. benthamiana* plants by pricking leaves with a Pasteur pipette. Spherical tombusvirus-like particles of approximately 29 nm were found by transmission electron microscopy in leaf-dip and partially purified preparations of infected *N. benthamiana*. Since *Tomato bushy stunt virus* (TBSV; genus *Tombusvirus*, family *Tombusviridae*) and *Moroccan pepper virus* (MPV) have been found in Iran, we studied by using ELISA whether our samples matched with TBSV. Since a negative response was obtained, two primers were designed on the basis of the available sequences of the coat protein in the GenBank (Accession No. EU27780) of an MPV isolate from soil in Fars Province, Iran. A reverse transcription (RT)-PCR of total RNA extract from infected lisianthus and *N. benthamiana* with the primers MPV-R (5'-TTACAACAATGTGGC ATCATTG-3') and MPV-F (5'-ATGGCAATGGTAGTAAGAAAC-3') resulted in a DNA fragment of 1,176 bp. This fragment from *N. benthamiana* was cloned, sequenced (Accession No. HQ663881), and showed a 96% nucleotide and 99% amino acid identity with the coat protein of the soil isolate. MPV was originally found in pepper (1), tomato and pelargonium (4), pear tree (3), and surface water (2). To our knowledge, this is the first report of MPV on lisianthus in Iran and worldwide. This virus, which persists in soil, water, and plant debris, can be considered as a

substantial threat for the lisianthus industry in Iran because farmers do not apply strict crop rotation or other sanitation measures.

**References:** (1) H. U. Fischer and B. E. L. Lockhart. *Phytopathology* 67:1352, 1977. (2) R. Koenig and D.-E. Lesemann. *Phytopathol. Z.* 112:105, 1985. (3) M. Russo et al. *J. Plant Pathol.* 84:161, 2002. (4) H. J. Vetten and R. Koenig. 108:215, 1983.

**First Report of Tomato leaf curl New Delhi virus Infecting Cucumber in Central Java, Indonesia.** T. Mizutani, Department of International Agricultural Development, Graduate School of Agriculture, Tokyo University of Agriculture, 1-1-1, Sakuragaoka, Setagaya-ku, Tokyo 156-8502, Japan; B. S. Daryono, Faculty of Biology, Gadjah Mada University, Yogyakarta 55281, Indonesia; M. Ikegami, NODAI Research Institute, Tokyo University of Agriculture, 1-1-1, Sakuragaoka, Setagaya-ku, Tokyo 156-8502, Japan; and K. T. Natsuaki, Department of International Agricultural Development, Tokyo University of Agriculture, 1-1-1, Sakuragaoka, Setagaya-ku, Tokyo 156-8502, Japan. *Plant Dis.* 95:1485, 2011; published online as doi:10.1094/PDIS-03-11-0196. Accepted for publication 20 June 2011.

Cucumber (*Cucumis sativus* L.) is an important vegetable in Indonesia. Cucumber plants showing yellowish green mosaic symptoms on leaves were observed in Klaten, Central Java, Indonesia in August 2008. Total DNAs were extracted from symptomatic leaves, and the putative viral genomes were amplified by PCR with the Deng A and B primers (2). The PCR-amplified viral genomic DNA was sequenced. The remaining part of DNA-A was amplified with two primers sets (ToLCNDV-A1F 5'-ACC AACAGGCCGATGAACA-3' and ToLCNDV-A1R 5'-TTCCCACTA TCTTCTGTGCA-3'; ToLCNDV-A2F 5'-TCGAGTGTGATRAAGAYT GCA-3' and ToLCNDV-A2R 5'-ACTAACTAAGCATTCAGCGTC-3' [R = A and G, Y = C and T]) and sequenced. The remaining part of DNA-B was amplified with two primers sets (ToLCNDV-B1F 5'-ARGAGTTCRYTGTGGA-3' and ToLCNDV-B1R 5'-TKCWGT YGGTCATGTCGT-3'; ToLCNDV-B2F 5'-TCYGTCAATCKCATGTCG YGT-3' and ToLCNDV-B2R 5'-CCTTACGGGTATAYTGTYTRGA-3' [K = G and T, M = A and C, W = A and T]) and sequenced. Full-length DNA-A (2,739 nt; GenBank Accession No. AB613825) and DNA-B (2,690 nt; GenBank Accession No. AB613826) sequences of a bipartite *Tomato leaf curl New Delhi virus* (ToLCNDV) from Central Java were obtained and they were most similar to the corresponding sequences of both DNA-A and DNA-B of ToLCNDV-[cucumber:Thailand] (DNA-A, GenBank Accession No. AB330079; DNA-B, GenBank Accession No. AB330080) at 95.5 and 91.0% nucleotide identities, respectively. On the basis of high nucleotide sequence identity with ToLCNDV-[cucumber:Thailand] and the demarcation criteria in species identification (3), the virus isolate from the diseased cucumber in Central Java is considered as a variant of ToLCNDV and was accordingly named ToLCNDV-Indonesia[Indonesia:Java:Cucumber:2008] (ToLCNDV-ID[Java:Cuc:08]). Although the importance of begomovirus diseases on chili pepper (*Solanaceae*) is currently highly noticed in Indonesia (1), ToLCNDV was newly isolated from cucumber (*Cucurbitaceae*) in this study. Therefore, farmers in Indonesia should pay more attention to controlling begomovirus vectors, white flies, on *Cucurbitaceae*. To our knowledge, this is the first report of the natural occurrence of ToLCNDV in Indonesia.

**References:** (1) P. J. D. Barro et al. *Biol. Invas.* 10:411, 2008. (2) D. Deng et al. *Ann. Appl. Biol.* 125:327, 1994. (3) C. M. Fauquet et al. *Arch. Virol.* 153:783, 2008.