Disease Note

First Report of Mixed Infection of Papaya Ringspot Virus and Papaya Leaf Distortion Mosaic Virus on Carica Papaya L.

W. Shen*, D. Tuo*, Y. Yang, P. Yan, X. Li and P. Zhou

Key Laboratory of Biology and Genetic Resources of Tropical Crops, Ministry of Agriculture, Institute of Tropical Bioscience and Biotechnology & Analysis and testing center, Chinese Academy of Tropical Agricultural Sciences, Haikou 571101, China

*These authors contributed equally to this work.

Papaya ringspot virus (PRSV) and Papaya leaf distortion mosaic virus (PLDMV) (Potyviridae) from the family Potyviridae produce similar symptoms in papaya such as foliar mosaic, ringspots and distortion, water soaking streaks on petioles, and ringspots on fruit. PRSV is the most widespread and destructive viral disease damaging papaya production in the world, whereas PLDMV was recently identified in China (Tuo et al., 2013). In March 2014, 23 papaya trees displaying disease symptoms similar to those of PRSV or PLDMV were observed in Haikou (Hainan Island, China). Six samples were co-infected with PRSV and PLDMV, as shown by DAC-ELISA with antisera confirmed by RT-PCR using PRSV-specific primers designed in PRSV and PLDMV, as shown by DAC-ELISA with antisera (Hainan Island, China). Six samples were co-infected with PRSV and PLDMV, as shown by DAC-ELISA with antisera confirmed by RT-PCR using PRSV-specific primers designed in a highly conserved region of gene CP (P3-F, 5’TTGTGTGAC-GACTTCTACCGAA3’ and P3-R, 5’CGAATGTCATC-CAAAAGACT GATGATAAAC3’ and P3-R, 5’CGAATGTCATC-CAAAAGACT GATGATAAAC3’) and PLDMV-specific primers designed in a highly conserved region of the coat protein (CP) gene (CP-F, 5’GGCATGTGGTTTATGATGCAAGG G3’ and CP-R, 5’GCTCCGTGTTCTCAGTCGCATT3’). DNA fragments of the expected size (613 and 355 bp, respectively) were amplified from each mixed infected sample using PRSV and PLDMV-specific primers, and then cloned and sequenced. BLASTn analysis of the nucleotide sequences from the cloned PCR products showed 99% identity with a PRSV isolate from Hainan (GenBank accession No. EF813499) and 100% identity with a PLDMV isolate from Hainan (GenBank accession No. JX974555) (Lu et al., 2008; Tuo et al., 2013). To our knowledge, this is the first report of mixed infection of PRSV and PLDMV on papaya, prompting the need for evaluating the potential threat of the mixed virus infection to papaya production.

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Disease Note

First Report of Rosemary Leaf Spot Caused by Phoma Glomerata in Iran

D. Moshrefi Zarandi1, M.M. Aminae2, A. Sharzezi3 and S. Rezaee4

1Department of Plant Pathology, College of Agriculture, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran
2Department of Plant Protection, Agricultural and Natural Resources Research Center of Kerman, Kerman, Iran
3Department of Entomology and Plant Pathology, Aburaian Campus, University of Tehran, Tehran, Iran
4Department of Plant Pathology, College of Agriculture and Natural Resources, Science and Research Branch, Islamic Azad University, Tehran, Iran

Rosemary (Rosmarinus officinalis) is an ornamental and medicinal plant grown in Iran. During a survey in November 2012, symptoms of wilt and leaf spot were observed in almost half of rosemary fields of Kerman (southeast of Iran). Samples of infected leaves were surface sterilized with 0.5% sodium hypochlorite, rinsed with sterile distilled water, cultured onto potato dextrose agar (PDA) medium and incubated at 25°C for seven days. The isolated fungus produced a pale brown to dark green colony. Ovoid or ellipsoidal, hyaline, and aseptate conidia were produced abundantly in subglobose pycnidia. Numerous dictyochlamydospores and chlamydospores were also observed. Based on the morphological characters, the fungus was identified as Phoma glomerata (Boerema et al., 2004).

To confirm the species of the fungus, DNA was extracted from a single spore isolate and the internal spacer regions (ITS) were amplified with universal primers ITS1 and ITS4. The resulting sequence (532 bp), which showed more than 99% identity with Phoma glomerata, was submitted to NCBI GenBank (Accession No. K114267).

To test the pathogenicity, two month old plants were sprayed by a suspension of 10⁴ spores per ml, covered with plastic bags and incubated under greenhouse conditions at 25-28°C. Pale brown small spots were developed on an average of 31.48% of the leaves after seven days. This fungus has been previously reported from Iran on cucumber (Hatami et al., 2008) and Ficus elastica (Aghapour et al., 2009). To the best of our knowledge, this is the first report of Phoma glomerata on rosemary in Iran and possibly in the world.

