
Aechmea fasciata is a bromeliad that is propagated by tissue culture as an ornamental plant. A high percentage (25 to 55%) of 1- to 5-month-old seedlings were found decayed in nursery gardens that have been established in recent years in Hainan Province, People’s Republic of China. There were two types of symptoms: (i) in yellow rot, the decay appears first in the new leaf apex as a water-soaked, yellow lesion, and the lesion spreads from the leaf apex to the base until the whole leaf becomes water-soaked and yellow; and (ii) in brown rot, decay occurs first at the base of older leaves. The lesion is water soaked but later becomes brown, and the lesions develop from leaf base to leaf apex and spread to adjacent leaves. Eventually the whole plant is rotted, but the decay remains brown. Both types of symptoms on A. fasciata have not been reported in China. Fusarium sp. was isolated from the yellow rot type lesions, and Pythium sp. was isolated from the brown rot type lesions. Isolates of Fusarium sp. and Pythium sp. were inoculated on wounded and unwounded healthy plants. Yellow rot type and brown rot type lesions were observed on wounded host three days after inoculation with the respective pathogen. No lesions were observed on unwounded inoculated plants or on wounded and unwounded control plants. The same Fusarium sp. and Pythium sp. were reisolated from the yellow and brown rot type lesions, respectively, in inoculated plants, thus fulfilling Koch’s postulates. Colonies of the Fusarium sp. were white on potato dextrose agar, purple on rice medium, and first yellow, and then blue green in 4 days on selective carrot medium. On carnation media, microconidia were abundant, 1- to 2-celled, oval- to kidney-shaped, and 2.4 to 3.6 x 4.8 to 7.2 μm. Microconidia were rare, sickle-shaped with attenuated apical cells and foot-shaped basal cells. Chlamydospores were also abundant, globose, formed singly or in pairs, and intercalary or on short lateral branches. This pathogen was identified as Fusarium oxysporum based on the characteristics (1, 2). The Pythium sp. on potato dextrose agar was white and cottony. On selective carrot medium, hyphae were 3.6 to 7.5 μm in diameter. Spermatia had irregular swellings and were acrogenous. Oogonia were globose, colorless, acrogenous or intercalary, 14.8 to 27.6 μm in diameter. Antheridia were copulated with oogonia in its apex or lateral. Oospores were spherical, aplerotic, and 13.2 to 25.2 μm in diameter. This pathogen was identified as Pythium aphanidermatum based on these characteristics (2). To our knowledge, this is the first report of leaf rot caused by F. oxysporum and P. aphanidermatum on A. fasciata in the People’s Republic of China.


In March 2002, Phytophthora ramorum S. Werres & A.W.A.M. de Cock was isolated from pacific or western starflower (Trientalis latifolia Hook), an herbaceous perennial of the Primulaceae family, at Castro Canyon in Big Sur, Monterey County, California. Affected leaves had numerous necrotic lesions >5 mm in diameter surrounded by a yellow halo, and the lesions coalesced with time. Isolates were identified as P. ramorum by the large chlamydospores, caducous, semipapillate sporangia, and sequences of the internal transcribed spacer (ITS) region of the rDNA (1, 2). The same symptoms were observed on starflower in a second location at the Sequel Demonstration Forest, Santa Cruz County. Although P. ramorum was not isolated from symptomatic leaves on the plants in Santa Cruz County, the ITS region of the pathogen was amplified and sequenced using P. ramorum-specific primers. Both sites were mixed forests of coast redwood (Sequoia sempervirens), bay laurel (Umbellularia californica), and tanoak ( Lithocarpus densiflorum), which are confirmed hosts of P. ramorum. To test for pathogenicity to starflower, asymptomatic plants were carefully excavated from the two forest locations, replanted in 15-cm paper cups in the original forest soil, and the foliage was inoculated with zoospores of P. ramorum isolate Pr-52, an isolate used in previous inoculations. The zoospores were produced by placing agar disks (1 cm in diameter) from the margin of 8- to 14-day-old colonies growing on V8 juice agar into 20 to 30 ml of sterile deionized water in petri dishes. After 2 days incubation at 20°C in the dark, zoospore release was induced by placing dishes at 4°C for 20 min and then to room temperature for 45 to 60 min. Three hundred μl of the zoospore suspension (approximately 2 x 10⁴ zoospores/ml) was poured into 500-μl modified microcentrifuge tubes in which tips of leaves of starflower were submerged. Control leaves were dipped in sterile deionized water. Plants were placed in a humid-chamber consisting of moist paper towels placed on the tray and covered with a clear-plastic lid that was sprayed with sterile water. The chambers were maintained at 20 to 24°C in the laboratory. Two or three leaves were inoculated, and one leaf was left as the control on each of seven or eight plants in two separate trials. In both trials, water-soaked lesions were observed on the leaves 12 h after inoculation with P. ramorum. At 8 or 11 days after inoculation, necrotic lesions were present on all inoculated leaves starting from the leaf tips. Lesions averaged 29 mm (range 13 to 39 mm) and 45 mm (range 31 to 56 mm) in length in the respective trials. Some lesions covered entire leaves. P. ramorum was reisolated on Phytophthora-selective agar medium (1) from the lesions in both trials. Control leaves had no lesions, and P. ramorum was not reisolated. Infection of starflower and other understory species appears to occur under infested tree hosts such as bay laurel, which is known as a source of inoculum for P. ramorum. To our knowledge, this is the first report of a herbaceous host for P. ramorum and the first report of the disease on the Primulaceae. Previously, only woody hosts were known. Starflower is unlikely to play a major role in the natural spread of the disease, but the pathogen may be spread via movement of plants through the horticultural industry. Furthermore, Trientalis spp. in Europe where P. ramorum is present may also be potential hosts.


During a 2002 survey in Serbia, samples of grapevine (Vitis vinifera) were collected from plants showing typical phytoplasma-like symptoms: leaf roll, leaf redness, vein chlorosis and necrosis, and absence of lignification. The material was collected from one viticultural region (Zaprešić, near Zagreb) where the disease was recorded in 2000. The results showed an increasing percentage of symptomatic plants every year. Total nucleic acid was extracted separately from leaf midveins and stem bark collected from 10 symptomatic leaves and 2 asymptomatic plants. Phytoplasma infection was detected using polymerase chain reaction (PCR) assays with universal primer pair P1/P7 for the amplification of phytoplasma 16S rRNA gene, and primer pair FD92/FF92d followed by FD93/FF92 in nested PCR for specific amplification of the FD9 nonribosomal DNA fragment of the EF-G group (1). Phytoplasmas were detected in 9 of 10 midvein extracts from symptomatic grapevines (three of cv. Plovdivana, two of cv. Smrderevka, and four of cv. Gamé). Also, 6 of 10 bark preparations representing stem collections from the same plants were positive (two samples of cv. Plovdivana, both samples of cv. Smrderevka, and two samples of cv. Gamé). Both collections of midveins and bark tissues from asymptomatic plants were negative. Fragments amplified with universal P1/P7 primers (16S-23S rDNA) were analyzed by restriction fragment length polymorphism with Trul and TaqI restriction enzymes. The phytoplasmas produced identical restriction profiles to those of 16SrV Elm Yellows group and 16SrV-C Flavescence doree subgroup (2). To our knowledge, this is the first report of phytoplasma infecting grapevines in Serbia, and the first survey in progress to verify the presence of Scaphoides titanus to determine if this grapevine yellows could be defined as Flavescence doree.


(Disease Notes continued on next page)