

**First Report of Infection of Maiden-Hair Fern (*Adiantum jordanii* and *A. aleuticum*) by *Phytophthora ramorum* in California.** A. M. Vettrano, Department of ESPM-ES, 137 Mulford Hall, University of California, Berkeley 94720 and Department of Plant Pathology, University of Tuscia, Viterbo, Italy; D. Hüberli and S. Swain, Department of ESPM-ES, 137 Mulford Hall, University of California, Berkeley 94720; J. C. Bienapfl, Department of Plant Pathology, University of California, Davis 95616; and A. Smith and M. Garbelotto, Department of ESPM-ES, 137 Mulford Hall, University of California, Berkeley 94720. *Plant Dis.* 90:379, 2006; published on-line as DOI: 10.1094/PD-90-0379B. Accepted for publication 8 December 2005.

During July 2005, *Phytophthora ramorum* S. Werres & A.W.A.M. de Cock was isolated from nine native *Adiantum jordanii* plants growing at two forest sites (Samuel P. Taylor State Park, Marin County and Peachland Road, Mendocino County) and from seven *A. aleuticum* plants at one forest site (Peachland Road) in California. At both locations, symptomatic plants were distributed close to rivers and roads and in association with infected bay laurel trees (*Umbellularia californica*), toyon (*Heteromeles arbutifolia*), and tanoaks (*Lithocarpus densiflorus*). Symptomatic leaflets showed brown spots that sometimes coalesced, killing entire leaves, but the disease did not appear to be fatal to the ferns. Necrotic tissues were plated on PARP and maintained in the dark at 18°C for 1 to 2 weeks. Isolates were identified as *P. ramorum* on the basis of colony morphology, the presence of chlamydospores and caducous, semipapillate sporangia, and the internal transcribed spacer (ITS) rDNA sequences (1,2). The *P. ramorum* isolates, Pr-419 from *A. jordanii* and Pr-422 from *A. aleuticum*, have been deposited in the American Type Culture Collection (ATCC MYA-3677 and MYA-3679, respectively) and a region of the ITS rDNA sequence deposited in the NCBI database (GenBank Accession No. DQ173082 and DQ219821, respectively). To test the pathogenicity, the tips of freshly detached leaves of *A. jordanii* and *A. aleuticum* were dipped into a solution of  $1 \times 10^3$  zoospores per ml of Pr-419 and Pr-422 for 1 min. The wounded end of the leaves was not exposed to the inoculum. The zoospores were produced by flooding agar disks (1 cm in diameter) from the margin of 8- to 14-day-old colonies growing on V8 juice agar with sterile deionized water. After 3 days of incubation at 20°C in the dark, zoospore release was induced by placing dishes at 4°C for 20 min and then at room temperature for 60 min. For each *Adiantum* species and *P. ramorum* isolate, 15 leaves collected from five potted nursery plants were tested. Control leaves were dipped in sterile deionized water. Leaves were maintained in a moist chamber at 19°C with 13 h of natural light for 9 days. Brown lesions similar to those seen in the forest developed on approximately 60 and 33% of the *A. jordanii* and *A. aleuticum* leaves, respectively, inoculated with Pr-419 and on approximately 73 and 40% of the leaves inoculated with Pr-422. Under these experimental conditions, *A. aleuticum* appeared to be slightly more susceptible than the *A. jordanii*, with a necrotic leaf area of approximately 38% compared with 20%. The pathogen was reisolated on PARP after surface sterilization from all symptomatic leaves. Control leaves did not develop symptoms and *P. ramorum* was not recovered. *A. jordanii* and *A. aleuticum* have already been listed as associated hosts for *P. ramorum* on the APHIS (USDA Animal and Plant Health Inspection Service) website (<http://www.aphis.usda.gov/>). To our knowledge, this is the first report of ferns as natural hosts of *P. ramorum*.

*References:* (1) D. M. Rizzo et al. *Plant Dis.* 86:205, 2002. (2) S. Werres et al. *Mycol Res.* 105:1155, 2001.