First Report of Foliar Infection of Starflower by *Phytophthora ramorum*. D. Hüberli, W. Van Sant-Glass, J. G. Tse, and M. Garbelotto, Department of ESPM-ES, 151 Hilgard Hall, University of California, Berkeley 94720. Plant Dis. 87:599, 2003; published on-line as D-2003-0321-01N, 2003. Accepted for publication 1 March 2003.

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, caduceus, 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 Soquel 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 densiflorus*), 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 × 10(^4) 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 an 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.

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