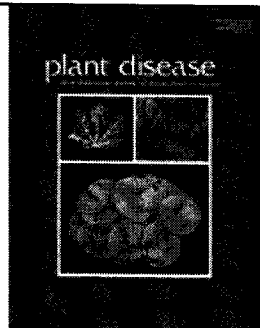


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Disease Notes

First Report of the European Lineage of *Phytophthora ramorum* on *Viburnum* and *Osmanthus* spp. in a California Nursery

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Phytophthora ramorum S. Werres & A.W.A.M. de Cock is the causal agent of sudden oak death in California and Oregon forests and ramorum blight on a broad range of host species in wildlands and nurseries. It is thought to be an introduced pathogen and only three clonal lineages are known (3). The North American lineage (lineage NA1, mating type A2) is responsible for infections in California and Oregon forests. The European lineage (lineage EU1, predominantly A1) is responsible for infections in Europe, but has also been found in nurseries in Oregon and Washington. A third lineage (NA2) has only been isolated in a few instances from nurseries in Washington and California. In June 2006, *P. ramorum* was isolated from diseased *Viburnum tinus*, *Osmanthus heterophyllus*, and *O. fragrans* cultivars from a Humboldt County retail nursery in northern California. We genotyped isolates and placed them into clonal lineages using microsatellite markers developed for *P. ramorum* (3,4). Genomic DNA was extracted from mycelia with the FastDNA SPIN kit (Q-Biogene, Morgan, Irvine, CA). Primers used were PrMS6, Pr9C3, PrMS39, PrMS43a, PrMS43b, and PrMS45 (3) and 18, 64, and 82 (4). We sized fluorescently labeled amplicons using capillary electrophoresis (3100 Avant Genetic Analyzer, Applied Biosystems, Foster City, CA). Isolate genotypes were compared with control isolates of known clonal lineage, including BBA9/95 (EU1), Pr102 (NA1), and WSDA3765 (NA2). Three of four isolates belonged to genotype EU1. The fourth isolate, obtained from *O. fragrans*, belonged to genotype NA1. We repeated genotyping on independent genomic DNA extractions and obtained identical results. Two EU1 isolates and the single NA1 isolate were tested for mating type (1) and found to be of A1, A1, and A2 mating type, respectively. The coexistence of A1 and A2 mating types in the same retail nursery suggests the potential for sexual reproduction, as is the case in *P.*

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infestans where clonal and sexual populations exist (2), although to date, sexual reproduction in nature has not been documented in *P. ramorum*. The California retail nursery infestation highlights the risks associated with the unintentional transport of host nursery stock infested with *P. ramorum*.

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