

plant disease

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Disease Notes

First Report of *Puccinia psidii* Caused Rust Disease Epiphytotic on the Invasive Shrub *Rhodomyrtus tomentosa* in Florida

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Rhodomyrtus tomentosa (Aiton) Hassk. (downy-rose myrtle, family: Myrtaceae), of South Asian origin, is an invasive shrub that has formed monotypic stands in Florida (3). During the winter and spring of 2010 through 2012, a rust disease of epiphytotic proportion was observed on young foliage, stem terminals, and immature fruits of this shrub in natural areas of Martin and Lee counties, Florida. Expanding leaves and succulent stems developed chlorotic flecks on the surface that developed into pustules and ruptured to discharge urediniospores. Symptomatic leaves and stems developed severe necrotic spots and resulted in tissue distortion, defoliation, and stem dieback. Based on symptoms and urediniospore morphology and dimensions (17.7 to 26.1 [22.1 ± 0.3] $\times$ 14.7 to 21.1 [17.7 ± 0.2] μm ; $n = 51$) (4), the causal agent was identified as *Puccinia psidii* Winter; teliospores were not observed in samples since it does not produce these spore stages below 20°C ambient temperature (1). This identification was confirmed by a GenBank BLAST of internal transcribed spacer (ITS) sequences (Accession Nos. KC607876 and KC607877) that showed 99% identity with 42 sequences of *P. psidii* from diverse host species and locations. *P. psidii* is believed to be of neotropical origin and has a host range of 129 species in 33 genera within Myrtaceae (2). However, *P. psidii* caused disease of downy-rose myrtle has not been previously reported in Florida, even though severe infections occurred on another invasive tree, *Melaleuca quinquenervia* (Cav.) S.F. Blake (3), growing in adjacent areas. In December 2011, urediniospores were collected from downy-rose myrtle, established in aqueous suspension (45,000 spores/ml), and spray inoculated on potted downy-rose myrtle plants ($n = 3$), which were maintained in 100% ambient humidity, at 20°C , with a 12-h light cycle for 72 h. Plants mock-inoculated with water served as the negative control. Disease symptoms, including chlorotic flecks and raised surfaces, appeared on leaf lamina in 3 to 6 days on *P. psidii*-inoculated plants, while control plants remained symptomless. Raised surfaces developed into distinct pustules and eventually erupted to discharge urediniospores within 6 to 12 days of inoculation. Tests were repeated once during March and April of 2012 with the same results. The latent and incubation periods reported herein are within the previously reported range for *P. psidii* (2,4). To our knowledge, this is the first confirmed report of *P. psidii* epiphytotic on downy-rose myrtle populations in Florida. The recent occurrence of *P. psidii* epiphytotic on downy-rose myrtle raises critical questions as to why this myrtle rust disease is so severe and widespread on this host after decades of presumed exposure to *P. psidii* in Florida. Because this rust pathogen has emerged as a major invasive threat to many myrtaceous species around the world, further genotyping and cross-inoculation studies are needed to determine the host specificity and potential origin of the *P. psidii* isolates derived from downy-rose myrtle (2).

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