

First Report of Powdery Mildew of *Platanus occidentalis* caused by *Microsphaera platani* (*Erysiphe platani*) in Washington State

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American sycamore (*Platanus occidentalis* L.) is a common native species in eastern North America that is planted widely as a landscape tree in other regions. During the course of a survey of powdery mildew diseases in Washington State, the fungus *Microsphaera platani* Howe was found on three American sycamore trees at a single location in Madison Park, Seattle, in October, 2002. Other than a brief mention that *M. platani* had been found in Oregon (4), no published reports of this fungus exist for the Pacific Northwest. This report documents the presence of *M. platani* in Washington State and presents information on the identification and nomenclature of the fungus.

Conspicuous signs of the disease (Fig. 1) included effuse to dense, white-colored patches of mycelium on infected leaves. Leaves frequently were distorted in areas supporting mycelial growth, apparently resulting from inhibition of normal leaf expansion in infected parts. Mycelium included superficial hyphae, appendaged ascocarps, and conidiogenous structures typical of a powdery mildew. Infected trees did not exhibit symptoms of defoliation or decline.



Fig. 1. Symptoms and signs of powdery mildew of *Platanus occidentalis*.

Characteristics of the fungus were as follows: *Mycelium* was amphigenous, primarily on adaxial side of leaf; colonies were effuse to dense, forming conspicuous patches that often coalesced; generally white but becoming grayish to brown. *Anamorph*: Conidiophores were straight, foot-cells cylindrical. Conidia (Fig. 2) generally were borne singly although occasionally adhering in short chains of 2 to 3 spores; cylindrical, with flattened to slightly convex ends, generally collapsed, surfaces minutely roughened to reticulate, (19-) 20.5-34 (-35) × (10-) 11-20 (-21) μm. *Teleomorph*: Ascocarps (Fig. 3) were scattered,

nearly black, circular in outline, (54-) 58-81 (-118) μm diameter, with dichotomously branched appendages. Asci (Fig. 4) were several per ascocarp, nearly sphaeroidal, 35 to 53×31 to $42 \mu\text{m}$, containing 3 to 6 ascospores. Ascospores were ellipsoid-ovoid, subhyaline to pale yellow, $(14\text{-}) 19\text{-}22$ ($\text{-}23.5$) \times $(12\text{-}) 13\text{-}16$ ($\text{-}21$) μm . A voucher specimen was deposited with the Mycological Herbarium at Washington State University (WSP number 70473).



Fig. 2. *Microsphaera platani* conidia displaying minutely reticulate cell walls, by Differential Interference Contrast microscopy.

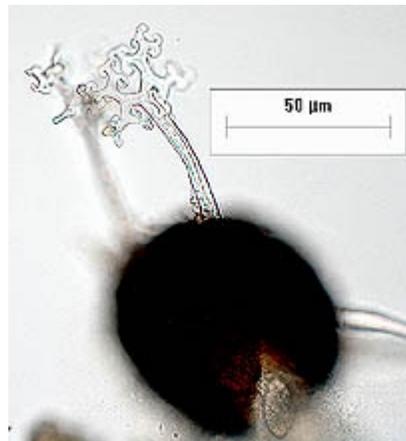


Fig. 3. *Microsphaera platani* ascocarp with dichotomously-branched appendages.

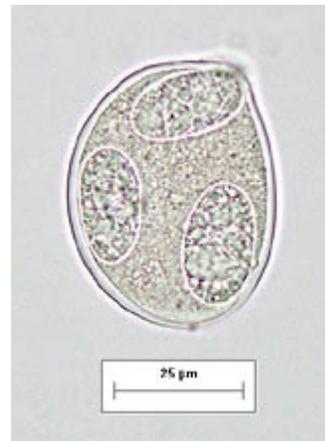


Fig. 4. *Microsphaera platani* ascus with ascospores.

Teleomorphic and anamorphic features of examined material fit previous descriptions (1, and references therein) of *M. platani*. Owing to recent taxonomic work on genus concepts for Erysiphales, Braun and Takamatsu (2) proposed transferring this fungus to the genus *Erysiphe* as *E. platani* (Howe) U. Braun and Takamatsu. Braun (1) described *M. platani* as a North American species frequently confused with *Microsphaera penicillata* (Wallr.: Fr.) Lév. Farr et al (3) listed *M. penicillata* from a wide range of genera of woody plants but did not include any US Pacific Northwest states in the host range. Although symptoms and signs of this disease are striking, only a few leaves on the observed trees were affected. No obvious decline or other serious damage to these trees was detected, which is consistent with the suggestion that the two organisms share a co-evolutionary history (1). Braun (1) regarded *M. platani* as restricted to *Platanus* and thus hosts in other genera likely are not involved in the disease cycle. Further research would be helpful in establishing the significance of *M. platani* as a pathogen of *Platanus*, and in determining the extent of its distribution and frequency of occurrence in the Pacific Northwest.

Literature Cited

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