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First Report of Powdery Mildew of *Tecoma capensis* Caused by *Erysiphe peruviana* in North America

Dean A. Glawe and **Tess Barlow**, Department of Plant Pathology, Washington State University, and College of Forest Resources, Box 352100, University of Washington, Seattle, WA 98195;
Michael E. Matheron, The University of Arizona, Yuma Agricultural Center, 6425 W. Eighth Street, Yuma, AZ 85364

Corresponding author: Dean A. Glawe. glawe@wsu.edu

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Tecoma capensis (Thunb.) Lindl. (Bignoniaceae, common name: Cape honeysuckle), native to southern Africa, is grown as an ornamental plant in warm regions of the USA. The powdery mildew reported previously from *T. capensis* in North America was an undetermined *Oidium* species in Florida (2). The present report documents the occurrence of the powdery mildew fungus *Erysiphe peruviana* (Syd.) U. Braun & S. Takam. on *T. capensis* in Arizona.

Powdery mildew was observed on a specimen plant growing in a private garden in Yuma, Yuma Co., AZ, in April of 2008 and 2009. The disease was apparent until about mid-May. Disease signs included effuse, whitish colonies on adaxial leaf surfaces (Fig. 1). Infections occurred on foliage receiving little or no direct sunlight, and no significant damage occurred. Infected leaflets and leaves eventually abscised. No new infections were observed after early May. The fungus formed ectophytic hyphae with lobed appressoria (Fig. 2); cylindrical conidiophore foot cells (Fig. 3) measuring (15.5-) 16-19(-20.5) $\times$ 5.5-7.5(-9.5) μm ; and ovoid to cylindrical conidia (Fig. 4) without fibrosin bodies, measuring (25-)26-37(-40.5) $\times$ (12-)13-16.5(-17.5) μm . The teleomorph was lacking. DNA was extracted and an ITS sequence was obtained as described previously (3). BLAST searches of the NCBI nucleotide database (www.ncbi.nlm.nih.gov) indicated that the sequences with highest similarity were from *Erysiphe pisi* (97% identity) and *E. diffusa* (96% identity). No sequences from *E. peruviana* were available for comparison. A voucher specimen was deposited with the Mycological Herbarium at Washington State University. The ITS sequence was deposited with NCBI.

Fig. 1. Signs of powdery mildew of *Tecoma capensis*.

Fig. 2. Appressorium formed by *Erysiphe peruviana* on *Tecoma capensis*. Scale bar = 10 μm .

Fig. 3. Conidiophore with conidium formed by *Erysiphe peruviana* on *Tecoma capensis*. Scale bar = 25 μ m.

Fig. 4. Conidia formed by *Erysiphe peruviana* on *Tecoma capensis*. Scale bar = 25 μ m.

The fungus was determined to be *Erysiphe peruviana* on the basis of anamorph morphology and host; the sequence of the ITS region provided information that helped exclude this fungus from other named species. Braun (1) reported two powdery mildews from *Tecoma* species, *E. peruviana* and *Ovulariopsis obclavata* Wakef. The present fungus formed ectophytic hyphae, lobed appressoria, and conidiophores with single conidia, all features characteristic of anamorphs of *Erysiphe* spp. (3) rather than the clavate to angular conidia characteristic of *Ovulariopsis* (1). Consistent with morphological information was the fact that the ITS sequence was most similar to those of *Erysiphe* species represented in GenBank rather than sequences from other genera of Erysiphales. Braun (1) included no information on the anamorph of *E. peruviana*. A later description (4) of the anamorph of *E. peruviana* was consistent with features we observed.

Braun (1) listed four other *Erysiphe* species on bignoniaceous hosts, two of which are represented in the NCBI nucleotide database. That from *E. catalpae* Simonyan exhibited 92% identity with the sequence we determined, while that from *E. elevata* (Burrill) U. Braun & S. Takam. exhibited 95% identity. In contrast, ITS sequences for *E. pisi*, *E. diffusa*, *E. betae*, and *E. cruciferarum* exhibited 96 to 97% identity to it.

Erysiphe peruviana was reported previously from South America (1,4). Further research would be useful to assess whether it could infect species other than *T. capensis* because species of Bignoniaceae native to North America could be at risk.

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