

First Report of Powdery Mildew of *Kalanchoe blossfeldiana* caused by *Sphaerotheca fuliginea* (*Podosphaera fuliginea*) in the Pacific Northwest

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Kalanchoe blossfeldiana Poelln. is a common ornamental houseplant. Although powdery mildew is a major disease of this species (3), there are no published reports of it in the Pacific Northwest.

In August, 2002, powdery mildew was observed on six indoor *K. blossfeldiana* plants in an office and adjacent laboratory at the Puyallup Research and Extension Center. The plants had been propagated from one plant, cultivar unknown. Symptoms and signs included sparse to dense fungal mycelium, chlorotic leaf tissue, and prematurely senescing leaves. Fungal mycelium was amphigenous, primarily on the adaxial leaf surface; colonies (Figs. 1, 2) were effuse to relatively dense, forming circular patches ranging from white to grayish-brown; appressoria were indistinct to nipple-shaped. Conidiophores were straight with cylindrical foot-cells. Conidia were in chains (Fig. 3), contained fibrosin bodies (Fig. 4), ranged from ellipsoid-ovoid to doliiform and (32-) 35-43 (-47) × (15-) 16-19 (-21) μm. The teleomorph was absent. A voucher specimen was deposited in the Mycological Herbarium at Washington State University (WSP 70308).



Fig. 1. Colony of *Sphaerotheca fuliginea* exhibiting sparse mycelium, on *Kalanchoe blossfeldiana*.



Fig. 2. Colonies of *Sphaerotheca fuliginea* exhibiting dense mycelium, on *Kalanchoe blossfeldiana*.

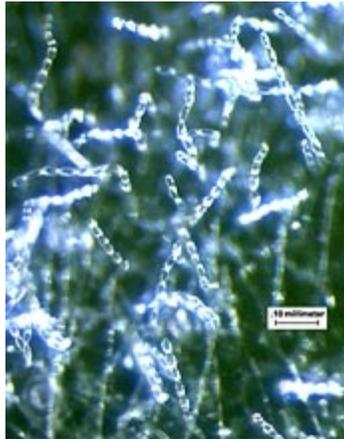


Fig. 3. Conidial chains formed by *Sphaerotheca fuliginea*.

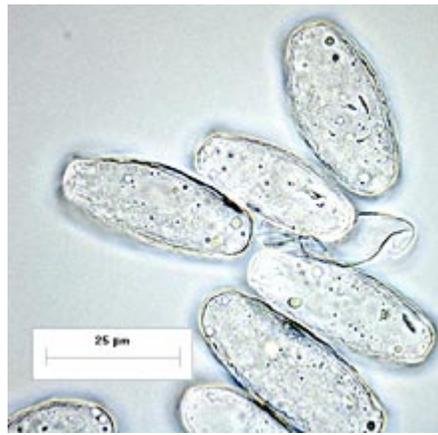


Fig. 4. Conidia of *Sphaerotheca fuliginea*, some exhibiting fibrosin bodies.

The taxonomy of Erysiphales on *K. blossfeldiana* is problematic although recent work demonstrated that powdery mildews can be identified reliably despite the absence of the teleomorph (2). Based on the described features, the fungus in this report is referred provisionally to *Sphaerotheca fuliginea* (Schlechtend.:Fr.) Pollacci. Use of this name maintains consistency with phytopathological literature in North America (3). A brief review of taxonomic issues regarding this fungus follows.

This fungus resembles *Erysiphe orontii* Cast. but is excluded from *Erysiphe* because of the presence of fibrosin bodies; it also differs from several other Erysiphales reported from Crassulaceae (1 and references therein). Other sources reported *Sphaerotheca fuliginea* (Schlechtend.:Fr.) Pollacci and/or *Sphaerotheca humuli* from *K. blossfeldiana* (3,4). Braun (2) relegated *Sphaerotheca humuli* (DC.) Burr. to synonymy with *S. macularis* (Wallr.:Fr.) Lind, viewed as occurring only on *Humulus*. Farr et al. (4) similarly relegated *S. humuli* to *S. macularis*, but listed for it 70 host genera (but not *Kalanchoe*) from a number of families. Farr et al. (4) included *S. humuli* (DC.) Burrill var. *fuliginea* (Schlechtend.:Fr.) E. S. Salmon as a synonym of *S. fuliginea* (Schlechtend.:Fr.) Pollacci. Braun (1) restricted *S. fuliginea* to species of *Veronica* and *Veronicastrum*, and regarded earlier concepts of this species as too broad. A further complication arises from the suggestion (2) that *Sphaerotheca* species be transferred to *Podosphaera*, in which case the name of the fungus in question would be *Podosphaera fuliginea* (Schlechtend.:Fr.) U. Braun & S. Takamatsu. If accepted by taxonomists, *P. fuliginea* could become the preferred name for this organism.

Diagnosticians should note that fibrosin bodies are best observed in fresh material (1). Studying old material lacking fibrosin bodies could lead to erroneous determinations of the causal agent of this disease.

The infected plants on which this report is based were diseased for more than two years. Although the mildewed leaves are unsightly, the plants tolerate the presence of the fungus. Both the plant host and the parasitic fungus appear well-suited to co-existing together in the indoor environment.

Literature Cited

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