# Bacterial Blight of Saintpaulia ionantha Caused by Erwinia chrysanthemi

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ABSTRACT

A severe blight of the crown, petioles, and leaves of *Saintpaulia ionantha* (African violet), was found to be caused by *Erwinia chrysanthemi*. The pathogen was isolated from diseased petioles and leaves. Inoculations of leaf cuttings with leaf and petiole isolates produced symptoms typical of the disease. *Erwinia chrysanthemi* was reisolated consistently from the inoculated cuttings. Phytopathology 64:1046-1047.

*Additional key words:* African violet, ornamental plants, flowering plants.

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A severe disease which limited the production of certain cultivars of the "Diana-type" African violet, *Saintpaulia ionantha* Wendl., was noted in a commercial greenhouse range in Florida during 1972. Infection of cuttings and potted plants was noted throughout the year, but was most severe during the warm months. Early symptoms usually appear as a brown-to-black root and crown rot. Although isolated leaf spots were noted, leaf infection usually occurred by progression of the rot through the petioles from infected crowns and roots. Infected petioles and leaves turned a greasy brown to black. Wilt and collapse of plants was common. Isolations from diseased plants of Englert's cultivar D108 revealed the presence of *Phytophthora nicotianae* var. *parasitica*, (Dast.) Waterh., which was then considered to be the only cause of the problem. Recently, *P. nicotianae* var. *parasitica* was reported in Germany (3) as an important pathogen of African violet. Both cultural and chemical measures taken to control *P. nicotianae* var. *parasitica* in this Florida commercial greenhouse operation decreased the problem, but did not eliminate it. Subsequent isolations from diseased plants rarely revealed the presence of *P. nicotianae* var. *parasitica*, but consistently yielded a bacterium. The bacterium produced a white colony, was gram-negative and had peritrichous flagella, which are characteristics of the genus *Erwinia*. Stem inoculations were made on *Chrysanthemum morifolium* (Ramat.) Hensl. 'Iceberg' using toothpicks soaked in bacterial suspensions. Production of typical bacterial blight symptoms (2) identified this organism as *E. chrysanthemi* Burkholder et al.

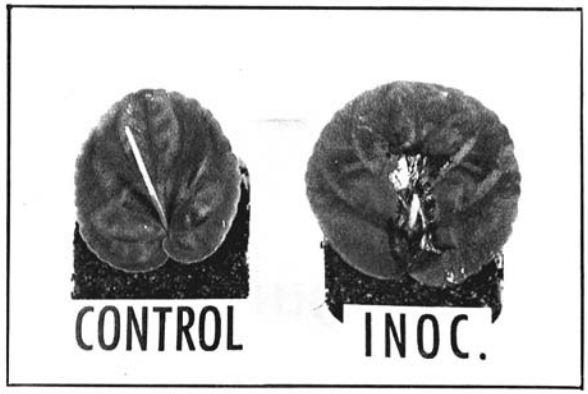


**Fig. 1.** Unrooted leaf cuttings 1 day after inoculation with toothpick infested with sterile yeast extract-dextrose broth (left) and with toothpick infested with 4-h-old yeast extract-dextrose broth culture of *Erwinia chrysanthemi* (right).

Eleven cultures of *E. chrysanthemi*, each isolated from either leaf or petiole tissue from a separate naturally-infected plant of cultivar D108, were tested for pathogenicity to unrooted leaf cuttings of D108. Four pots, each containing an unrooted cutting planted in a steam sterilized potting mix, were employed for each treatment. Inoculum for each isolate was prepared by transferring a loopful of a 24-h-old culture grown at 30 C on lima bean agar (Difco) to 10 ml of autoclaved yeast extract-dextrose broth (10 g each/liter) contained in a 25 × 95-mm shell vial. Five toothpicks previously boiled in distilled water, were included in each tube prior to autoclaving. The vials were placed on a reciprocating shaker at room temp (25 ± 1 C). After 4 h incubation, the cultures were turbid and ready for use.

Potted leaf cuttings were placed under intermittent mist (15 sec, every 15 min) for 2 h just prior to inoculation. Inoculation was affected by employing a flamed forceps and inserting the infested toothpick into the upper leaf surface and down into the petiole. Control pots were handled identically except the cuttings were stuck with toothpicks soaked in sterile yeast extract-dextrose broth. After inoculation, all leaf cuttings were submitted to intermittent mist (15 sec, every 15 min) for 12 h each day during the entire test period.

Symptoms were noted as early as 12 h after inoculation. The decay, which had a black, greasy appearance developed rapidly from the point of inoculation into the leaf laminae. Two days after inoculation, the petioles of all cuttings inoculated with all tested isolates of *E. chrysanthemi* were soft, brownish-black in color and separated easily from the laminae. The foliage of all inoculated cuttings were 50-75% rotted (Fig. 1), while the laminae and petioles of all control cuttings remained healthy. Twenty-two leaves (two/isolate tested), were selected for reisolation of *E. chrysanthemi*. Fifteen of 22 were positive for *E. chrysanthemi* employing the identification criteria stated above previously.

*Erwinia chrysanthemi* is an important pathogen of many ornamental crops (1). *Saintpaulia ionantha*, the florist's African violet, now must be added to the growing list of hosts for this destructive phytopathogen.

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