

ALTERNARIA BLIGHT OF POINSETTIA
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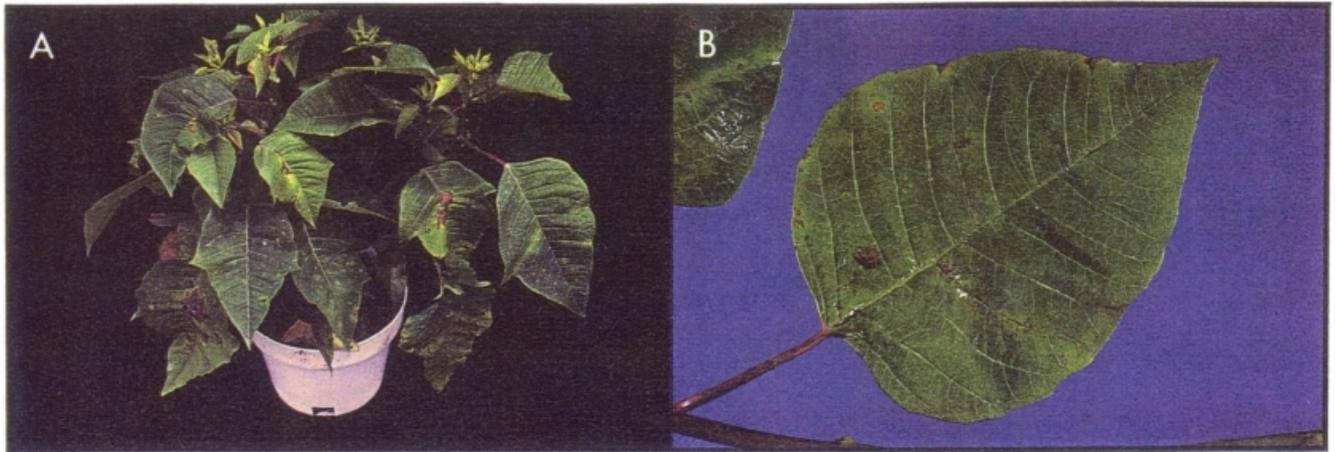


Fig. 1. A) V-14 'Glory' poinsettia with Alternaria blight. B) Early symptoms on leaf and petiole. 1-3 mm tan-centered spots with thin dark margins are surrounded by a chlorotic halo.



Fig. 2. A) Advanced symptoms of blight on leaf. Necrosis tracks down lateral veins and chlorosis becomes more intense and widespread. Such leaves often absciss. B) Blight-infected poinsettia branch showing symptoms ranging from leaf spots and blotches, leaf distortion and chlorosis, to petiole and stem infections. C) Close-up of stem infection of Alternaria blight. Dark brown elongate lesions display water-soaked perimeter.

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The poinsettia (Euphorbia pulcherrima Willd. ex Klotzsch) is a popular, short-day plant grown for its colorful bracts and marketed during late November through Christmas. Poinsettias are raised commercially in greenhouses and outdoors under saran in the southern parts of Florida. Landscape plantings of poinsettia are popular in central and southern Florida. Dozens of both standard and multi-flowering varieties are available which can be finished in many forms: trees, pixies, hanging baskets, planters, and traditional 6-8" pots. Rhizoctonia, Phytophthora, Pythium, Corynebacterium, Botrytis, and Sphaceloma are common and destructive pathogens on poinsettia in Florida, requiring constant vigilance in the cultural program to minimize losses. A new disease caused by Alternaria euphorbiicola Simmons and Engelhard (2), which causes symptoms on leaves, bracts, petioles, cyathia, and stems was observed inflicting commercial losses on poinsettia in Florida, first in 1984 and again in 1985. The disease known as Alternaria blight (1) causes a variety of symptoms, some of which might be confused with bacterial canker (Corynebacterium flaccumfaciens Hedges pv. poinsettiae Dye and Kemp) or scab (Sphaceloma poinsettiae Jenk. and Kuehl).

DISEASE DEVELOPMENT AND SYMPTOMS. Conidia of Alternaria euphorbiicola (Fig. 3) are air-borne and can survive dry periods to cause disease when moisture becomes available. Environmental conditions in outdoor production areas are more disease conducive than greenhouse conditions, presumably because of frequent prolonged leaf-wetting periods from evening through mid-morning of the following day.

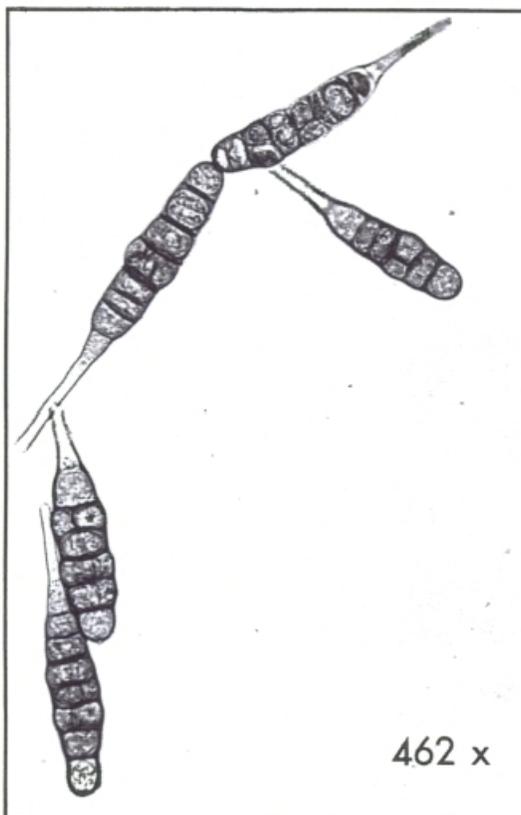


Fig. 3. Conidia of Alternaria euphorbiicola, the pathogen causing Alternaria blight of poinsettia. Spores are 35-60 x 10-20 plus an 8-12 long beak, with 3-8 transverse septa and 1-4 longitudinal septa in the widest central cells of the conidium (2). Spores are initially pale brown and smooth, but become grayish-brown and lumpy with age, with pronounced constrictions at septa. Sporulation is sparse on APDA, profuse on PCA, hay decoction, and 20% V-8 juice agar.

Leaf infections initially appear as 1-3 mm diameter spots with tan centers, dark, thin margins, and a chlorotic halo (Figs. 1A,B). As spots enlarge, they often track along lateral veins of the leaf. Spots enlarge to form irregular necrotic lesions, 25 mm across or larger. Leaves with several spots become chlorotic and absciss (Figs. 1A, 2A). Infected, developing leaves exhibit crinkling and general distortion (Fig. 2B). Certain leaf symptoms, such as distortion with unilateral stippled chlorosis and necrosis of large leaf areas on both apical and lower leaves, suggest possible involvement of toxins or disease metabolites in the disease syndrome.

Stem infections are characterized by sunken, light to dark brown lesions 1-2 mm in diameter, enlarging to 25 mm or longer (Fig. 2C). Infections near the apex can result in tip dieback. Leaves near a stem infection and leaves with petiole infections generally become chlorotic and absciss.

HOST RANGE. At present, only certain varieties of *Euphorbia pulcherrima* are known to be susceptible to *Alternaria euphorbiicola*, though a thorough investigation of host range has not yet been done. The Gutbier™ V-14 cultivars 'Glory', 'White', and 'Jingle Bells' and Eckespoint^R C-1 are very susceptible. Gutbier™ V-10 'Amy' appears intermediate in susceptibility and Annette Hegg™ cultivars 'Dark Red', 'Top White', 'Brilliant Diamond', and 'Hot Pink' are quite tolerant, with only small leaf spots forming on the tolerant cultivars. Other cultivated and native Euphorbiaceae may be susceptible.

CONTROL: *Alternaria* blight is extremely difficult to control on susceptible cultivars grown outdoors. Effective disease control requires informed cultivar selection, crop scouting, sanitation, proper cultural practices, and fungicide applications.

1) Cultivar selection: Choose tolerant cultivars (see Host Range Section) or consider using a mixture of cultivars to minimize potential losses.

2) Crop Scouting: Examine the crop twice weekly for early symptoms of *Alternaria* blight and more frequently if the disease is detected. Examine susceptible cultivars very closely, as this is where the disease would be expected to appear first.

3) Sanitation: Rogue diseased plants. Bag and discard the whole plant plus any fallen leaves and plant parts, as spores are produced on infected tissue. Light foliar infection might be cleaned up in younger plants, but moderate foliar and any stem infections should be considered severe handicaps in the disease control program because of inoculum production and dispersal. Plants with stem infections virtually never finish into a quality plant because of apparent toxin-induced symptoms.

4) Cultural Control: Avoid free water on leaf and stem surfaces, a difficult order outdoors, but certainly possible under cover or in greenhouses. If watering from overhead is unavoidable, time watering and space plants to permit quick drying. Do not take cuttings from diseased plants.

5) Fungicide Applications: Best control of *Alternaria* blight on outdoor-grown poinsettias was obtained with mancozeb, iprodione and chlorothalonil (1). Fungicide residues were less noticeable and coverage improved by the addition of a spreader-sticker adjuvant such as Aqua-Gro. Benomyl does not control *Alternaria* blight. However, the tank-mixed combination of benomyl with mancozeb controls not only *Alternaria* blight, but also scab, to which all poinsettia cultivars are susceptible.

A proprietary mixture of thiophanate-methyl and mancozeb should also control both diseases, *though* it has not been specifically tested. All fungicides mentioned herein are EPA-registered for use on poinsettia, but iprodione only as a soil drench (for *Rhizoctonia* control), and chlorothalonil only in smoke bomb formulation which is useless outdoors. Copper oxychloride is effective against *Alternaria* blight and is EPA-registered for use on poinsettia, but tends to be phytotoxic when used repeatedly, especially when used with an adjuvant. Fungicides should be applied as often as twice weekly when disease is present on susceptible cultivars grown outdoors. All above ground plant parts, especially leaves, must be *thoroughly* covered on both lower and upper surfaces to get disease control.

LITERATURE CITED.

1. ENGELHARD, A. W. 1985. Poinsettia leaf spot and blight, a destructive new disease. Fla. Ornamental Growers Assoc. Newsletter 8(4):1,3.
2. SIMMONS, E. G. 1986. *Alternaria* themes and variations. (14-16). Mycotaxon (in press).

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