

SCAB OF POINSETTIAS

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In July 1940, a handsome "double red" variety of poinsettia growing on an estate near Goulds, Florida, was found seriously infected by a fungous disease, which proved to be new to science upon subsequent study.

All of the many plants of the "double red" variety growing on the estate were infected, but specimens of a "white" variety and of the common single red poinsettia growing in close proximity to the infected plants were entirely free of the trouble. A partial survey of poinsettia plantings in Dade County showed that the disease was present in some gardens and absent in others on the "double red" variety. A mild case was observed on a strain of "single red" poinsettia in a Miami garden but generally the single flowered sorts have been free of the disease thus far.

Little is known of the presence or absence of the disease in other sections of Florida and the potential seriousness of the trouble is unknown at present. It is possible that many of the double red poinsettias now free of the disease are susceptible but have escaped infection because of lack of contact with the casual fungus.

The fungus was isolated and pathogenicity proved by inoculations and reisolutions from the lesions artificially induced. It was identified as belonging to the form genus *Sphaceloma*, thus establishing its close relationship to the fungi causing the well-known citrus scab and avocado scab disease in Florida. Diseased specimens were sent to Gainesville, Florida, and to the Office of Mycology and Disease Survey in Washington, D. C.

Since the trouble apparently was new, a brief description of the disease and its casual fungus was published in 1941 (1). Subsequent to the preparation of this manuscript but prior to its publication, Dr. Anna E. Jenkins of the Office of Mycology and Disease Survey identified a specimen sent to Washington by Dr. E. A. Bessey as identical with

the Florida disease (2). This specimen which was also of a double red flowered variety of poinsettia, was collected in Honolulu in November 1939. Thus the world range of the disease as known at present is southern Florida and Honolulu, T. H.

Symptoms

The symptoms of the disease are very striking and once observed can scarcely be confused with other diseases occurring on poinsettia. Conspicuous, raised cankers are present on the diseased stems (Figs. 1 and 2). They are circular or elongate with the longer diameter parallel to the axis of the stem, and range from about 1mm. to 1cm. or more in length. They frequently become confluent to cover irregular areas, sometimes completely encircling the stem. When this occurs it is usually accompanied by defoliation and more or less dying back above the girdled area, which often becomes quite swollen. The cankers are usually bright colored at first, often with reddish or reddish-purple borders, but later may become depressed at the centers and covered with a grayish to grayish-brown layer of spore-bearing structures and spores of the fungus.

The lesions on the leaves are smaller than those on the stems and are limited chiefly to petioles, midribs, veins, and margins (Fig. 3). Generally they are conspicuously raised, light buff to light brown in color, often with dark brown to purplish margins, and invariably cause some distortion of the leaf. On the leaf margins, they are more or less hemispherical, causing an inrolling of the leaf. Severely infected leaves drop prematurely, especially if the petioles become infected.

Causal fungus

During moist periods the fungus fruits abundantly on the surface of the stem cankers and leaf lesions. They are spread readily by air currents and splashing of water during rains. There is evidence that moist condi-

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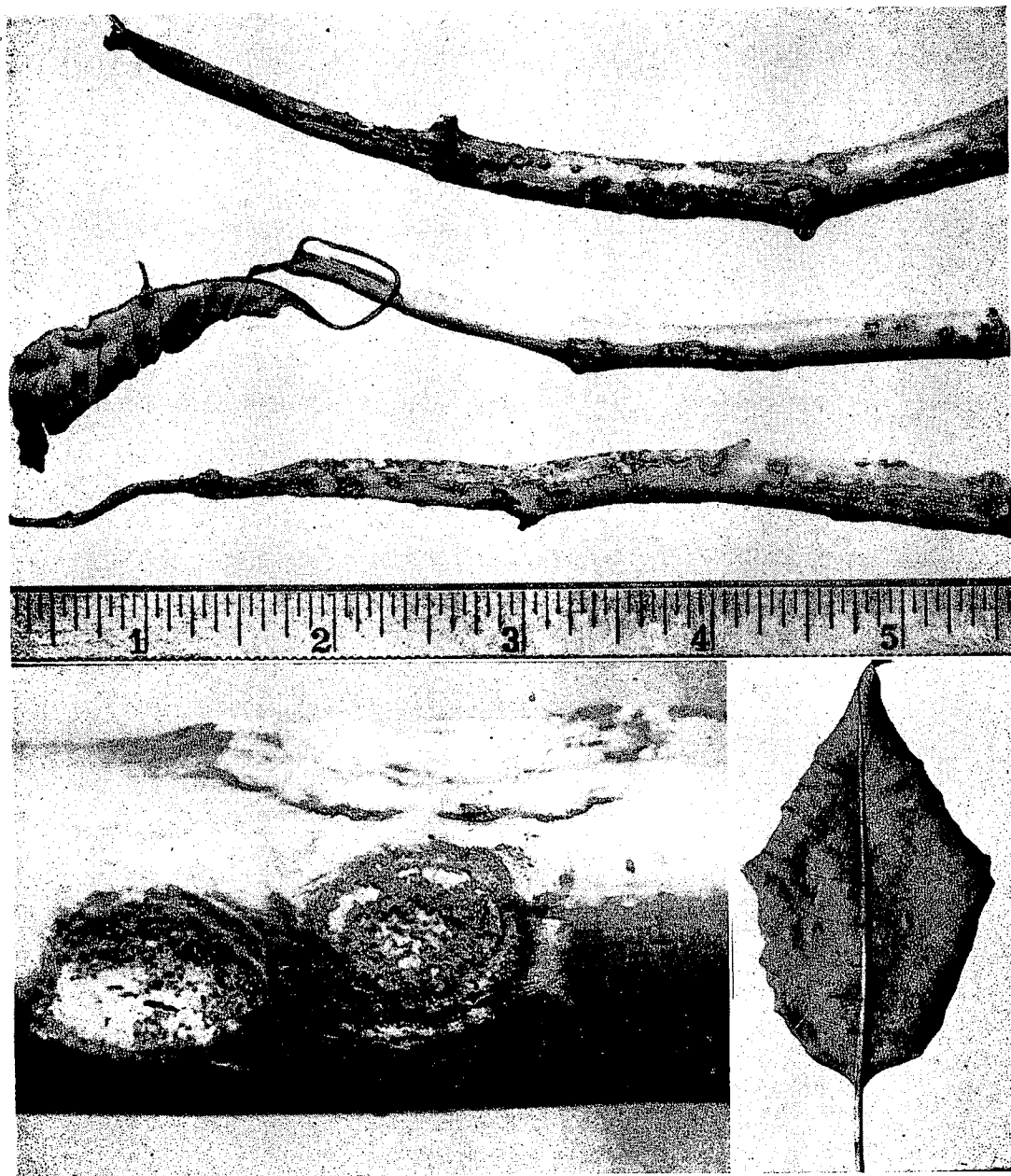


Fig. 1. (Top cut) Scab of poinsettias. Stem cankers.

Fig. 2. (Lower left) Scab of poinsettias. Stem cankers enlarged 7X.

Fig. 3. (Lower right) Scab of poinsettias. Leaf infections from artificial inoculations.

tions favor the spread of infection.

The fungus grows readily on common laboratory media, on which it has been compared with other available species of *Sphaceloma*. Because of its resemblance on culture media to *Sphaceloma fawcetti*, causing lemon scab, and to *S. ricini*, causing scab of castor bean, attempts were made to inoculate tender growth of seedlings of these hosts from pure cultures of the poinsettia fungus, but these attempts gave negative results.

From a taxonomic study of the poinsettia *Sphaceloma* made in Washington by Doctor Jenkins, it was concluded that the fungus is a distinct species. A technical description of the new fungus has been prepared and is in course of publication (3).

Control

Similar diseases such as citrus scab and avocado scab are readily controlled in Florida by the application of copper fungicides to the trees during periods when susceptible growth is present. Unfortunately for the grower who might wish to control scab by spraying, the poinsettia is constantly putting forth new growth which is susceptible to infection.

This method of control was tried on the highly susceptible "double red" variety on the estate where the disease was first observed in Florida. Several large beds of this variety were established on the grounds, and in one of these, the plants were cut back in April in the usual manner but no sprays were applied. In the others, the plants were cut back in April and applications of Cuprocide 1 1/2-100 were made at intervals of 3 to 4 weeks until a total of three sprayings were made.

The disease was kept fairly well under control in the sprayed beds as long as spraying was continued, but five weeks after the last spray was applied new growth at the tops of the plants began to show severe infection. It was concluded that the disease could be controlled by spraying with copper fungicides but that applications would need to be continued throughout most of the growing season, provided any diseased plants were in the immediate vicinity.

Fortunately, spraying does not appear to be the only method of control. At least one strain of double red poinsettia has been found which appears to possess a high degree of resistance to the disease. Young plants of this strain raised from cuttings have been growing in the slathouse at the Sub-Tropical Experiment Station for more than one year in close proximity to diseased plants without showing serious damage from the disease. Small leaf lesions have developed on this strain as the results of inoculations but stems and floral parts have shown no signs of infection. Work is being continued with this strain, which appears to have real possibilities as a source of replacements for the susceptible sorts.

Literature Cited

- (1) Ruehle, Geo. D. Poinsettia scab caused by *Sphaceloma*. *Phytopathology* 31: 947-948. 1941.
- (2) Jenkins, A. E. Poinsettia scab discovered in Honolulu. *Phytopathology* 32: 336-337. 1942.
- (3) Jenkins, A. E. and Geo. D. Ruehle. A new species of *Sphaceloma* on poinsettia. *Proc. Biological Soc. of Washington*: In press.