

**AN ANTHRACNOSE OF CELERY CAUSED BY
COLLETOTRICHUM ORBICULARE (BERK. &
MONT.) ARX**

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SUMMARY

An anthracnose disease of celery caused by *Colletotrichum orbiculare* is described. Glasshouse pathogenicity trials show that three varieties of celery grown in Australia—White Plume, Solid White and South Australian White—are susceptible to the disease.

I. INTRODUCTION

Since May 1959, sporadic outbreaks of a hitherto undescribed disease of celery have been recorded from south-eastern Queensland. Although the disease has occasionally been serious in individual farms, it has not so far caused general heavy losses in celery-growing areas of Queensland.

II. SYMPTOMS

The characteristic symptoms of the disease are black sunken lesions on the main petioles and leaflet petioles of the older leaves and on the young heart leaves (Figure 1). Where infection of the heart of the plant is severe, the upper petiole and entire lamina of the young leaves are affected. The leaflet petioles are often completely cinctured, resulting in death of the leaflet (Figure 2).

Internally the rot is dark brown in colour. It extends up to 3 mm into the tissue and for some 2 or 3 mm along the vascular strands beyond the external limits of the lesion.

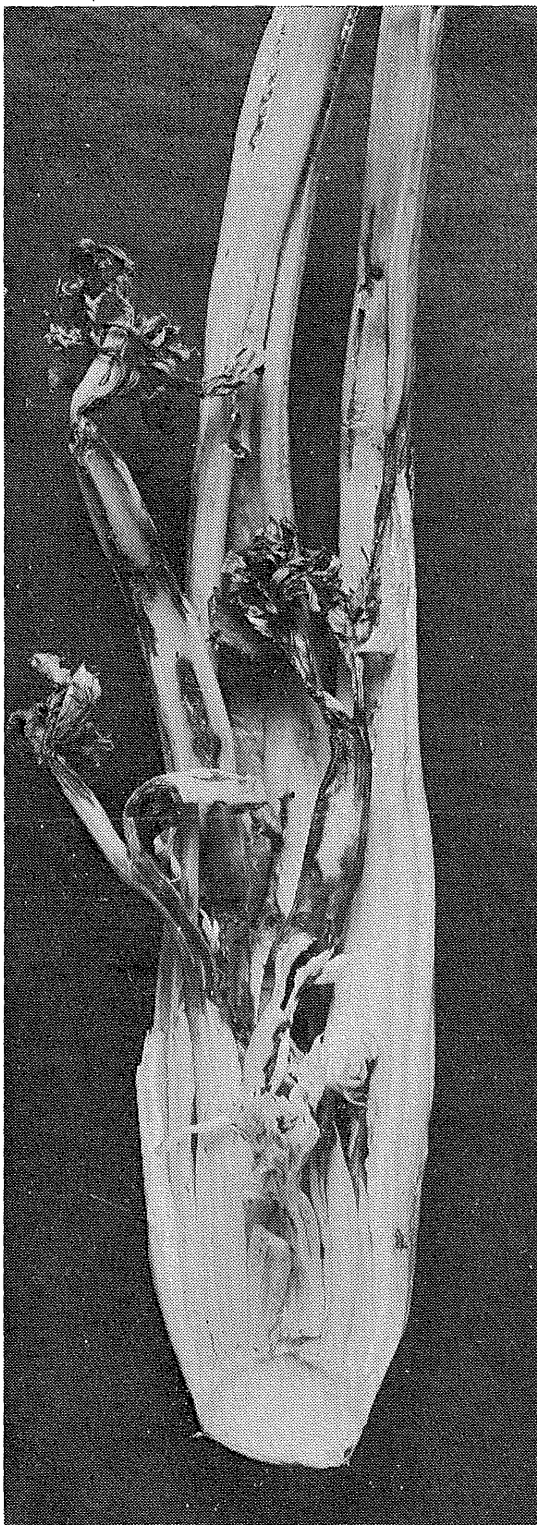


Figure 1.—General view of a celery plant showing severe infection with anthracnose.

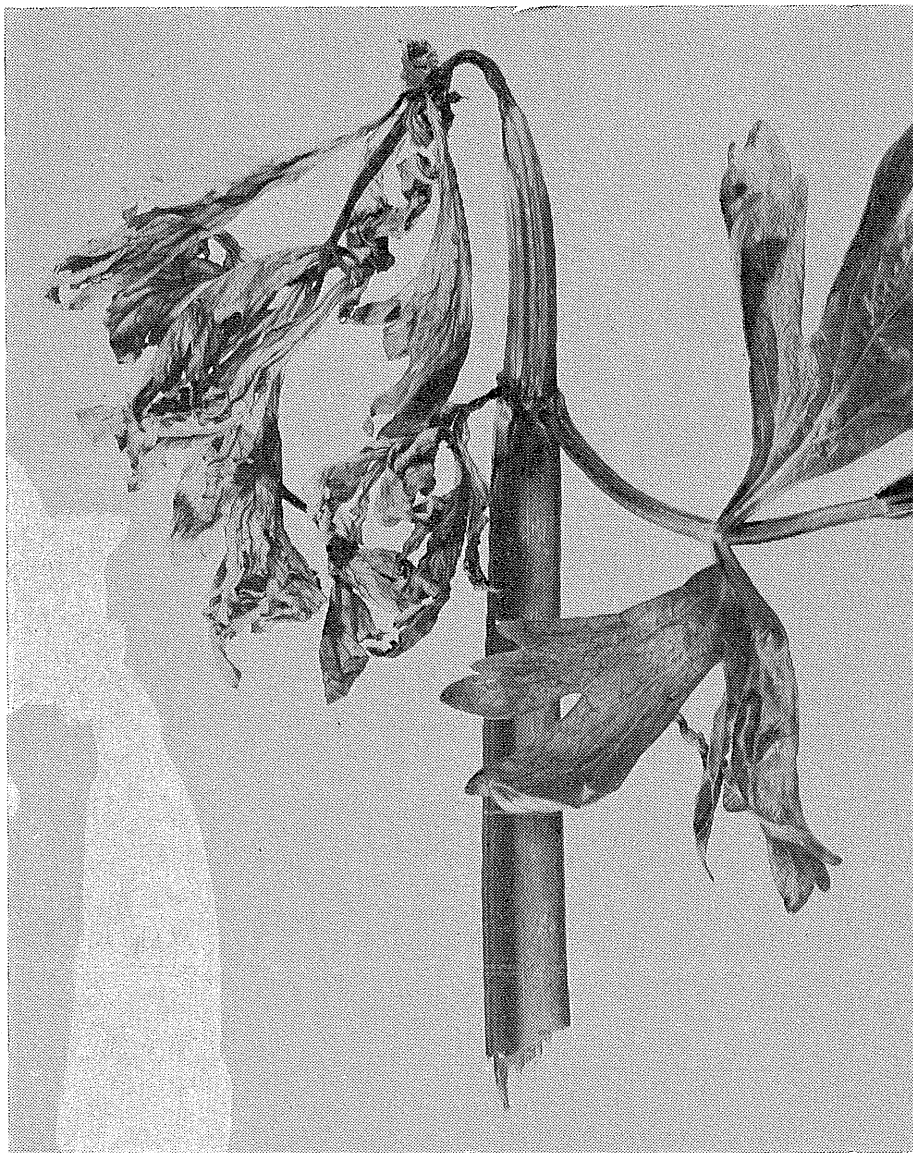


Figure 2.—Cincturing of leaflet petioles of celery and death of leaflets due to anthracnose.

Leaf spotting is rare in the field but was common on inoculated plants in glasshouse tests. This is first seen as a blackening of the veins in small areas, which subsequently develop into necrotic grey-brown angular spots.

Pink spore masses of the fungus are readily produced on the surface of lesions under damp conditions in the field and glasshouse and also on infected material maintained at high humidity in the laboratory.

III. PATHOGEN

Isolations from infected material consistently yielded cultures of a fungus which was identified by J. H. Simmonds as *Colletotrichum orbiculare* (Berk. & Mont.) Arx (Simmonds 1965). Spores taken from three natural sources of infection ranged from 9.5 to 14.2 μ in length and from 2.8 to 4.7 μ in breadth, with a mean size of 13.1 μ by 4.1 μ . The original isolates sporulated freely on potato dextrose agar but with successive subcultures the rate of spore production diminished until it became very difficult to obtain any spores at all.

IV. PATHOGENICITY TESTS

Glasshouse pathogenicity tests were carried out in January 1960, using three varieties of celery commonly grown in Australia. Seedlings of Solid White, White Plume and South Australian White varieties were raised in sterile soil in 7 in. earthenware pots. The seedlings were thinned to 3 per pot 5 weeks after sowing. Thirty pots of each variety were used.

Two isolates of *C. orbiculare* (Nos. 13608 and 13610) taken from celery were used as sources of inoculum. The inoculum was prepared from freely sporulating 7-day-old cultures of the fungus. Sterile tap water was added to P.D.A. cultures and after agitating the dishes for 2 min the spore suspension was poured off and the concentration of spores adjusted to approximately 40,000 per ml of suspension.

The plants were inoculated 6 weeks after they were thinned. Inoculation was carried out by spraying the spore suspension onto the plants, using a hand atomizer.

Ten pots of each variety of celery were inoculated with each of the two isolates. The remaining 10 pots of each variety were sprayed with sterile tap water as controls.

After inoculation, the plants were kept for 48 hr in a moist chamber made from 0.004 in. thick translucent polythene film. They were then returned to the glasshouse bench and examined for the presence of disease after a further 14 days. The results are shown in Table 1.

TABLE 1
NUMBERS OF CELERY PLANTS INFECTED BY *C. orbiculare* IN
GLASSHOUSE PATHOGENICITY TESTS 16 DAYS AFTER INOCULATION*

Variety	Isolate No.		Control
	13608	13610	
Solid White	15	18	0
White Plume	18	13	0
South Australian White	11	9	0

* 30 plants used in each comparison.

V. DISCUSSION

In the course of these studies infection by the fungus *Colletotrichum orbiculare* was shown to be the cause of a disease of celery in Queensland. All of the three varieties of celery tested against the disease proved susceptible. A search of the available literature reveals that the only previous description of anthracnose on celery was given by Cox (1957). However, in that case the symptoms of the disease were confined to the leaf lamina, taking the form of small reddish-brown spots surrounded by chlorotic areas. The falcate spored species of *Colletotrichum* involved there is apparently quite distinct from the organism found in Queensland.

REFERENCES

- COX, R. S. (1957).—Anthracnose, an undescribed disease of celery in the Everglades. *Pl. Dis. Reprtr* 41:790-3.
- SIMMONDS, J. H. (1965).—A study of the species of *Colletotrichum* causing ripe fruit rots in Queensland. *Qd J. Agric. Anim. Sci.* 22:437-59.

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