A BLIGHT OF CARROT LEAVES

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EARLY in October, 1939, a disease occurred in a bed of carrots, about 2 months old, in the writer's garden. At the time, the carrots were unusually fine and gave promise of an excellent crop. The disease spread rapidly through the bed and within three weeks it was impossible to find a single leaf unattacked; the great majority were dead. The petioles were yellow and drooping, and the leaflets brown and withered. So severe was the damage that it appeared advisable to uproot the whole bed. The roots were sound and there was no indication of injury or incipient decay.

A second bed about 20 feet away and planted at the same time remained healthy at first, but by the time the first bed was uprooted the second had become infected.

The first indication of the disease was the presence of small, brown spots on the lamina and at the edges of the leaflets of the older leaves (Figure 1). Surrounding the brown area usually is a yellow margin. The diseased areas rapidly increase in size until the whole leaflet is affected and dies. All leaflets are not attacked simultaneously; some leaves bear both healthy and diseased leaflets at the same time. Nor is the disease restricted to older leaves only (Figure 2). It spreads rapidly to all leaflets and to the petioles where it forms small, brown lesions. The older leaves wither first; the petioles become yellow and droop. Ultimately all leaves are affected and destroyed.

Associated with the disease was a species of *Macrosporium* with large brown clavate spores up to 12-septate, with 2 to 4 vertical walls, measuring 55–105 by 16–23 μ and having a long, tapering, hair-like appendage 118–175 by 1–2 μ.

A leaf disease of carrots caused by *Macrosporium carotae* has long been known in several states of the United States of America and South Australia. The spore measurements of *M. carotae* given by Saccardo are smaller than those from the Ceylon specimens, *viz.*, 55–70 by 12–14 μ with the "pedicel"

80–110 by 1·5–2 μ. Meier, Drechsler and Eddy (3), after examination of the type material as well as of fresh material collected in New Jersey and in Washington D.C., state that the spores may attain a length of 100 μ or more and a width of 30 μ and show from 9 to 11 transverse septa, with 2 or 3 longitudinal septa further dividing the transverse segments. They rightly point out that the " pedicel " of the original description is really an appendage or prolongation of the terminal cell of the spore. They state that the appendage may attain a length of 300 μ, bear 1 or 2 branches and have 1 to 10 septa although usually it is much shorter, without branches, and with but 3 or 4 septa. The amended description and figures given leave no doubt that the fungus from the Ceylon material is *Macrosporium carotae.*

In Massachusetts and Long Island (4) this disease is reported to cause severe damage and loss during exceptionally rainy summers. Doran and Guba (2) also record that abundant moisture is absolutely essential for the germination of the spores. The weather conditions during the later half of September and in October at St. Coombs* had been unusually wet, every day from 17th to 30th September being wet, and there were 25 wet days in October. In view of American experience, it is highly probable that these conditions strongly favoured the disease.

This is the first record of this disease in Ceylon and its origin is unknown, though the possibility of seed infection must not be overlooked. Thatcher (5) states that the spores of *M. carotae* are seedborne but Dolan and Guba (2) are of the opinion that the spores overwinter in the soil but are apparently not seedborne.

No control measures were attempted other than the removal of diseased plants in this instance, but a study of the literature indicates that this fungus is highly sensitive to the action of copper and that effective control can be obtained by the use of a copper fungicide such as Bordeaux mixture. In a field trial carried out in Ohio (1), a field planted late in April was sprayed with Bordeaux mixture (4–6–50) plus calcium caseinate (1 in 50) or June 15th when the plants were about 6 in. high, further applications being made at intervals of about 10 days on dates which happened to cover the period of heaviest summer rain. The field was harvested in September when it was found that spraying had increased the yield from 544 to 907 bushels per acre. The unsprayed plants were almost defoliated whereas the sprayed ones were tall, healthy, and green.

Spraying is not considered necessary against this disease in Ceylon except during very wet weather.

* Talawakelle, Ceylon: Elevation—4,200 feet above sea-level.

SUMMARY

A blight of carrot leaves caused by the fungus *Macrosporium carotae* is recorded for the first time in Ceylon.

Spraying is unnecessary except in very wet weather when Bordeaux mixture (4–6–50) should give effective control.

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