

# Red Leaf Spot of Sugarcane Caused by *Dimeriella sacchari* in Australia

C. C. RYAN and R. G. BIRCH, Bureau of Sugar Experiment Stations, Indooroopilly, Queensland, Australia

## ABSTRACT

RYAN, C. C., and R. G. BIRCH. 1980. Red leaf spot of sugarcane caused by *Dimeriella sacchari* in Australia. *Plant Disease* 64:501-502.

Red leaf spot incited by *Dimeriella sacchari* was found on sugarcane in the northern region of Queensland in 1978. The disease appears to be of little economic importance.

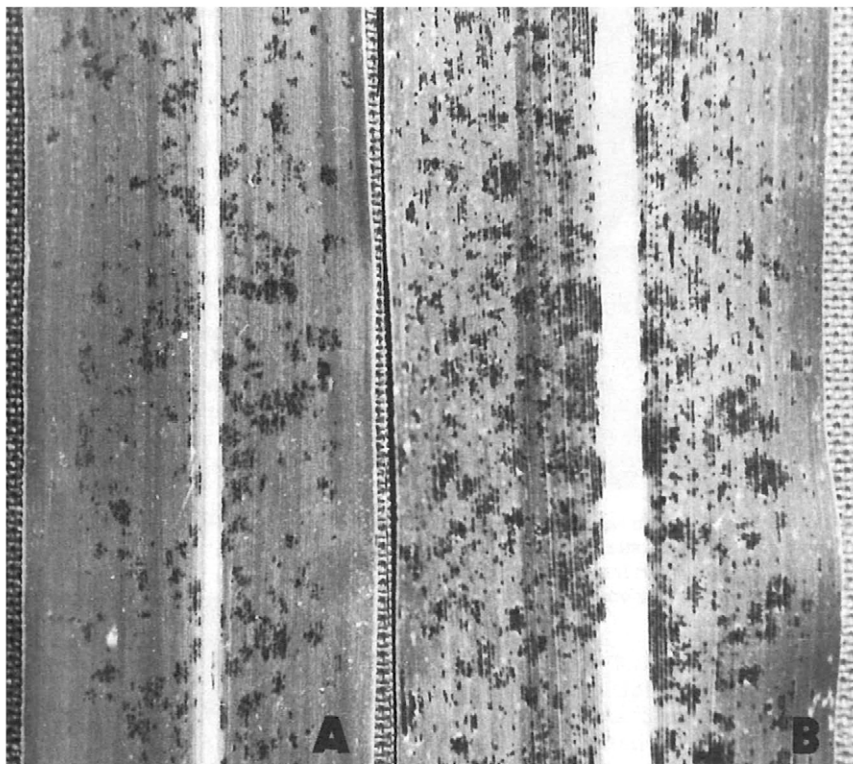


Fig. 1. Red leaf spot symptoms on sugarcane cultivars (A) Q78 and (B) N6.

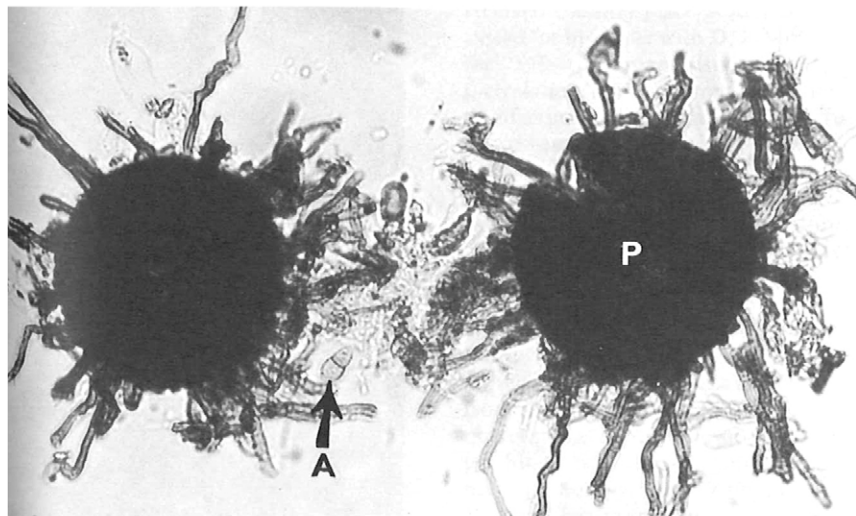


Fig. 2. Perithecium (P) and ascospore (A) of *Dimeriella sacchari*.

During inspections for rust disease in north Queensland late in 1978, unfamiliar leaf spotting was observed on several sugarcane cultivars. These spots first appeared as red dots, 0.5–1.0 mm in diameter, on the fifth or sixth fully expanded leaf from the top of the plant. These red dots generally developed on the upper leaf surface but were sometimes visible on both leaf surfaces. Symptoms on older leaves included isolated red dots up to 2 mm in diameter, irregular or filamentous clusters of dots, and confluent red patches 1 cm or more in diameter (Fig. 1). Leaf tips had the earliest and heaviest infection. Spots were darkest on older leaves that were exposed to the sun. When leaves had been twisted, exposing the undersurface of the leaf to the sun, lesions with a distinctly rhizoidal margin were often observed. This appearance was due to small red dots radiating in irregular lines from the patch at the center of the lesion.

Foliar spotting was observed on most of the sugarcane cultivars grown commercially in the area from Ingham to Mossman in north Queensland. The symptoms were also observed on several noble canes (*Saccharum officinarum*) in the region but not on the spontaneum canes (*S. spontaneum*). In the most severely affected cultivars, red leaf spots covered more than 20% of the area of the eighth fully expanded leaf and caused premature death of leaves. Only light infection developed on most cultivars.

Microscopic examination revealed globose perithecia on the leaf surface over the red lesions (Fig. 2). The fungus was isolated from superficial perithecia on to potato-dextrose agar (PDA). The fungal growth that developed on PDA was used to inoculate young plants of sugarcane cultivar NC0310. Plants were inoculated by rubbing the leaves with mycelium, were lightly sprayed with water, and were enclosed in plastic bags for 48 hr. Inoculated plants developed symptoms 10 days after inoculation.

Perithecia on infected leaves measured 39–72  $\mu\text{m}$  (mean 58  $\mu\text{m}$ ) in diameter. Ascospores were elongate to elliptic, uniseptate, and 12–18  $\times$  4.5–6.6  $\mu\text{m}$  (mean 15  $\times$  6  $\mu\text{m}$ ).

These features are consistent with the

description of the ascomycete fungus *Dimeriella sacchari* (B. de Haan) Hansford (1), which causes red leaf spot of sugarcane in Bangladesh, Cuba, Fiji, Indonesia, Nepal, the Philippines, Taiwan, Tanzania, and Trinidad (3). The disease has not previously been recorded in Australia.

The disease has been of minor economic importance in the countries where it occurs and apparently will not

constitute a serious threat to the Queensland sugar industry. The mode of entry of this pathogen into Australia is uncertain, although it may have entered at about the same time as sugarcane rust caused by *Puccinia melanocephala* H. and P. Syd. (2). The disease was not observed in north Queensland before 1972 even though cultivars that we now know to be susceptible were grown then (B. T. Egan, *personal communication*).

#### LITERATURE CITED

1. ABBOTT, E. V. 1964. Red leaf spot (purple leaf spot). Pages 43-44 in: C. G. Hughes, E. V. Abbott, and C. A. Wismer, eds. Sugar Cane Diseases of the World. Vol II. Elsevier Publishing Co., Amsterdam.
2. EGAN, B. T., and C. C. RYAN. 1979. Sugar cane rust, caused by *Puccinia melanocephala* found in Australia. Plant Dis. Rep. 63:822-823.
3. ISSCT STANDING COMMITTEE ON SUGAR CANE DISEASES. 1974-1977. Proc. Int. Soc. Sugar Cane Technol. XVI Congr. Brazil, 1977. pp. LXVI-C.