Research Note

OCCURRENCE OF SORGHUM AND JOHNSONGRASS DOWNY MILDEW IN PUERTO RICO[1]

Downy mildew, caused by *Sclerospora graminicola* (Sacc) Schroeter, a disease prevalent on *Setaria, Panicum, Zea, Pennisetum, Saccharum, Euchlaena, Sorghum*, Sudan and Johnsongrass in North America, Africa, Asia, and Europe[2] was discovered in Puerto Rico on October 10, 1978 on sorghum and Johnsongrass during a survey of surgarcane diseases in the Lajas area. Examination of affected leaf tissues revealed the presence of oospores and oogonia in the mesophyll.

The oospores are spherical, mostly 30 to 35.6 μ in diameter, with an average of 34 to 37 μ with yellowish wall, 0.4 to 5.2 μ thick, and finely granular contents rich in oil globules. The oogonia measure 37.5 to 49 μ with an average of 40 μ (fig. 1). Conidia are suborbicular and measure 15.2 to 29.5 $\mu \times$ 14 to 27.5 μ. The conidiophore has a well defined main axis of unequal rank growing out at irregular intervals. The sterigmata measure 8.1 to 8.4 μ. Based on the morphology of conidia and oogonia, the fungus was identified as *Sclerospora graminicola*. The identification was confirmed by Miss G. W. Waterhouse from the Commonwealth Mycological Institute (personal communication, Dr. Anthony Johnston, Director of the Commonwealth Mycological Institute, Kew, England).

The earliest disease symptoms are long narrow yellow streaks and patches (fig. 2) on the upper leaf surface and a fine white bloom on the lower surface (fig. 3) especially during periods of high humidity. These streaks and patches turn brown as a result of the large numbers of oospores produced in these tissues.

The economic importance of the disease will depend largely on the susceptibility of the local commercial varieties of sugarcane, corn, and sorghum and on the virulence of the prevailing races of the fungus. In Taiwan, epiphytotics of the downy mildew of sugarcane caused by *Sclerospora sacchari* occurred frequently simply because some of the P.T. varieties, such as PT 43-52, are highly susceptible. It caused severe damage to P.T. varieties in Taiwan and could seriously affect the sugar industry of other countries. In addition, it is also considered a threatening disease to corn as well as sorghum.

It appears that, to date, incidence of the downy mildew is restricted to sorghum and Johnsongrass in the Lajas area. Since the oospores of this

[1] Manuscript submitted to Editorial Board July 9, 1979.

[2] Tarr, S. A. J., 1962. Diseases of sorghum, sudan grass and broom corn, The Commonwealth Mycological Institute, Kew, Surrey, England.

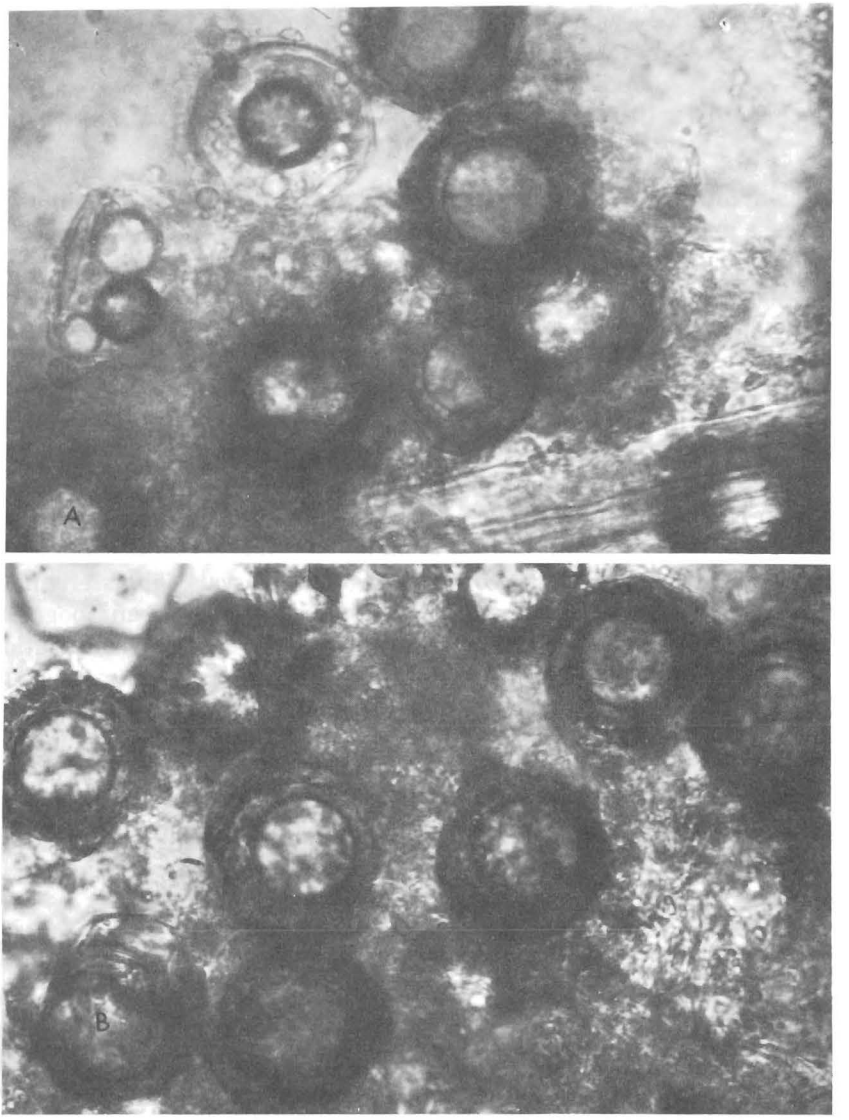

FIG. 1.—Oospores and oogonia of *Sclerospora graminicola* in the mesophyll of sorghum leaves: a) young leaves, b) mature leaves.

fungus are soil-borne and are able to remain viable in the soil for more than 5 years,[3] the following precautions to control further spread of the disease are suggested: 1) destruction of diseased plant residues to elimi-

[3] Chaudhuri, H., 1932. *Sclerospora graminicola* on bagra (*Pennisetum typhoideum*), Phytopathology 22: 241-6.

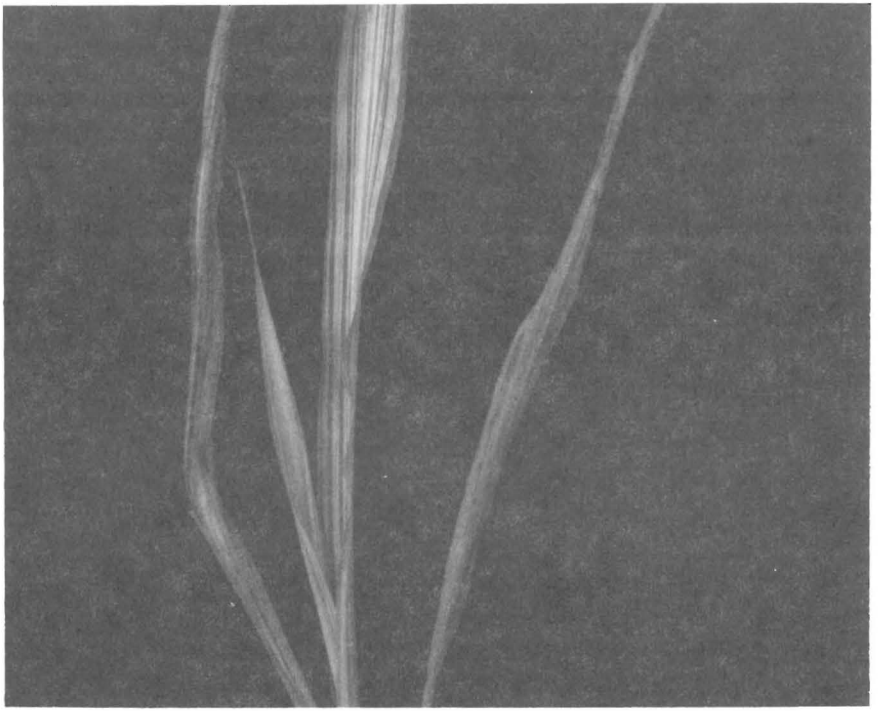

FIG. 2.—Symptoms of the downy mildew disease on the upper surface of sorghum leaves (note the presence of yellow streaks and patches).

FIG. 3.—Symptoms of the downy mildew disease on the lower surface of sorghum leaves (note the presence of a fine white bloom).

nate the principal sources of inoculum; 2) eradication of infected plants through roguing to prevent seasonal carryover by oospores in the soil; 3) crop rotation to avoid planting sorghum, corn, or sugarcane in the same affected fields for at least 5 years; 4) avoidance of high humidity which favors the disease development; and 5) prohibition of the use of seed materials from the affected fields for planting.

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