Detection of *Sclerospora graminicola* Mycelium in Infected Pearl Millet Leaves

S S Navi and S D Singh (Genetic Resources and Enhancement Program, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru 502 324, Andhra Pradesh, India)

To diagnose some diseased plants, particularly when symptom expression is doubtful, it becomes necessary to make internal observations of a suspected leaf for the presence or absence of mycelium. The routine method of staining mycelium using Clorox® (Clorox Company, Oakland, CA 94612, USA) containing 5.25% sodium hypochlorite is unsatisfactory, even though this method reveals the presence of downy mildew (DM) [*Sclerospora graminicola* (Sacc.) J. Schrot] oospores in infected pearl millet leaves. We describe a simple method that allows the easy detection of fungal mycelium inside an infected pearl millet leaf.

Pearl millet [*Pennisetum glaucum* (L.) R. Br.] leaves systemically infected with downy mildew were collected from DM-susceptible cultivar HB 3 during the 1995 rainy season at ICRISAT, Patancheru, India. Samples of young and old leaves were washed with a moist cotton swab to remove old spores and soil/plant debris. They were cut into 1-cm^{-2} pieces, and the pieces transferred to Carnoy's solution (Carnoy 1886) in 25 mL beakers to prevent water evaporation and autolysis. The beakers were sealed with thin parafilm and incubated at 25 ± 1°C in the laboratory for 6 h (young leaves) to 10 h (old leaves). The excess Cornoy's solution was then decanted and the pieces of leaf transferred to another beaker containing lactophenol. This beaker was sealed with aluminium foil and incubated at 60°C for 4 h in a hot-air oven (Gallenkamp). The samples were removed from the oven and allowed to cool at room temperature (25°C). Once cooled the pieces of leaf were transferred to beakers containing 1% cotton blue lactophenol and incubated at 60°C for 4 h, after this they were mounted in clear lactophenol, and observed under a microscope. The processed pieces of leaf showed dark blue stained coenocytic mycelium of *S. graminicola* present within their tissues (Figure 1).

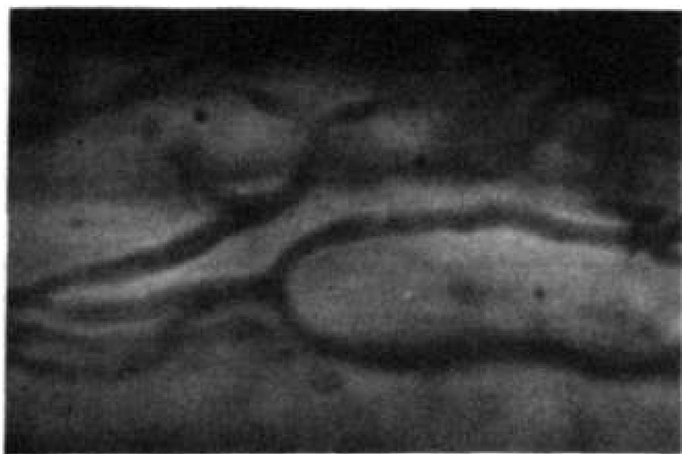

Figure 1. Dark blue stained coenocytic mycelium of *Sclerospora graminicola* inside tissues of pearl millet leaves (x 132).

Reference

Carnoy. 1886. La cytodierese de Loeuf chez quelques nematodes. Cellus 3: 5-62.

Identification of Nematode Resistance in Pearl Millet Grain Hybrids

A W Johnson, W W Hanna, and J P Wilson (United States Department of Agriculture, Agricultural Research Service (USDA-ARS), P O Box 748, Coastal Plain Experiment Station, Tifton, GA 31793, USA)

Introduction

Pearl millet [*Pennisetum glaucum* (L.) R. Br.] has potential as a drought-resistant grain crop in the United States. It can be used in rotations with other field crops and has a flexible sowing date from mid-April to the beginning of August in southern and southeastern USA. Earlier research on forage types showed differential responses of cultivars to various nematode species (Johnson and Burton 1977 and McGlohon et al. 1961). The objective of this research was to study the response of 14 pearl millet grain hybrids developed in our breeding program to *Meloidogyne incognita* (Kofoid and White) Chitwood and *Paratrichodorus minor* (Colbran) Siddiqi.

Materials and methods

Field plots of pearl millet hybrids resistant to rust (*Puccinia substriata* Ellis & Barth. var *indica* Ramachar & Cumm. syn. *Puccinia penniseti* Zimm). were established on a Tifton loamy sand in June 1998 and maintained through October 1998. The plots were naturally infested with *Meloidogyne incognita* and *Paratrichodorus minor.* The experiment was a split plot with pearl millet hybrid entries as whole plots and nematicide treatments as subplots. Treatments were replicated five times. Treated and