the mesophyll as well as in bundle sheath cells, which is a characteristic feature of C4 plants, was observed in both normal and mutant plants. The absence of a prominent keel and reduced sclerenchymatous tissue on both abaxial and adaxial sides of the large vascular bundle in the midribless mutant cause the leaf to droop.

22 September 1988; Revised 20 February 1989


NEW REPORT OF WILT DISEASE OF BRINJAL IN INDIA

V. K. MANDHARE, S. K. RUIKAR and B. K. KONDE
Department of Plant Pathology and Agricultural Microbiology, Mahatma Phule Agricultural University, Rahuri 413 722, India

During the regular disease survey at Mahatma Phule Agricultural University, Rahuri, and Ganeshkhind garden, Pune, an incidence of Fusarium wilt was noticed on brinjal (Solanum melongena L.) varietics Manjari Gota and Vaishali during 1984–85. The characteristic initial disease symptom under field conditions was sudden wilting of leaves of infected plants. Thereafter, loss of green colour of the foliage and, finally, browning were seen. The disease developed by infection of xylem vessels. The affected leaves showed vein clearing of young leaflets and epinasty of old leaves, followed by general yellowing and defoliation. The wilting started in the lower parts of the plants and spread upwards and was generally observed at flowering stage. Sometimes partial wilting was also observed (figure 1), and the plants wilted completely within 10–12 days. The affected plants showed stunted growth, and when the infected roots were split open, browning of vascular tissues was observed.

Steeketenbug first reported Fusarium wilt disease of brinjal caused by Fusarium oxysporum f. sp. melongena from the Netherlands. However, Laxminarayana and Reddy reported post-harvest disease of brinjal fruits caused by F. oxysporum Schl. from Warangal, India.

Potato, tomato, paseonpea, chickpea and coriander also appeared to be hosts of this organism.

In the present investigation, the causative organism was isolated in pure culture and was identified as Fusarium oxysporum f. sp. melongena. The pathogenicity of the fungus was proved by soil inoculation method. Typical wilt symptoms were observed 60 days after transplanting (figure 2), i.e. at flowering stage, and reisolated culture was used for carrying out further studies.

Figure 1. Brinjal, showing partial wilting caused by Fusarium.
PEROXIDASE AND POLYPHENOL OXIDASE ACTIVITIES IN SORGHUM AND PERONOSCLEROSPORA SORGHI INTERACTION

P. S. BHAVANISHANKARA GOWDA,
S. G. BHAT* and S. SHANKARA BHAT
Department of Post-graduate Studies and Research in Botany, University of Mysore, Manasagangotri,
Mysore 570 006, India
*Biochemistry Section, Department of Food Chemistry.
Central Food Technological Research Institute,
Mysore 570 013, India

PERONOSCLEROSPORA SORGHI (Weston & Uppal) C. G. Shaw, causes sorghum downy mildew (SDM), a major problem in sorghum [Sorghum bicolor (L.) Moench] production\textsuperscript{1,2,3}. Use of disease-resistant varieties is a promising method of disease control. Bhat et al.\textsuperscript{4} reported hypersensitive reaction of resistant sorghum lines to \textit{P. sorghi}. In many plant diseases, disease resistance is correlated with changes in certain oxidative enzymes such as peroxidase (PO) and polyphenol oxidase (PPO)\textsuperscript{5,6,7,8,9,10}. The present study was undertaken to investigate changes in the activities of these enzymes in sorghum and \textit{P. sorghi} interaction.

Sorghum lines DMS-652 (susceptible), and DMRS-I and QL-3 (resistant) were used. Seedlings were raised in 15 cm earthen pots (10 seedlings/pot) in a glasshouse. Ten-day-old seedlings were inoculated with \textit{P. sorghi} by spraying a 5 ml conidial suspension (80,000 conidia/ml) per pot. The inoculated seedlings were covered with polythene bags. Healthy and inoculated leaves were collected separately for enzyme assay at 15, 30 and 60 h after inoculation.

One gram of sorghum leaf tissue was ground into a fine paste with 1 g of acid-washed sand in a mortar at 4°C. Five ml of cold 0.1 M sodium phosphate buffer of pH 6.5 was used for extraction. The extract was centrifuged at 6,000 g for 15 min at 4°C and the supernatant was used as enzyme source.

PO and PPO activities were determined by the method of Malik and Singh\textsuperscript{11}. Protein content of the buffer extracts was determined according to Lowry et al.\textsuperscript{12}.

PO activity in healthy leaves of all the three sorghum lines tested was very low, ranging from 12 to 26 units/mg of protein, and did not alter significantly up to 60 h after inoculation (figure 1). Further, there is no difference in enzyme activity between resistant and susceptible lines. In contrast,