F. moniliforme, it was possible to consistently re-isolate these two pathogens. All the species of fungi tested are either producers of toxins, or are closely related to other species known to produce phytotoxins. For instance, *Cochliobolus myabaenus,* the causal agent of brown leaf spot on rice (*Oryza sativa*), produces a mycotoxin that retards seedling growth and causes root necrosis (Ou 1985). Production of mycotoxins by species of *Fusarium* has been well documented (Vesonder and Hesseltine 1981). *Curvularia lunata* also produces a phytotoxin (Stoessl 1981). The observed yellow discoloration of the leaves and stunting of the seedlings are indicative of toxin involvement.

References

Burgess, L.W., Dodman, R.L., Pont. W., and Mayers, P. 1981. Fusarium diseases of wheat, maize and grain sorghum in Eastern Australia. Pages 62-76 *in* Fusarium disease, biology, and taxonomy (Nelson, P.E., Tousson, T.A., and Cook, R.J., eds.), Pennsylvania, USA: Pennsylvania State University.

Mughogho. L.K., and Pande, S. 1984. Charcoal rot of sorghum; Pages 11-14 *in* Sorghum root and stalk rots; a critical review: proceedings of the Consultative Group. Discussion on Research Needs and Strategies for Control of Sorghum Root and Stalk Rot Diseases. Bellagio, Italy. 27. Nov-2 Dec 1983. Patancheru 502 324, Andhra Pradesh, India: International Crops Research Institute for the Semi-Arid Tropics.

Ou, S.H; 1985. Rice diseases, 2nd Edition. Kew, Surrey, England: CAB Commonwealth Mycological Institute.

Stoessl, A. 1981. Structures and biogenetic relations: fungal non-host specific toxins in plant disease. R.D. Durbin edition. New York, USA: Academic Press Inc., 109-219 pp.

Tarr, S.A.J. 1962. Diseases of sorghum, sudan grass, and broom corn. Kew, Surrey, UK: CAB Commonwealth Mycological Institute.

Tuite, J. 1969. Plant pathological methods. fungi and' bacteria. Minneapolis, Minnesota, USA: Burgess Publishing Company.

Vesonder, R.F., and Hesseltine, C.W. 1981. Metabolites of Fusarium. Pages 354-364 *in* Fusarium diseases, biology, and taxonomy (Nelson, P.E., Tousson, T.A., and Cook, R. I, eds.). Pennsylvania, USA: PennsylvaniaState university.

A Strain of *Colletotrichum gloeosporioides* Causing Anthracnose on Yellow Sorghum

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Anthracnose, *Colletotrichum sublineolum* (Henn., Kabat et. Bub.) (=C. *graminicola*(Ces.) Wils.), can cause considerable yield losses in sorghum (Harris and Fisher 1974, Mishra and Siradhana 1979, Thakur 1995). The authors observed a new pathogen causing anthracnose in yellow sorghum in India.

Anthracnose-infected leaves of a local landrace of yellow sorghum were collected from a field at Pudur, Kovai District, Coimbatore, Tamil Nadu, in India. The leaf samples showed two types of lesions; 1. small, elliptical, red spots, 3-5 x 1.0 mm, with a straw-colored center, and 2. large, elliptical, brown-red spots, 5 x 1.5 mm, with a straw-colored center (Fig. 1). The brown-red spots were different in size from those caused by *C. sublineolum.*

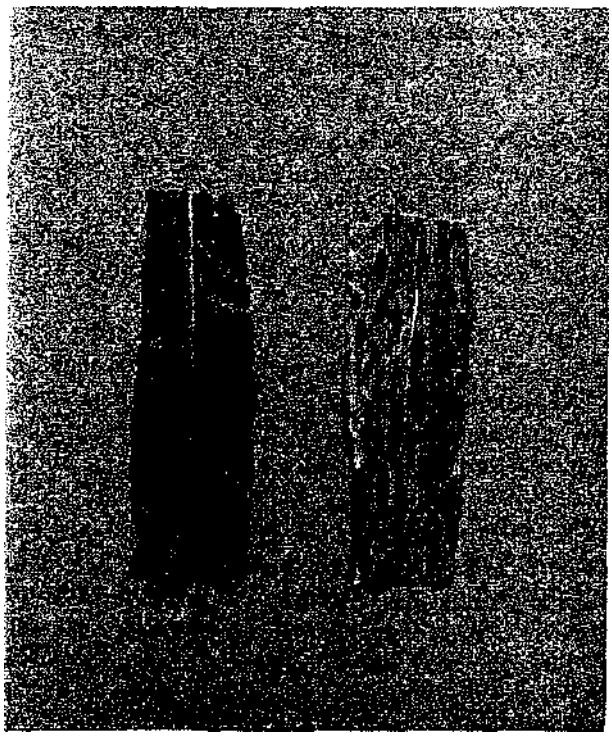

Figure 1. Anthracnose lesions on leaves of yellow sorghum. Left- lesions caused by *Colletotrichum gloeosporioides,* right- mixed symptoms by *C. gloeosporioides* (larger lesions) and *C. sublineolum* (smaller lesions).

Figure 2. Part of an acervulas showing setae and conidia (x1000) of *C. gloeosporioides.*

Figure 3. Asci and ascospores (x200) of *Glomerella cingulata.*

On isolation on oatmeal agar medium (OMA) at 25°C under continuous fluorescent light, the small lesions yielded cultures with profuse, grayish-white mycelial growth and setose acervuli bearing falcate, hyaline, aseptate conidia measuring 19-26 µm, typical of *C. sublineolum.*

The fungal culture from larger lesions had sparse, grayish-white, submerged mycelial growth and abundant sporulation in the form of setose acervuli bearing salmon-pink masses of conidia. The conidia were hyaline, aseptate, straight, obtuse at the apex (Fig. 2), measuring 11.2-14.9 x 3.7-4.8 µm. The culture also formed round, black perithecia, bearing asci and ascospores. The asci were 8-spored, sessile, unitunicate, thin walled, broadly cylindrical to slightly clavate, with rounded apex, and measured 34.7-47.1 x 5-12.4 urn Ascospores were one-celled, pale brown, biseriate in ascus (Fig. 3), ellipsoidal, slightly curved and inaequilateral. Koch's postulates were proved by testing the pathogenicity of conidia and ascospores on yellow sorghum plants. The culture (IMI 377977) was identified as *Colletotrichum gloeosporioides* (Penz.) Sacc, and its perfect stage as *Glomerella cingulata* (Stonem.) Spauld. and Schrenk. Subsequently, another culture was recovered from yellow sorghum grains collected from Maharashtra, India. Further studies are in progress.

References

Harris, H.B., and Fisher, C.D. 1974. Yield of grain sorghum in relation to anthracnose expression at different development stages of host. Plant Breeding Abstracts 44:2455.

Mishra, A., and Siradhana, B.S. 1979. Evaluation of losses due to anthracnose of sorghum. Indian Journal of Mycology and Plant Pathology 9:257.

Thakur, R.P. 1995. Status of international sorghum anthracnose and pearl millet downy mildew virulence nurseries. Pages 75-92 *in* Disease analysis through genetics and biotechnology—interdisciplinary bridges to improve sorghum and millet crops (Leslie, J.F., and Frederiksen, R.A., eds.). Ames, Iowa, USA: Iowa State University Press.