A NEW FUNGUS ASSOCIATED WITH BOLL ROT OF *ARBOREUM* COTTON

Y. R SHARMA and B. S. SANDHU
Department of Plant Breeding, Punjab Agricultural University, Ludhiana 141004, India

BOLL ROT, a complex disease, causes considerable losses in cotton yield during wet weather as fruiting phase coincides with the onset of monsoons in the Punjab. During 1983 and 1984 crop seasons, frequent rains caused considerable fungal boll rot in *desi* cotton (*Gossypium arboreum* L) in cotton growing areas. The samples of the diseased bolls were collected and isolations were made on PDA slants. Pathogen isolated from the rotted bolls developed pale-brown colonies. The mycelium of the fungus was septate, formed abundant chlamydospores either singly or in chains with both macro and micro-conidia. Macroconidia are sickle-shaped, 3–5 septate and 25–55 × 2.5–5.8 μ in diameter. On the basis of these morphological characters, the fungus was identified as *Fusarium equiseti* (Corda) Sacc. The identity of the fungus was also confirmed by CMI, England (IMI 284027).

The bolls of *desi* cotton varieties, LD 230 and G 27 were surface-disinfected and inoculated with the culture of *F. equiseti* to prove its pathogenicity. The inoculated bolls were placed in humid chambers at 28 ± 1°C. The bolls started rotting within 24 hr and the rot was complete in 7 days. Infection was first evident as necrotic lesions on the toothed margins of the bracts. The lesion then developed and invaded capsule to cause brown rot. In general, 10–15 day-old boll stage was observed to be highly susceptible to cause total destruction of the boll before its dehiscence. The incidence of boll rot caused by *F. equiseti* varied from 2 to 5%. The pathogen sporulated on the surface of the carpel and produced pink conidial mass (figure 1).

Boll rot is known to be caused by several micro-organisms[1–3]. However, there has been no report of *F. equiseti* to cause boll rot of cotton, so far.

The authors are grateful to Dr D. L. Hawksworth, Director, CMI, Kew, England for confirming the identity of the fungus.

26 December 1984; Revised 25 May 1985

Figure 1. Boll rot (*Fusarium equiseti*) of cotton.

1. Bagga, B. S., *Plant Dis. Reptr.*, 1967, **51**, 855.
2. Cauquil, J., In. *Cotton boll rot, laying out a trial of methods*, Amerind Pub. New Delhi, 1975, p. 143.
3. Watkin, G. H., *Am. Phyto. Soc. USA.*, 1981, 87.

2-*p*-METHOXY STYRYL 1,8-NAPHTHYRIDINE INDUCED MITOTIC SPINDLE IRREGULARITIES IN *NIGELLA SATIVA* L

T. MOGILI, B. DIGAMBER RAO, K. MOGILAIAH*, B. SREENIVASULU* and VIDYAVATI
*Department of Botany, * Department of Chemistry, Kakatiya University, Warangal 506 009, India.*

ALTHOUGH Nalidixic acid (1-ethyl-1, 3-carboxy-7-methyl-1, 8-naphthyridine-4-one) and its derivatives are studied for their antibacterial properties[1,2], there seems to be no adequate information of the newly derivated nalidixic acid *viz.* 2-*p*-methoxy styryl-1,8-naphthyridine (MSN) at the chromosomal level. Because of the large chromosome size, *Nigella sativa* ($2n = 12$), was used to evaluate the effect of MSN on mitotic chromosomes.

Actively growing seedlings of *Nigella sativa* were treated with 0.01, 0.02, 0.05 and 0.1% concentrations of MSN for 3 hr. Required concentrations were prepared in acetone as the compound did not dissolve in distilled water. Seedlings treated with acetone were used as control. After 3 hr the seedlings were taken out and washed thoroughly with distilled water. The root tips of the treated seedlings and the controls were fixed in 1 : 3 acetic alcohol. Cytological preparations were made using aceto-orcein. The cytological observations were recorded on 500 cells selected from ten different root tips of each concentration.

The data presented in table 1 show that the mitotic index is lower in treated roots compared to the control and it decreases with increasing concentration.

The spectrum of cellular responses included scattering of chromosomes (C-mitosis, figure 2) and the daughter chromatids held together only at the centromeric region and these are referred to as diplochromo-