



Figures 1–4. 1 Rust infected *E. pulcherimma* growing with pearl millet plants. 2. Abaxial side of *Euphorbia* leaf showing aecia in concentric rings. 3. Aeciospores collected from *Euphorbia* ($\times 450$). 4. Uredospores produced in pearl millet on inoculation with aeciospores collected from *Euphorbia* ($\times 450$).

CRAZY TOP DOWNY MILDEW OF MAIZE—A NEW RECORD IN PUNJAB

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CRAZY top downy mildew of maize caused by *Sclerophthora macrospora* (Sacc) Thirum, Shaw and

Naras was first reported by Cugini and Traverso¹ in Italy. However, the pathogenicity of the fungus was proved by Semeniuk and Mankin².

The disease was observed in a farmer's field in the district of Bhatinda, Punjab, during the winter of 1984–85 with an incidence of about 5%. The field was of even topography with clay-loam soil and high water holding capacity. The field has, generally, been under paddy-wheat rotation and is canal-irrigated.

The pathogenicity of the fungus was proved by

sowing seeds in pots containing infected plant-debris in sterilized soil. In addition, sporangial suspension was dropped in the whorl of the seedlings. High moisture regime was maintained in the pots by giving frequent irrigations. The plants were grown under controlled conditions at $25 \pm 2^\circ\text{C}$. About 75% of the seedlings, thus developed, showed shorter leathery leaves. In some cases the leaves crumpled together and plants showed multiple tillering. On maturity there were, in general, green islands and light chlorotic striping on the older leaves. The tassel showed partial to complete proliferation wherein the normal floral parts were replaced by leafy structures. The affected plants had poor vigour and very few of them bore ears. The fungus was constantly associated with the diseased plant parts. However, the production of sporangia was very scanty.

The pathogen was identified on the basis of its mycelial character, as observed by staining with zinc chloriodide, sporangial morphology, sporangiophore and oosporial characters. Leaves from infected plants showing green islands were surface-sterilized and incubated in sterilized petriplates with moist cotton swab at $25 \pm 1^\circ\text{C}$ for 10 days. The leaves showing white downy growth were studied microscopically for mycelial and sporangial characters. The infected leaf, stem and inflorescence tissues were stained with zinc chloriodide to observe the mycelium. The mycelium appeared purplish-blue in colour while the host tissue appeared light-coloured.

Pathogen: Mycelium is caenocytic and intercellular in nature. The sporangia are borne on sporangiophore emerging through the stomata. The sporangia are hyaline, lemon-shaped, operculate $60-95 \times 40-60 \mu$ in size. Sporangiophores are hyaline ($11.0-12.8 \mu$), hyphoid, simple and determinate in branching. The oospores were obtained late in the season and were confined to the vascular bundles of the infected leaf and leaf sheath. These are pale yellow in colour, varied from $45-70 \mu$ in diameter. The sporangia released bicilliate zoospores through the apical tip.

Singh *et al.*³ reported the occurrence of a similar disease in Uttar Pradesh. But Payak⁴ commented that there is a need of confirmation of the pathogen on the basis that the oospore of the pathogen, as described by Singh *et al.*³ resembled pollen grain of maize and the infection by *Sphacelotheca reiliana* (Künn) Clinton (causing head smut of maize) also results in similar phyllody of tassel. However, in the present study, these points have been given due consideration and thorough precautions were taken to ward off any possibilities of confusion with head smut. An absence of

teliospores of *S. reiliana* in the proliferated tassel tissues, presence of sporangia, and appearance of the typical symptoms conclusively proved the disease to be crazy top downy mildew. If the objection raised by Payak about the pathogen reported by Singh *et al.*³ is valid, the present report may be considered as the first report of occurrence of this disease in India.

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3. Singh, R. S., Nene, Y. L. and Consul, S. K. Labdev. *J. Sci. Tech.*, 1966, 4, 62.
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JAUNDICE IN CATTLE DUE TO FASCIOLA INFECTION

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HAEMOLYTIC jaundice is common in animals and may be caused due to several factors. However, obstructive jaundice is a rare occurrence in farm animals. Sometimes there are obstructions in the bile ducts by nematodes as well as by trematodes¹. During 1982-83, some cattle showed symptoms of jaundice and it was initially presumed that these were suffering from haemolytic jaundice. After 2 weeks of the symptom, these failed to survive. Later, the stool samples of the infected animals were examined and found to contain the eggs of *Fasciola gigantica* Cobbold, 1885. The treatment of these cattle showing symptoms of jaundice together with *F. gigantica* was made with hexachloroethane and the results of the treatment are presented in this communication.

Enquiries revealed that symptoms appeared 15 days before they were brought for treatment. Clinical examination showed that their body temperature ranged from $101.0-101.8^\circ\text{F}$, pulse rate from 50-60 per minute and respiration rate from 15-20 per minute. The conjunctiva of eye was ichteric. The skin of the dewlap, soft skin under the tail around the anus and