

The authors are thankful to the Director, C.M.I., Kew, England for help and to Fr. V. Dierckx s.f. of St. Stanislaus College, Sitagarh, Bihar for Latin diagnosis. AUP is thankful to the UGC, New Delhi for financial assistance.

14 September 1984; Revised 6 March 1985

1. Agarwal, D. K. and Sarbhoy, A. K., *Indian Phytopathol.*, 1979, 30, 637.
2. Bilgrami, K. S., Jamaluddin and Rizvi, M. A., *Fungi of India*, Vol. I. 1979. Today and Tomorrow's Printers and Publishers, New Delhi.
3. Saikia, U. N. and Sarbhoy, A. K., *Indian Phytopathol.*, 1980, 33, 637.
4. Mallaiah, K. V., Vijayalakshmi, M. and Rao, A. S., *Indian Phytopathol.*, 1981, 34, 247.

AN EAR AND KERNEL ROT OF MAIZE CAUSED BY *TRICHOHECIUM ROSEUM*

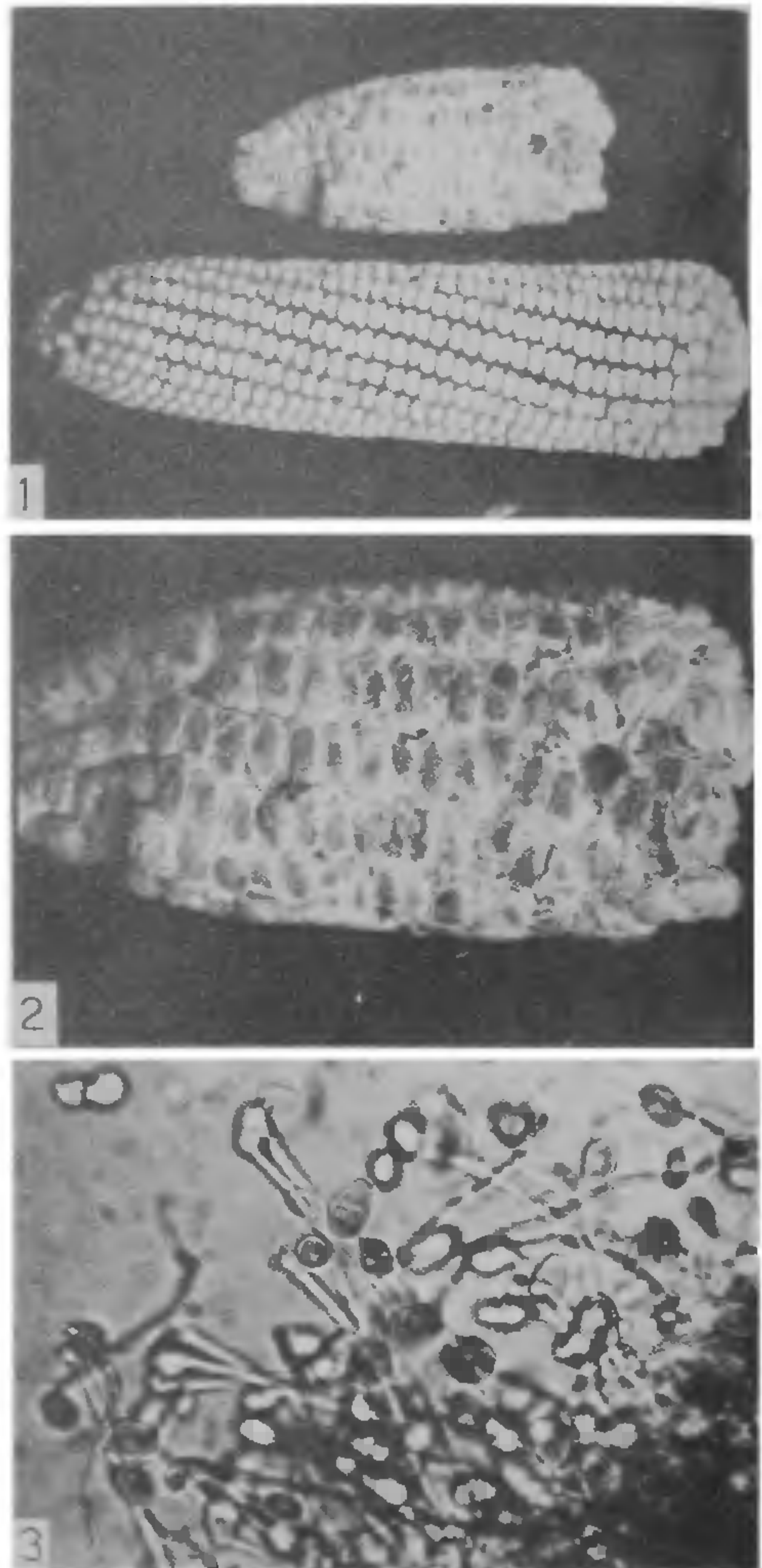
VASANTHA KUMAR and H. S. SHETTY

Department of Applied Botany, University of Mysore, Manasagangotri, Mysore 570 006, India.

AN ear and kernel rot of Dent corn (*Zea mays* L) have been observed during field survey of maize crop in Thimakapura village and Bylakuppa of Periyapatna Taluk of Mysore district (Karnataka) in the kharif seasons of 1983 and 1984 respectively. The disease was observed on hybrid Deccan-101 in Thimakapura and in Deccan at Bylakuppa grown in black soil. In both cases, 10% of the ears of these lots showed powdery spore mass and mycelial mat, covering the space between the kernels and in severely infected ones even the kernels (figures 1 and 2). The fungus was isolated on PDA and identified based on the colony characters and spore morphology¹.

Colonies pulvinate, spreading, velvety, large, white at first then slowly clear pink; hyphae creeping, septate, hyaline, branched; conidiophores erect, simple, non-septate or sparsely septate, hyaline, wider towards the apex, bearing terminal clusters of spores. Conidia acrogenous, two-celled, roughly ovate with a nipple-like projection at the point of attachment, (12) 18–20 × 8–10 μm formed in characteristic basipetal chains (figure 3).

Based on the above characters, it was identified as *Trichothecium roseum*. After shelling, the seeds ap-



Figures 1–3. 1. Severe ear rot caused by *T. roseum* (above), healthy ear (below). 2. Close-up view of the rotted ear showing powdery spore mass and mycelium spreading over and in between the kernels. Note discolouration of seeds. 3. Conidiophores and conidia of *T. roseum* (450 ×).

peared discoloured, very light in weight and they could be easily powdered. To determine the pathogenicity of the fungus, pure spore suspension (7×10^3 spores/ml) was inoculated on healthy ears of Deccan-101 hybrid

at milk stage using a hypodermic syringe. All the 25 inoculated ears were heavily infected and the fungus sporulated even on the husk leaves under humid conditions. The symptom was very much apparent after 20 days of inoculation in artificially inoculated ears and resembled that of naturally infected ones.

Although *Trichothecium* spp have been considered as saprophytes and common contaminant of seeds², *T. roseum* has often been isolated from maize seeds³. But, no report is available on its pathogenicity or about any disease caused by *T. roseum*. In our routine seed health testing, *T. roseum* has been recorded in many samples, collected from different parts of Karnataka, belonging to five different cultivars.

The fungus, being a facultative parasite, can overwinter as saprophyte and as a contaminant spread through seeds and become airborne easily. This fungus is becoming a common maize seed-borne pathogen and under favourable weather conditions, it can cause considerable damage to the ear and kernels. This is the first record of ear rot due to *T. roseum* in India and has particular significance as the disease is associated with hybrids which were examined in the area.

The authors thank Prof. K. M. Safeeulla for encouragement. VK acknowledges financial assistance from UGC, New Delhi.

27 February 1985

1. Subramanian, C. V., *Hyphomycetes*, ICAR, New Delhi, 1971.
2. Bhat, R. V. and Krishnamachari, K. A. V. R., *Indian J. Med. Res.*, 1977, **66**, 55.
3. Subbajah, P. V., Shetty, H. S. and Safeeulla, K. M., *Indian J. Microbiol.*, 1982, **22**, 57.

SUSCEPTIBILITY OF *SPILOSOMA OBLIQUA* WALKER TO *NOSEMA* SP

K. NARAYANAN

Division of Entomology/Nematology,
Indian Institute of Horticultural Research,
Hessaraghatta Lake Post, Bangalore 560 089, India.

SPILOSOMA (*Diacrisia*) *obliqua* Walker, commonly known as the Bihar hairy caterpillar, is an important polyphagous pest causing heavy damage to various crops. During field surveys on field beans *Lab-lab purpureus* (Linn) Sweet, at the Indian Institute of Horticultural Research, Hessaraghatta Farm,

Bangalore, a microsporidian was isolated from a few dead caterpillars of *S. obliqua*. The diseased caterpillars were shrunk and on tissue examination revealed numerous, mature binucleate spores of *Nosema* sp. Though fungal¹ and viral² pathogens have been reported earlier, occurrence of *Nosema* in *S. obliqua*, appears to be the first report from India. Further, the present communication deals with observations made on the symptomatology and gross pathology of *S. obliqua* to *Nosema*.

The original spores collected from the diseased larvae of *S. obliqua* were mass multiplied in the laboratory on its host. The spores were purified by differential centrifugation and the concentration of the stock suspension was determined with the help of haemocytometer. A test was conducted to determine its pathogenicity against all the six instars of *S. obliqua*, maintained on semi-synthetic diet³. Forty larvae of each instar were inoculated with a dose of 2×10^6 spores/0.1 ml/cup, by diet surface contamination technique. The larvae were reared in groups of five in the case of the first and the second instars and individually for the rest of the instars, on the *Nosema* contaminated diet. A similar number of the same larvae for each instar treated similarly without *Nosema* spores served as control. The dead larvae were diagnosed by microscopic examination of squashed preparation or tissue smears under phase-contrast microscope for the presence of *Nosema* spores. Observations were recorded on the symptoms, larval, pupal mortality and on their development. The data on the pupal development were statistically analysed using *t* test.

The symptoms of the *Nosema* infected *S. obliqua* generally resemble those described for other microsporidian infected lepidopterous larvae⁴. On examination, the laboratory diseased larvae of *S. obliqua*, showed typical sluggishness both in their movement and in their development, and they were also less responsive to external tactile stimuli. Infected larvae fed normally in the initial phases of the disease, but the appetite diminished gradually. The larvae completely stopped their feeding activity just one or two days before death. The infected larvae lived small and shrunk (figure 1), even after the control larvae had completed pupation and emerged as adults. Occasionally, some of the larvae which ingested *Nosema* sp pupated with reduction in their size and weight (figure 2) and gave rise to malformed adults with short and ruffled wings (figure 3). Both the meconium as well as the body smears of such adults showed the presence of large number of spores.