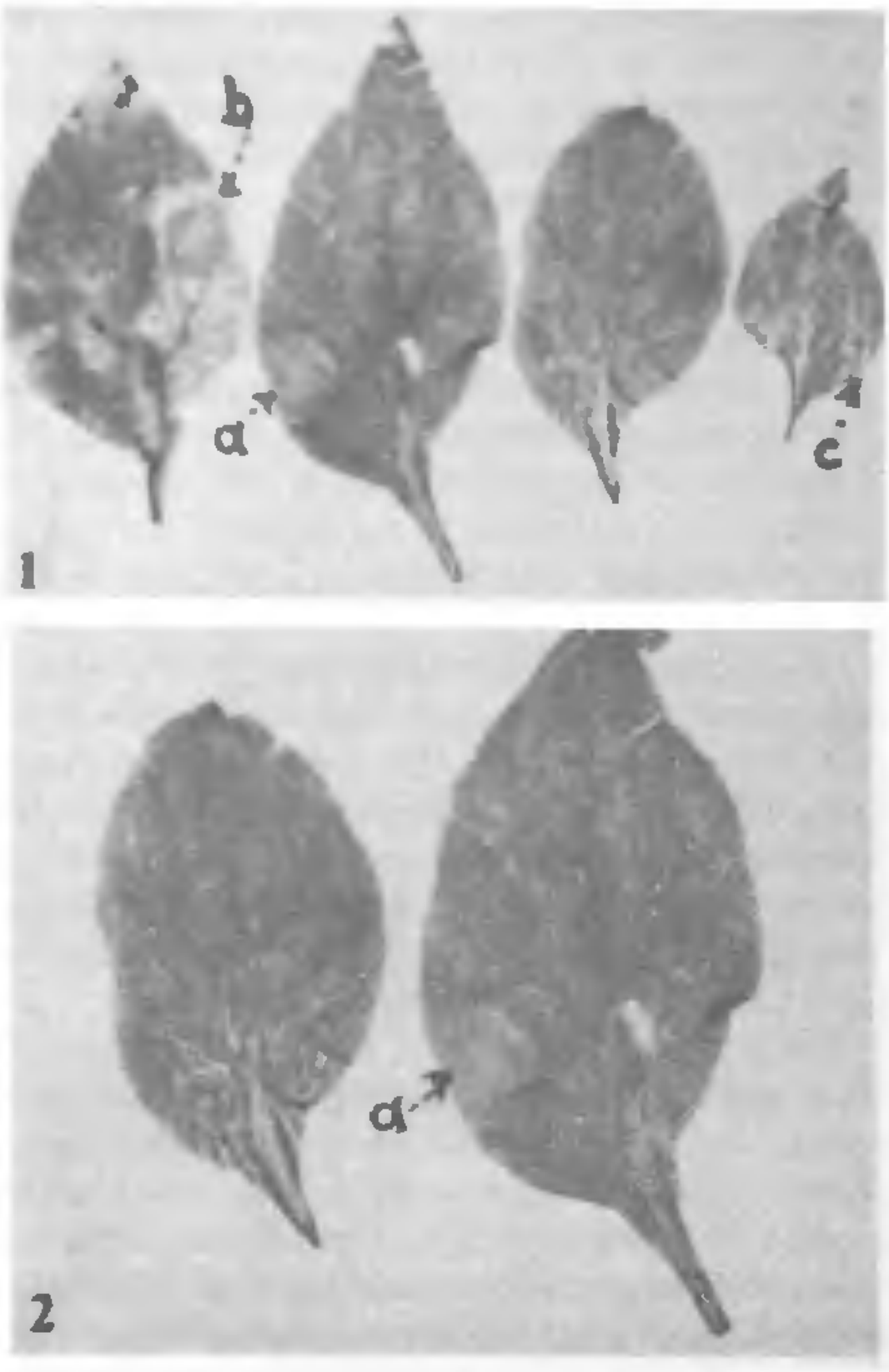

Figures 1 & 2. Symptoms of TSWV on the leaves of *Capsicum annuum* L cv California Wonder **1a.** Older leaf showing bright yellow concentric rings inside the spot. **b.** The bright yellow chlorotic rings became later necrotic. **c.** Chlorotic line patterns on young leaf. **2.** Enlarged central two leaves of figure 1.

in the farmers fields, although showed infection by TSWV, their reaction to the virus under artificial conditions is yet to be ascertained.

Therefore, based on the host reaction, physical properties and virus-vector relationships, the present virus isolate has been confirmed as a strain of TSWV in Karnataka. Its natural occurrence on new host *Capsicum* spp. has not been reported earlier in India.

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A NEW DOWNY MILDEW OF *HETEROPOGON CONTORTUS*-THREAT TO MAIZE CROP

M. SATISH CHANDRA PRABHU,
K. M. SAFEEULLA and H. S. SHETTY
Downy Mildew Research Laboratory,
Department of Applied Botany, University of Mysore,
Manasagangotri, Mysore 570006. India.

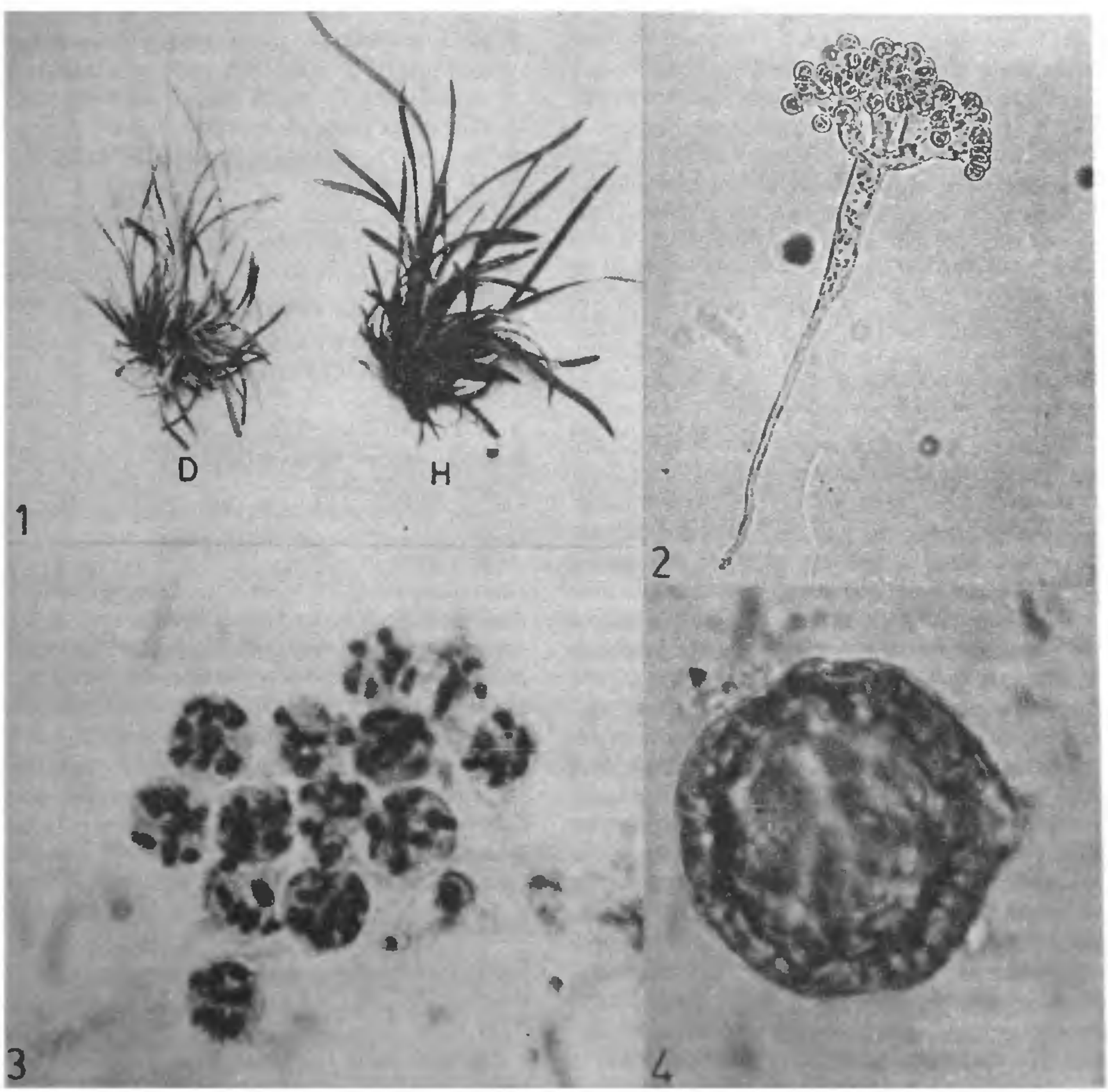
HETEROPOGON CONTORTUS (L.) Beauv. ex Roem. and Schult., a perennial grass, is found distributed in the plains and upper ghats of Peninsular India and is widely spread in almost all parts of Karnataka. Recently, a downy mildew has been observed on this grass at the Manasagangotri campus of the University of Mysore. The disease appeared in May, 1983, and spread to other plants until November, 1983. The Monsoon rains and congenial temperature promoted the spread of the pathogen.

The fungus produced both the asexual and sexual stages (figures 2, 4). The infected plants showed characteristic acicular leaves (figure 1) and in late

stages, heavily infected leaves exhibited shredding at the tips. Innumerable oospores were noticed in the internal tissue of the leaves. Many oospores were found embedded in the root tissue also.

The asexual spores measured 15.6–18.7 μm in dia and contained 6–12 nuclei in the conidia (figure 3) and germinated directly.

Cross inoculation studies were conducted to determine the host range of the pathogen. The conidial inoculum from the grass was whorl-inoculated to maize (Ganga-5 and CM-500) and sorghum (DMS-652 and IS-643) cultivars. Typical downy mildew symptoms were observed on both the varieties of maize, but not on sorghum. On maize, both conidia and oospores were produced abundantly. Morphological and biometrical studies revealed that the fungus was similar to the one from which the inoculum was collected.



Figures 1–4. 1. Health(H) and Downy mildew infected(D) plants of *Heteropogon contortus*. **2.** Conidiophore with conidia. (× 200) **3.** Conidia with nuclei. (× 450) **4.** Oospore (× 450).

When the conidial suspensions of *Peronosclerospora sorghi* (Ito) Shaw, collected from sorghum and maize plants of downy mildew nursery at Mysore, were sprayed on *Heteropogon*, infection was not noticed, indicating that the fungus prevalent on maize and sorghum is different.

Scanning electron microscopic studies revealed that the morphology of the oospore of the present pathogen is distinct from *P. sorghi* of Mysore.

In Mysore, *P. sorghi* is prevalent since several years both on sorghum and maize[1]. However, no downy mildew has been recorded on species of *Heteropogon* in Mysore. In Rajasthan, downy mildew has been reported in *Heteropogon contortus*[2] which has been named as *Peronosclerospora heteropogoni*[3]. The new fungus, however, differs from the Rajasthan downy mildew both in the morphological and cytological characters. The conidiophores of Rajasthan downy mildew are shorter than those of the present fungus and, in addition, the conidia are rounded. The conidia of *P. heteropogoni* contain 10–26 nuclei[3] whereas, in the present fungus the nuclei range from 6–12/conidium. In addition, the pathogen under study produced oospores in maize leaves unlike the Rajasthan variety which does not produce oospores in maize.

Maize, in Mysore, is mostly cultivated as a rainfed crop and downy mildew caused by *P. sorghi* is a great threat to maize cultivation. As many as ten downy mildews are already reported on maize from different countries[4]. Since the present pathogen infects and perpetuates on maize and produces oospores, it adds another potential threat to the crop. Since oospores were recorded in the root portion of the perennial grass, there is a possibility of their survival in the soil for next season. The grass is widely distributed and acts like inoculum source of the disease which adds a new dimension to the difficulties in controlling downy mildews on maize.

Shaw[5] has suggested erection of a new genus *Peronosclerospora* to which species of *Sclerospora* producing conidia which germinate by producing germ tube have been transferred. In view of the above fact, the new fungus can be included under the genus *Peronosclerospora*. This new pathogen differs from the known species of *Peronosclerospora* in conidial morphology, cytology and oospore morphology. The failure of *P. sorghi* of Mysore to cause infection in healthy *Heteropogon* plants is an additional support for this view. Detailed description of the fungus will be described in a subsequent paper.

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SOME TAXA OF *PLEUROTAENIUM* NAEGELI AND *STAURASTRUM* MEYEN NEW TO INDIAN FLORA

B. N. PRASAD and P. K. MISRA*
Botany Department, Lucknow University, Lucknow 226 007, India.
** Present Address: Birbal Sahni Institute of Palaeobotany, University Road, Lucknow 226 007, India.*

DURING a study of freshwater Chlorophyceae of Andaman and Nicobar Islands, four interesting taxa of desmids *viz* 1. *Pleurotaenium lagerheimii* Krieger, 2. *P. truncatum* (Bréb). Naeg var. *farquharsonii* (Roy *et* Biss). W. *et* G. S. West, 3. *Staurastrum bieneanum* Rabenh var *ellepticum* Wille forma Skuja and 4. *S. gracile* Ralfs var *coronulatum* Boldt were collected. These Placoderm desmids have so far not been recorded from India, and are described here in Indian Desmid flora.

Systematic Description

1. *Pleurotaenium lagerheimii* Krieger (figures 6, 7) Krieger[1], W. 1937, p. 421, pl. 45, fig. 7; Prescott[2], G. W. 1966, p. 10, pl. 12, fig. 3.

Cell large, about 10.5 times longer than broad with four prominent swellings, evenly broad upto slightly diverging and broadly truncate apices showing 26–28 tubercles (13–14 seen across the apex); cell wall minutely punctate.