and those of *R. lupini* 3001, *R. sp.* Cowpea U_8 and *R. japonicum* CC 409 are 5.42×10^9, 6.91×10^9 and 7.62×10^9 daltons respectively. In this method eventual presence of plasmid was measured as part of the total genome. However, being only a small percent of the total chromosomal DNA, it should not affect the data significantly. The size of *R. lupini* 3001 genome agrees with that of *Chromobacterium violaceum*[2], a related species (4.8×10^9 daltons). However, the genome sizes of *R. sp.* Cowpea U_8 and *R. japonicum* are greater. The genome size of *Pseudomonas aeruginosa*[2] has been reported to be 6.9×10^9 daltons which is in close proximity of the genome size of *R. sp.* Cowpea U_8, while the genome size of *R. japonicum* CC 409 is still larger. All the rhizobial strains studied here belong to the slow-growing group and have genome sizes much larger than those of *E.coli*.

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ACREMONIUM ZEYLANICUM — A NEW RECORD OF ENTOMOGENOUS FUNGUS FROM INDIA

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DURING the survey for entomogenous[1-4] fungi, an interesting fungus was recorded on *Aphis brassicae*. These aphids are known to be serious pests of brassicae crops and the Delhi climate is polluted with these aphids during December-January when the temperature range is 15–20° C. The infected aphids with swollen abdomen were picked up from the lower surface of brassica leaves and incubated on moist blotters at 18 ± 2° C for 4–6 days. The fungus growing on the swollen aphids produced long chains of conidia on incubation. Also on dissecting the swollen abdomen under stereobinocular microscope, it was found fullof moniliaceous mycelium. The small abdominal fragmants upon culturing on agar media yielded the pure growth of a species of *Acremonium*.

Literature survey[5-10] indicates that although *Acremonium* spp have been isolated from soil, leaf litter, compost and human mycetoma[8] etc, the presence of *A. zeylanicum* on *A. brassicae* has not been recorded from other countries and is being reported for the first time from India.

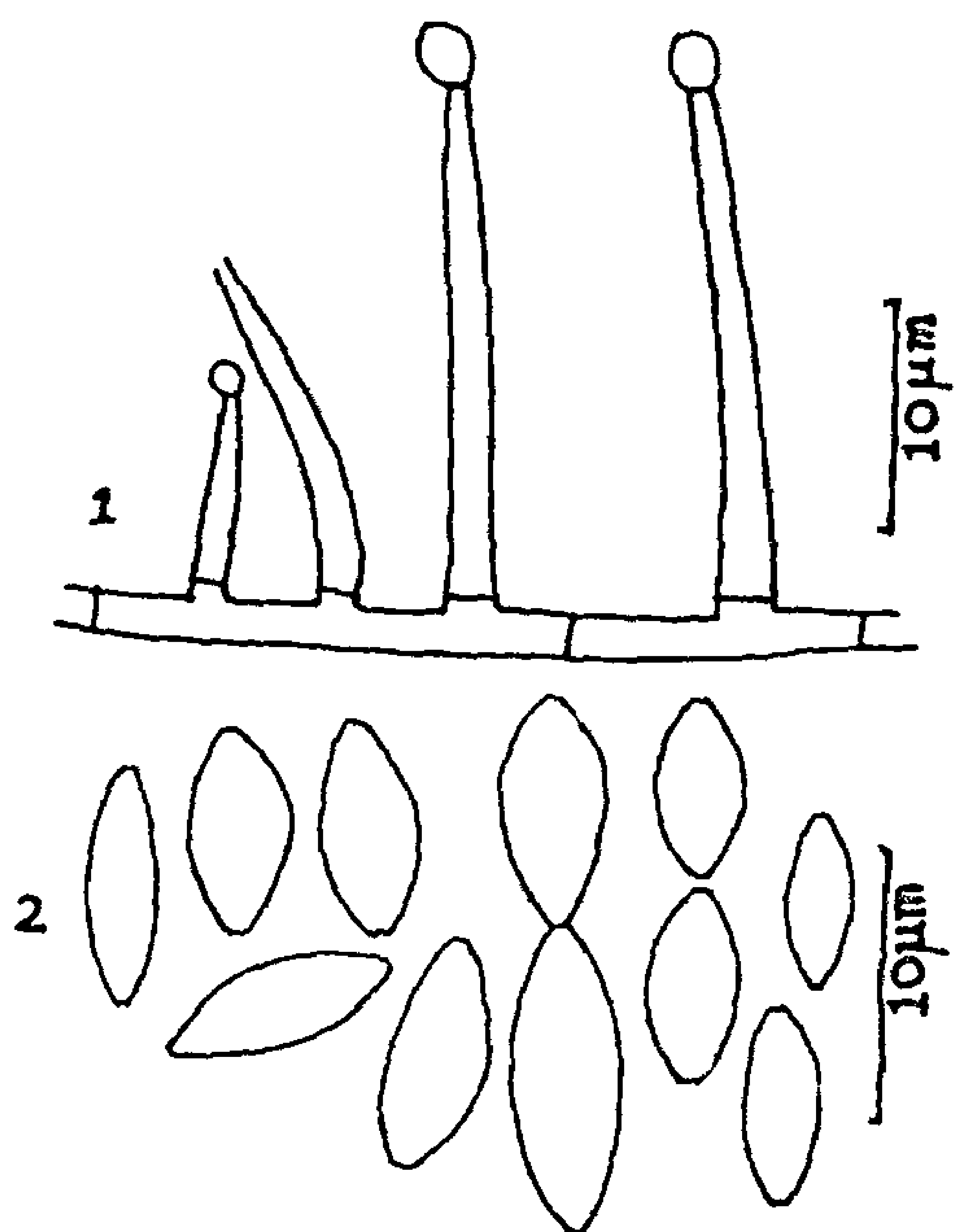
The culture of *Acremonium* has been identified as *A. zeylanicum* due to following morphological characters.

Acremonium zeylanicum (Petch.) W. Gams et Evans in *Trans. Brit. Mycol. Soc.* **64**, 393, 1975.

Colonies attaining 10 mm diam, in ten days at 20° C on PDA. No growth observed at 30° C. At first colonies were white, turning pale pink with age, reverse of the colony cream-coloured. Sporulation abundant. Phialides mostly simple, arising from aerial hyphae, 1–2 μm size, thin-walled, slender, smooth, hyaline, 7–25 μm long and tapering from 2–2.5 μm to 1 μm. Conidia cohering in long chains, narrow, oval, 3–6 × 1.25–2.5 μm in size, both ends acute and truncate. Chlamydospores absent (figure 1).

On *Aphis brassicae*, Dec., 1980, IARI field, New Delhi, J. L. Varshney, ITCC 3027.

The above isolate varies from the type description in having longer phialides and bigger conidia as well as its very long conidial chain and this isolate is a different strain of the above species. Initially[9] *A. zeylanicum* has been recorded on insect and spiders from



Figures 1 & 2. *Acremonium zeylanicum* **1.** Phialides, **2.** Conidia.

Ceylon in 1926 and is now known to be true entomogenous species.

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CYTOMIXIS IN *CISSUS DISCOLOR* BLUME.

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THE term cytomixis was first introduced by Gates[1] to the phenomenon of extrusion or passage of chromatin from one cell into the cytoplasm of an adjoining cell. Since then the phenomenon has been reported in many plant species[2,3]. However, its presence in hybrids is striking[4,5]. The present communication reports, for the first time, the occurrence and significance of cytomixis in *Cissus discolor* Blume (Vitaceae).

Young flower buds of *C. discolor* were fixed for 24 hr in 1:3 acetic alcohol and squashed in 1.5% acetocarmine solution. Pollen fertility was determined by stainability in acetocarmine solution.

Chromosome number in *C. discolor* was $2n=48$ (figure 1). Meiosis was normal, 24 bivalents were formed at M_1, these bivalents associated in groups ranging from 2-6 bivalents per group. Pollen fertility is 96.5%. Cytomixis was observed in pollen mother cells of all the anthers of all flower buds. Cytoplasmic interconnections were observed in 37.5% PMCs at diplotene and 1.85% PMCs at telophase II stages. At diplotene nucleoli of PMCs were found included in the neighbouring PMCs (figure 2). At telophase II chromosomes from PMCs were observed transferred to adjacent PMCs (figure 3). These chromosomes formed a separate group in recipient cells (figure 4). Both the donor and recipient cells degenerated later and did not form the pollen.

Different views have been put forth regarding the origin and significance of cytomixis[6-10]. In *C. discolor* the chromatin material including nucleolus was transferred from one cell to the other *via* connecting channels, suggesting spontaneous occurrence of this phenomenon. The absence of cytoplasmic connections before diplotene stage rules out the probability of the sticky chromosomal bridges at premeiotic anaphase for the observed cytomixis. Tarkowska[11,12] has shown the occurrence of cytomixis due to large pressure differences between neighbouring cells and sudden equalization of such unequal pressures brought about by uncoordinated growth rate of anther and floral envelop which he assumes to be due to hybridity and under genetic control. In Ononis, Morisset[13] observed a clear correlation between the intensity of cytomixis and the level of deformation in anther extremities. In the present material no deformity in anther extremities was noticed; however, the role of polyploidy or genetic causes cannot be ruled out as the