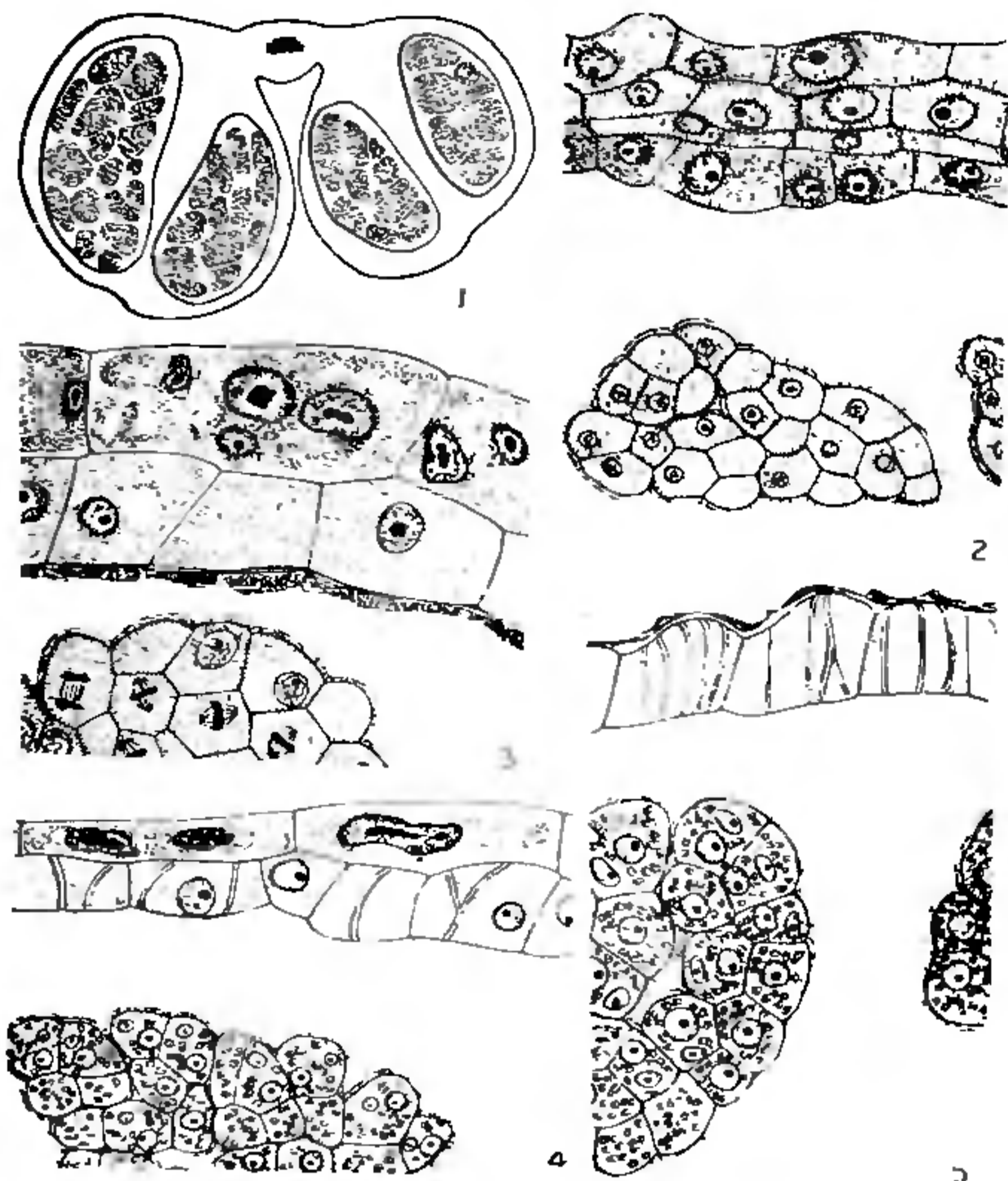


Such a behaviour of cells is invariably associated with a nutritional function, especially of anther tapetum, integumentary tapetum, and endosperm and suspensor haustoria. In view of the above, we tend to assign a nutritive role to the epidermis although this layer plays the role of protection at the early stages of anther development.



FIGS. 1-5. Fig. 1. Transverse section of a young anther, $\times 65$. Fig. 2. A portion of microsporangium enlarged showing wall layers, $\times 660$. Fig. 3. Same, at a later stage; note enlarged and multinucleate epidermal cells, $\times 660$. Fig. 4. Same, showing degenerating nuclei in epidermal cells; note band-like thickening in endothecium, $\times 660$. Fig. 5. Pollen shedding stage: Completely degenerated epidermis on the fibrous endothecium, $\times 660$.

A nutritional role to the microsporangial epidermis is not recorded even among gymnosperms and pteridophytes, although reports of its development into an exothecium in gymnosperms^{1,2} and the Zingiberaceae and the Orobanchaceae are available³. Cutinization and lignification of anther epidermis in some members of angiosperms is also on record⁴. There are, however, instances of subepidermal layers in *Najas flexilis*⁵ and the outer middle layer in *Ranunculus*⁶ functioning as tapetum. The present finding seems to extend this behaviour to the epidermis also.

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OCCURRENCE OF *THANATEPHORUS CUCUMERIS* AS A WEED FUNGUS ON MUSHROOM BEDS

THE paddy straw mushroom *Volvariella volvacea* (Bull. ex. Fr.) Sing. is cultivated in many parts of Kerala. At the College of Agriculture, Vellayani, Kerala, during September-October 1978, the mushroom yield was suddenly reduced considerably. It was observed that the paddy straw in the beds was almost completely covered by a whitish coating of a fungus growth within five days of laying the beds which overgrew the mycelium of *V. volvacea* (Fig. 1). On examination, the white growth was found to be the basidial state of a fungus. Ten days after the appearance of the white growth, abundant dark brown sclerotia were observed on the growth (Fig. 2).



FIG. 1. Whitish mycelial growth of the fungus on straw.

The organism was isolated on PDA. The hyphae are initially creamy white and turned to light brown

at maturity. Mycelium branched, septate and 5.36–10.71 μm (average 8.03 μm) wide. The sclerotia developed on the straw of mushroom beds were only microsclerotia, oval in shape and measuring 675–700 $\mu\text{m} \times$ 450–600 μm (average 687 \times 525 μm). When repeatedly subcultured, by the third generation, it produced macrosclerotia which were light to dark brown in colour measuring 0.90–1.00 mm \times 1.00–1.20 mm (average 0.95 mm \times 1.10 mm). The white crust of fungal growth observed on the surface of straw represented the basidial state of the organism. Basidia barrel-shaped, measuring 7.14–8.90 $\mu\text{m} \times$ 5.24–7.14 μm (average 8.02 $\mu\text{m} \times$ 6.19 μm); sterigmata, usually four; rarely two, long narrow and horn-shaped, tapering towards the tip and measure 3.54–7.14 μm (average 5.34 μm). Basidiospores hyaline, oval to pyriform, thin walled and measure 3.57–5.24 $\mu\text{m} \times$ 3.57–4.40 μm (average 4.40 $\mu\text{m} \times$ 4.01 μm).



FIG. 2. Sclerotia developed on the surface of the straw.

Typical symptoms of sheath blight disease were produced on rice seedlings within ten days of inoculation with the microsclerotia and basidial culture from paddy straw of mushroom beds. Soil inoculation of these cultures on cowpea caused collar rot symptoms within seven days of inoculation.

The morphological characters of the isolate from the mushroom beds resemble those of *Rhizoctonia microsclerotia* (Matz) Weber, first described by Matz². *R. microsclerotia* is known to be associated with stubbles of rice in different parts of India³. This organism has been reported earlier from Kerala causing collar rot and web blight of cowpea by Lakshmanan *et al.*¹ They have also established its pathological and genetical relationship with those of *R. solani* isolated from rice causing sheath blight disease. *R. microsclerotia* and its perfect state, formerly described as *Corticium microsclerotia* by Weber² are considered as synonyms of *R. solani* Kühn and *Thanatephorus cucumeris* (Frank) Donk by Parmeter and Whitney⁴ and Talbot⁵ respectively. The natural occurrence of *T. cucumeris* on paddy straw is observed

for the first time in India and this points out the potential danger of paddy straw as the carrier of the organism serving as a primary source of inoculum for both sheath blight of rice and collar rot and web blight of cowpea. Moreover, use of straw collected from sheath blight-infected paddy crop for the cultivation of *V. volvacea* results in poor yield of this mushroom also.

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ON A XANTHOPHYCEAN ALGA NEW TO INDIA

LITTLE information is available on the algal flora of Andaman and Nicobar Islands and the notable works on this area are given in reference No. 1.

While investigating the fresh-water forms of Andaman Islands, the authors came across *Tribonema aequale* Pascher², a Xanthophyceean alga which constitutes a new record for the Indian flora. The genus *Tribonema* Derbes *et* Solier in India includes only two species, namely, *T. vulgare* Pascher and *T. ulotrichoides* forma Prasad and Mehrotra³⁻⁶.

Tribonema aequale Pascher was collected from two different places, Bedanabad and Pahargaon near Port Blair (Andaman Islands). So far, species of the genus *Tribonema* Derbes *et* Solier are known to occur in India only in cold and running waters of high altitudes^{3,5}. However, the plants of this genus in the present study were collected from warm waters (temp. 27–5°C) both running as well as stagnant,