produce only female progenies while unmated females reproducing parthenogenitically produce only males. However, in rice gall midge parthenogenesis did not occur and differences in temperature in different months also did not account for the phenomenon of unisexual broods. The mechanism for the production of unisexual progeny in rice gall midge is yet to be elucidated.

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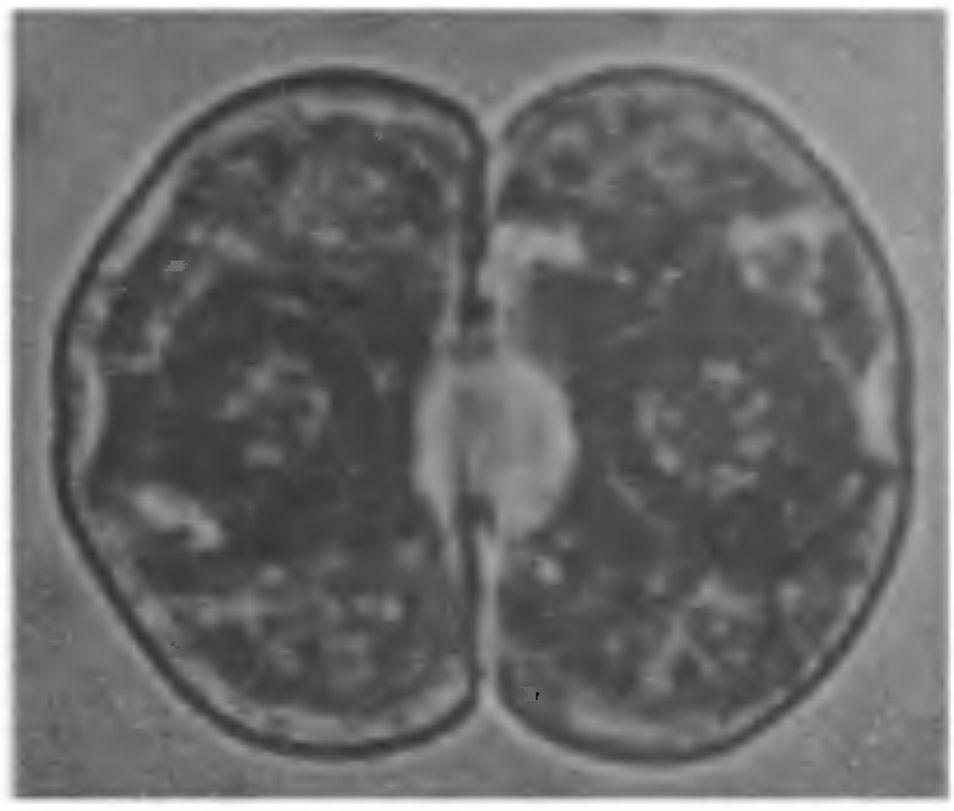

Figure 1. *Cosmarium wembaerensis* Schmidle. Cell under light microscope (×2000).

COSMARIUM WEMBAERENSIS SCHMIDLE UNDER SEM

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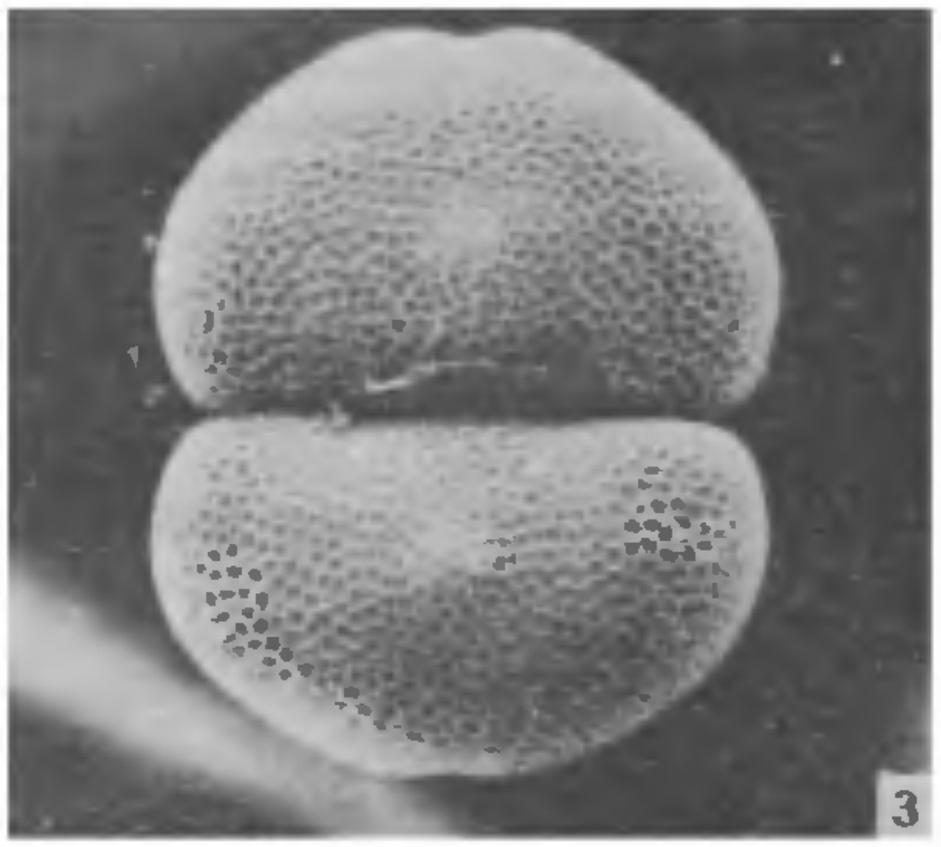
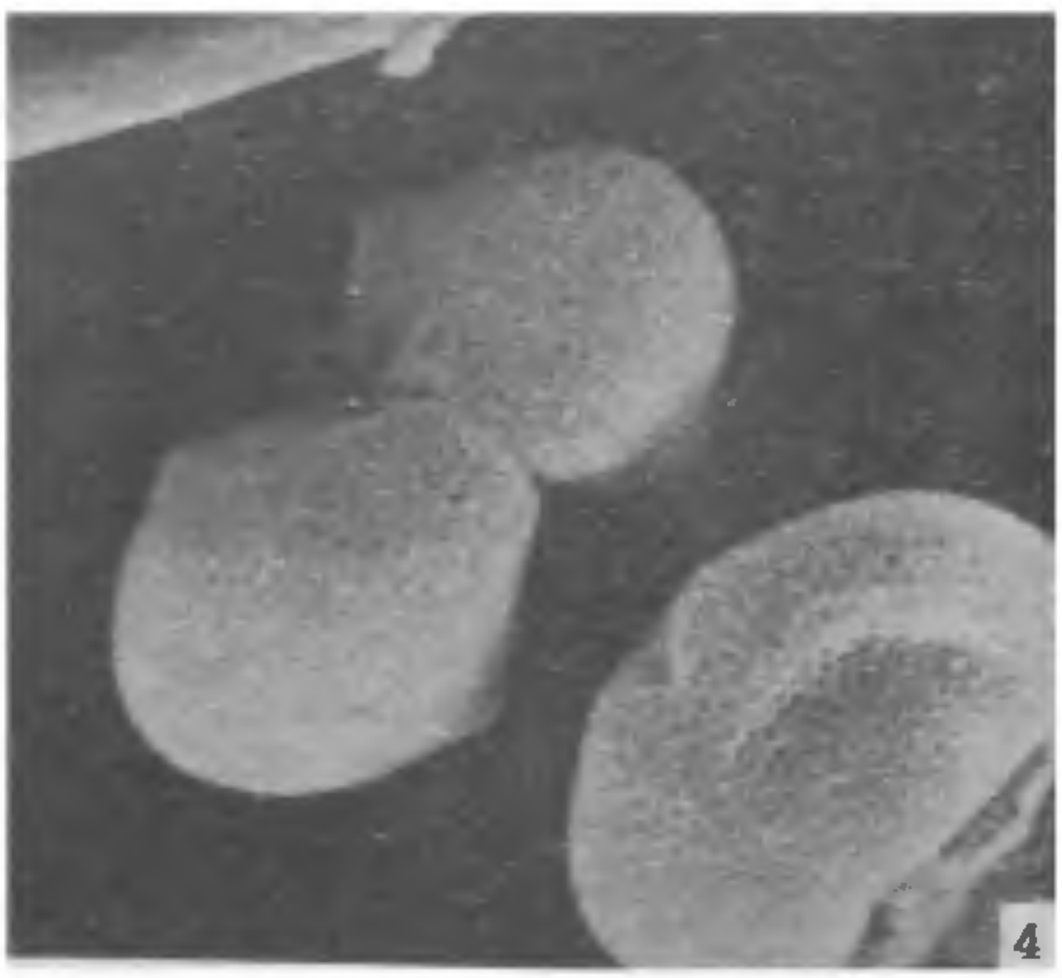
DESMIDS are difficult materials for SEM studies, as they secrete copious quantities of mucilage. Various methods have been tried earlier to remove this mucilage to get good micrographs[1]. Scanning electron microscopical studies of certain Desmids include seven species of the genus *Cosmarium* (*C. bioculatum*, *C. botrytis*, *C. contractum*, *C. cucumis*, *C. formosulum*, *C. praemorsum* and *C. subtumidum*). In the present investigation the surface ornamentation of one of the placoderm desmids, *Cosmarium wembaerensis* Schmidle was studied using SEM.

The alga was collected from a Czechoslovak natural locality in October 1985 and isolated and grown in Chu 10 inorganic medium under laboratory conditions, employing 16 h light and 8 h dark period at a temperature of 18–22°C. The freshly inoculated healthy growing culture was selected for fixation. Cells were fixed by standard glutaraldehyde/Osmium procedures and then dehydrated by various grades of acetone (30, 50, 70, 90 and 100%). Lastly, the sample was dried and shadowed with gold and carbon. The observations were made at 15 kV in a scanning electron microscope installed at Ceske-Budejovice.

The species is small, $1\frac{1}{3}$ times as long as broad, sinus deep, closed, lower part of the side diverging, straight, upper portion strongly convergent. Lateral summit and apex rounded. Semicell in top view broad elliptical and slightly swollen. The cell typically measures 22–24 μ in length, 18–19 μ in breadth and isthamus 6–7 μ^2. The cell shows quite a smooth surface under LM (figure 1). It was frequently observed that desmids show a lot of mucilage accumulation, which would obscure the cell surface (figure 2). The incubation of specimens in a solution of the polysaccharidase preparation. Glusulase, proved useful for removing the mucilage. The cells developed their typical surface ornamentation only after the semicells became mature. The cells of *Cosmarium wembaerensis* show mucilage forming a reticulate pattern on its surface (figure 3). The mucilage pores are arranged in a regular group in a specific pattern. The surface ornamentation and the arrangement of mucilage pores are also shown in the lateral and top views (figures 4 and 5). It was typically observed in this species that on the apical region there is a slight depression in the wall. This depression seems to be beset with numerous mucilage pores all round its periphery, arranged in a circle (figures 6 and 7). All these observations would further help in the taxonomic identification of the species.

The authors are grateful to Dr Ruzicka, Czechoslovakia, for rendering the taxonomic identification of the species and also for selecting the micrographs. One of the authors (VV) is thankful to the authorities of Kakatiya University and UGC for being





Figures 2–7. *Cosmarium wembaerensis* Schmidle. **2.** Cell surface obscured by mucilage; **3.** Mucilage pores forming a reticulate pattern on the surface; **4.** Cell in lateral view; **5.** Cell in top view; **6** and **7.** Apical region showing circular region beset peripherally with mucilage pores (All SEM × 2000).

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A QUARANTINE NOTE ON *PROSTEPHANUS TRUNCATUS* (HORN) — A PEST THAT NEEDS TO BE WATCHED

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THE larger grain borer *Prostephanus truncatus* (Horn) (Coleoptera: Bostrichidae) has recently attracted attention because of its spread to new areas. Till recently it was noted only from central America, southern USA and northern parts of south America[1] and occasionally in imported maize from Israel[2] and Iraq[3]. Its spread to and establishment in Tanzania[4] and Togo[5] in Africa, all the way across the Atlantic (where maize is an important crop) is a serious development. Its further spread within Africa appears only to be a matter of time and with this enlarged distribution chances of further spread would be much greater.

In India, the pest was intercepted thrice during quarantine processing of the germplasm material of crop plants imported for research. Two of these interceptions (1971 and 1977) were from consignments of maize seed from CIMMYT, Mexico and one (1971) of paddy from IRRI, Philippines. Interception from one maize consignment revealed the presence of live adults and in the other two cases dead adults. Similarly, for the first time, *P. truncatus* was found in a consignment of samples of jowar, maize and wheat received from Almorah (Uttar Pradesh, India). Till then it was not reported in jowar seeds and therefore adds another new host recorded for this bostrichid[6]. During examination and processing of the consignments, the insects were identified as *Rhizopertha dominica* (Fabricius) and put away. However, a well-illustrated key by Hodges[7] greatly helped in separating *P. truncatus* from *R. dominica*.

It may be conjectured that *P. truncatus* probably entered the country with other hosts and then established on jowar. Otherwise, it is essentially a pest of maize and cassava though under laboratory conditions it infests and subsists for long periods on butterbeans (*Phaseolus lunatus*), cocobeans, paddy, wheat[1] and perhaps on a variety of other material. On maize, infestation often starts in the field. The beetles bore into the seeds and move from kernel to kernel causing serious damage. As high as 34% loss after 3–6 months of storage has been reported from Tanzania, though the average loss has been worked out[8] to be 8.7% as compared under similar circumstances to 2.6% in Zambia[9], 3.6% in Kenya[10] and 2.5%in Malawi[11] caused by pests like *Sitophilus oryzae* (L.), *S. zeamais* Motschulsky and *Sitotroga cerealella* (Oliv.).

The fact that *P. truncatus* can subsist on a variety of substances, often for long periods and that it can be mistaken for the cosmopolitan stored grain pest — *Rhizopertha dominica*, greatly increases the chances of its unobtrusive entry with imported material, especially if the material is imported in bulk. Effective inspection and treatment of bulk import is not only difficult but rather impossible, to ensure freedom from this insect. As a rule, all incoming material should be fumigated at the port of entry and the workers connected with quarantine processing be made aware of the characters which differentiate this species from other related bostrichids so that they can assess the importance of the pest they have intercepted. The keys provided by Kingsolver[12] and Hodges[7] should prove very useful and seed inspection should be done in a closed room not directly exposed to outside atmosphere. Surveillance studies must be conducted in the country especially in and around Almorah (Uttar Pradesh) and if it does occur, efforts should be made to enforce suitable domestic quarantine restrictions and develop methods to suppress it locally.

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