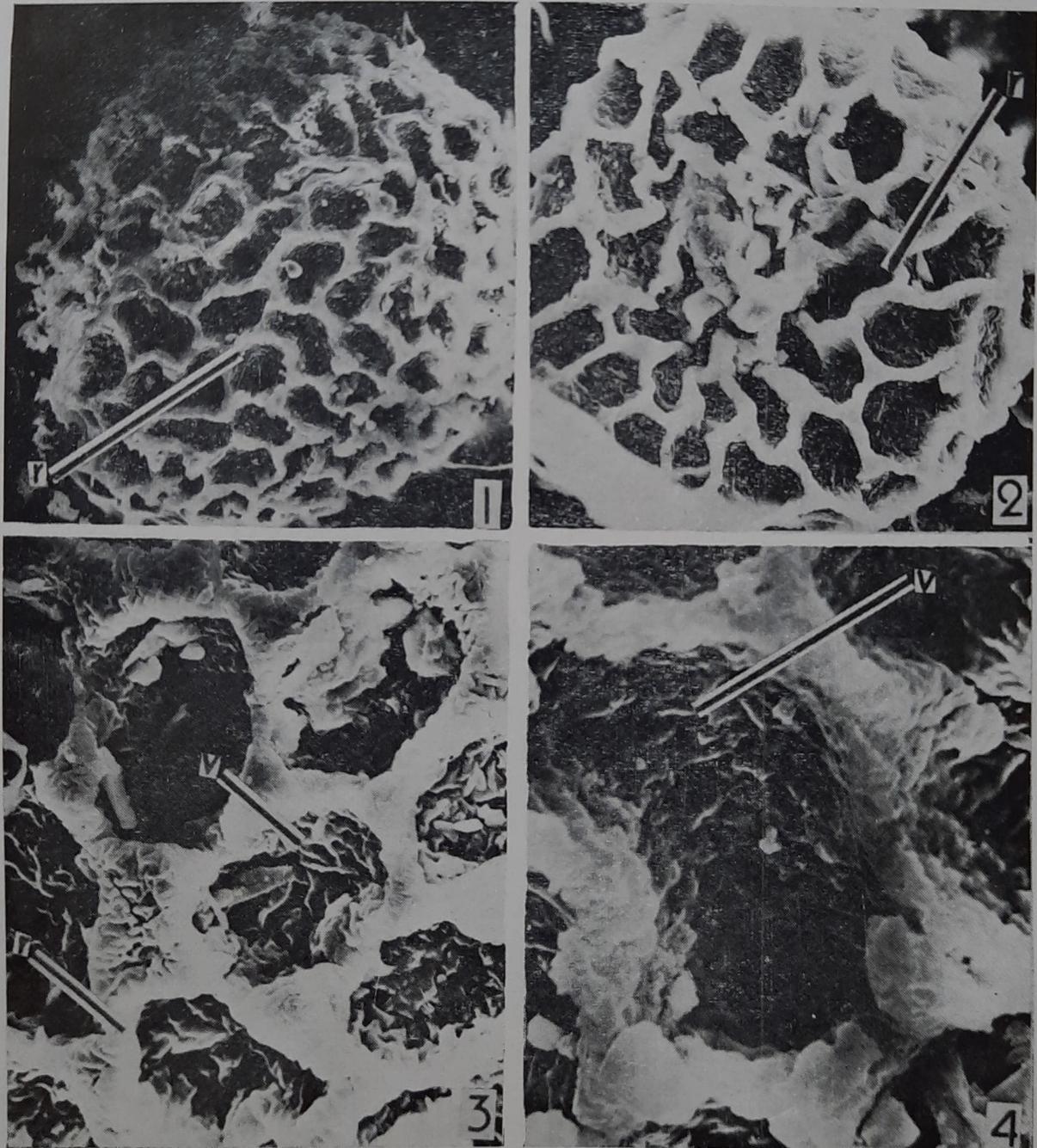


SEM STUDIES ON THE SPORES OF *RICCIA GANGETICA* AHMAD COLLECTED FROM GANGA BANKS

The spore morphology is characteristic and very significant feature in taxonomical studies. Spore morphology studies have been widely used to solve taxonomical as well as phyletic problems of various bryophytes (Udar, 1975).

The light microscopic (LM) observations of the spores of *R. gangetica* have been done by Pande and Udar, 1957. But as the authors are aware the scanning electron microscopic (SEM) studies on the spores of *R. gangetica* have not been studied so far. This paper describes the SEM observations on the spores of *R. gangetica* Ahmad, collected from the banks



Figs. 1-4. SEM photographs of *Riccia gangetica* Ahmad; 1. A spore $\times 400$; 2. A spore $\times 600$; 3. A portion of spore magnified. $\times 1000$; 4. A portion of the spore magnified showing single reticulation $\times 2000$. (r : reticulation, v : vermiculation).

of river Ganga at Shuklaganj (Unnao), Jajmau (Kanpur), Gagaso (Rae-Bareli) and Dalmau (Rae-Bareli) where the river has been observed to be most polluted (unpublished data).

Spores 60 to 90 μm in diameter, yellow to dark brown, isopolar, more or less spherical, tri-radiate mark absent, proximal and distal surface indistinguished (Figs. 1, 2); Reticulate-reticulations(r) distinct, 5-6 μm wide, markedly raised, present all over the surface, 8-10 reticulations across the surface, shape-rectangular or kidney shaped or pentagonal etc., 8-10 μm wide, 10 to 13 μm long (Figs. 1,2,3); Vermiculate-vermiculations(v) present on reticulations as well as on depressed areas, vermiculations of the depressed area are more raised than those of the reticulations, condensed, like wavy projections (Figs. 3,4). Spore output 110 to 125 per capsule.

The spores show distinct double sculpturing on its sporoderm. Reticulations are very clear and larger where as the tri-radiate mark is absent. In most of the species of *Riccia*, the spore is pyramidal or tetrahedral in shape but in this species the shape is more or less spherical.

Specimen examined—The vouched specimens have been deposited in herbarium of Environment Research Centre, Feroze Gandhi College, Rae-Bareli. Specimen no ERC 19/85.

The financial assistance from the Govt. of India, Department of Environment and technical assistance received from Dr (Mrs) Santha Devi, National Botanical Research Institute, Lucknow are gratefully acknowledged.

References

- PANDE, S. K. & UDAR, R. (1957). Genus *Riccia* in India-1. A reinvestigation of the taxonomic status of the species of *Riccia*. *J. Indian bot. Soc.*, **36**(4) : 564-579.
- UDAR, R. (1975). *Bryology in India*. Chronica Botanica Co., New Delhi.

A. K. SINHA, D. C. PANDEY & A. KUMAR
Environment Research Centre, Feroze Gandhi College,
Rae-Bareli 229 001