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AOSPORY IN *EREMOPOGON FOVEOLATUS* (DEL.) STAPF.

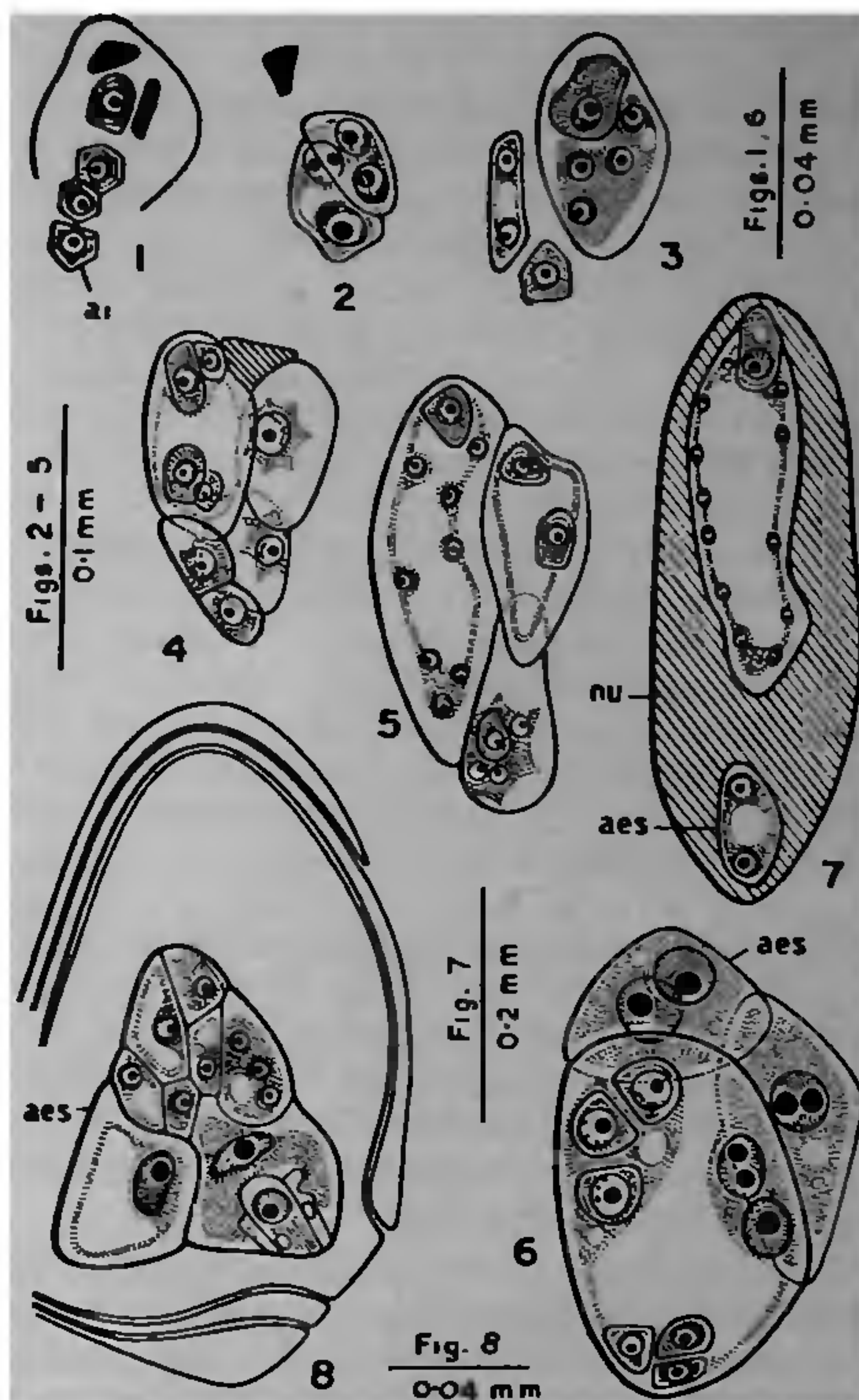
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THE family Poaceae is of especial interest to the embryologists with its problems associated with apospory, polyembryony and vivipary¹⁻⁶. The present report records the occurrence of apospory in *Eremopogon foveolatus* growing wild in Visakhapatnam and its outskirts.

In the ovules of *E. foveolatus* meiosis of the megaspore mother cell is normal resulting in linear tetrad of megaspores. While in a few cases the megaspore mother cell degenerates without further division. Such a situation is often associated with enlargement and vacuolisation of one or more nucellar cells which form the aposporous initials, though these appear above or below or at the sides of the young sexual embryo sacs (figures 1-7). The aposporous initials enlarge and force their way to displace the normal embryo sac (figure 4). During enlargement these initials undergo two nuclear divisions mitotically forming a four nucleate embryo sac. The aposporous embryo sac is much smaller in size and differs in shape from the normal embryo sac.



Figures 1-8. 1-5. The development of aposporous embryo sacs. 6. Multiple embryo sacs. 7. Ovule showing a normal embryo sac at the micropylar end and an aposporous embryo sac at the chalazal end. 8. L.s. ovule showing sexual embryo sac and aposporous 1-nucleate sac. (aes. aposporous embryo sac; ai. aposporous initial; nu. nucellus).

The organisation of the four nuclei in the mature aposporous embryo sac is also not constant. Some of these show one egg, one synergid and two polar nuclei, whereas others show one egg, two synergids and one polar nucleus depending on whether the dividing nuclei of the aposporous initial remain together or part to the poles.

Rarely there is a single aposporous embryo sac in the ovule (figure 8), but in a majority of the ovules two to five aposporous embryo sacs could be observed in the same ovule (figures 4-6). These multiple embryo sacs are crowded in the ovules and develop in close contact with each other, sometimes encroaching into one another. The position of the egg apparatus is not restricted to the micropylar end but is variable.

Owing to the competition of several embryo sacs and their incomplete developments in some cases, several abnormalities were noticed. In one ovule all the embryo sacs degenerated leading to complete abortion of the ovule. In several cases a four or two nucleate aposporous embryo sac was seen in association with a proembryo with a well developed endosperm (figure 7). In one ovule, a one nucleate aposporous embryo sac initial is seen below the healthy sexual embryo sac (figure 8).

Each aposporous embryo sac in general has only four nuclei whereas each sexual embryo sac has the usual eight nuclei. Brown and Emery¹ stated that if all the mature embryo sacs in an ovule are four nucleate and a proembryo as well as endosperm are present in an embryo sac lacking antipodal cells, it may be taken as a strong evidence of apomixis. The present observation of four nucleate aposporic embryo sacs in *Eremopogon* is a strong indication to suggest that it is a

facultative apomict.

The authors are thankful to UGC for the awarding a JRF to the senior author and to Dr B. S. M. Dutt for going through the manuscript.

7 March 1983

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ANNOUNCEMENTS

B. N. CHOPRA LECTURESHIP

The Indian National Science Academy, New Delhi, has awarded the B. N. Chopra Lectureship to Dr S. Sriramachari. The lectureship is awarded once in

every three years and consists of a remuneration of Rs. 1,500/-.

THE HOMI J. BHABHA MEDAL 1984

The Homi J. Bhabha Medal 1984 is awarded to Prof. K. G. Ramanathan, FNA for his outstanding contributions in the field of Number Theory in particular to the Analytic and Arithmetic Theory of Quad-

ratic Forms and Associated Zeta Functions. Apart from his own contributions in Mathematics, Prof. Ramanathan has been responsible for the growth of Mathematics in India.

THE SUNDER LAL HORA MEDAL 1984

The Sunder Lal Hora Medal 1984 is awarded to Prof. P. N. Mehra, for his outstanding contributions in the field of Cytology, Anatomy and life histories of the liverworts, ferns, conifers and flowering plants of the Himalayan and several original postulates in

regard to the phylogeny of these plants. He has made immense contributions as a teacher and author of monographs to the development of plant sciences in India.