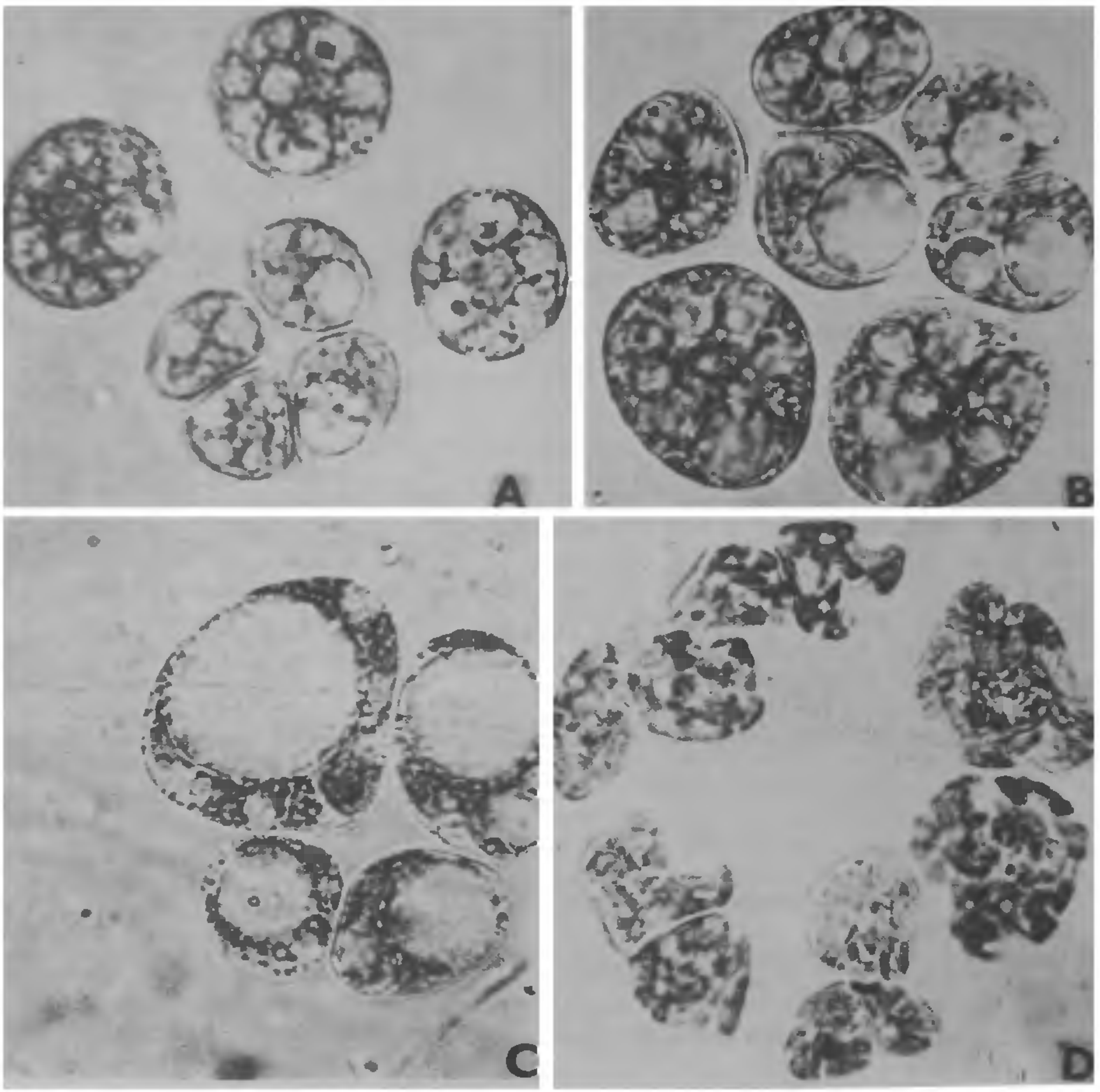

Figure 2A–D. Effect of high altitude cosmic rays on *Asterococcus*. **A.** Solitary cells and a colony of *Asterococcus* (× 1800); **B.** Large and various-sized cells (× 1200) (I exposure); **C.** Abnormal cells with large vacuoles (× 1200) (II exposure), and **D.** Distorted cells with fragmented and granular chloroplasts (× 1200) (II exposure).

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EPIDEMIC OF SUGARCANE WILT ASSOCIATED WITH PLANT PARASITIC NEMATODES IN SOUTH GUJARAT

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SUGARCANE (*Saccharum officinarum* L.) is an important cash crop extensively grown in South

Gujarat. In 1986, a severe epidemic of sugarcane wilt disease was noticed in Madhi, Bardoli and Chalthan areas of South Gujarat.

Soil samples (46 from Madhi, 26 from Bardoli and 34 from Chalthan) were collected from wilt-infected fields. Examination of the soil samples revealed the presence of 2880 nematodes from soil around severely-infected plants and 105 from soil around apparently healthy plants from the same field. The nematodes were identified by CAB International Institute of Parasitology, CABI, UK, as *Tylenchorhynchus microcephalus* n.sp.; *Pratylenchus zeae* Graham, 1951; *Hoplolaimus seinhorsti* Sher, 1963; *Helicotylenchus retusus* Siddiqi & Brown, 1964 and *Hemicriconemoides mehdii* Suryawanshi, 1971.

This is the first report of the occurrence of plant parasitic nematodes on sugarcane crop in Gujarat. The study indicates that these nematodes play a role in predisposing sugarcane to infection by wilt fungus. Similar observations on association of plant parasitic nematodes, viz., *Hoplolaimus indicus*, *Tylenchorhynchus nudus* and *Helicotylenchus dihystera* with two species of fungi, *Fusarium moniliformae* and *Cephalosporium sacchari*, causative agents of wilt disease in sugarcane, have been reported from Bihar[1]. In the Bihar study it was also shown that simultaneous occurrence of the nematode *H. indicus* and the fungus *F. moniliformae* significantly increased wilt disease incidence than occurrence of fungus alone. It is possible that upon infection of the roots by the nematodes, the wilt pathogens gain entry into the roots more easily. Experiments have been initiated to evolve suitable methods for the management of the nematodes and thereby the control of sugarcane wilt disease.

The authors are grateful to the managements of sugarcane factories at Madhi, Bardoli and Chalthan for their kind help and co-operation in collecting soil samples and to Dr M. R. Siddiqi, Taxonomist, CAB International Institute of Parasitology, UK, for identification of nematodes.

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A NOTE ON THE EXTRA FLORAL NECTARIES OF *BALIOSPERMUM RAZIANA* KESHAV ET YOG. (EUPHORBIACEAE) WITH A NEW DISTRIBUTIONAL RECORD

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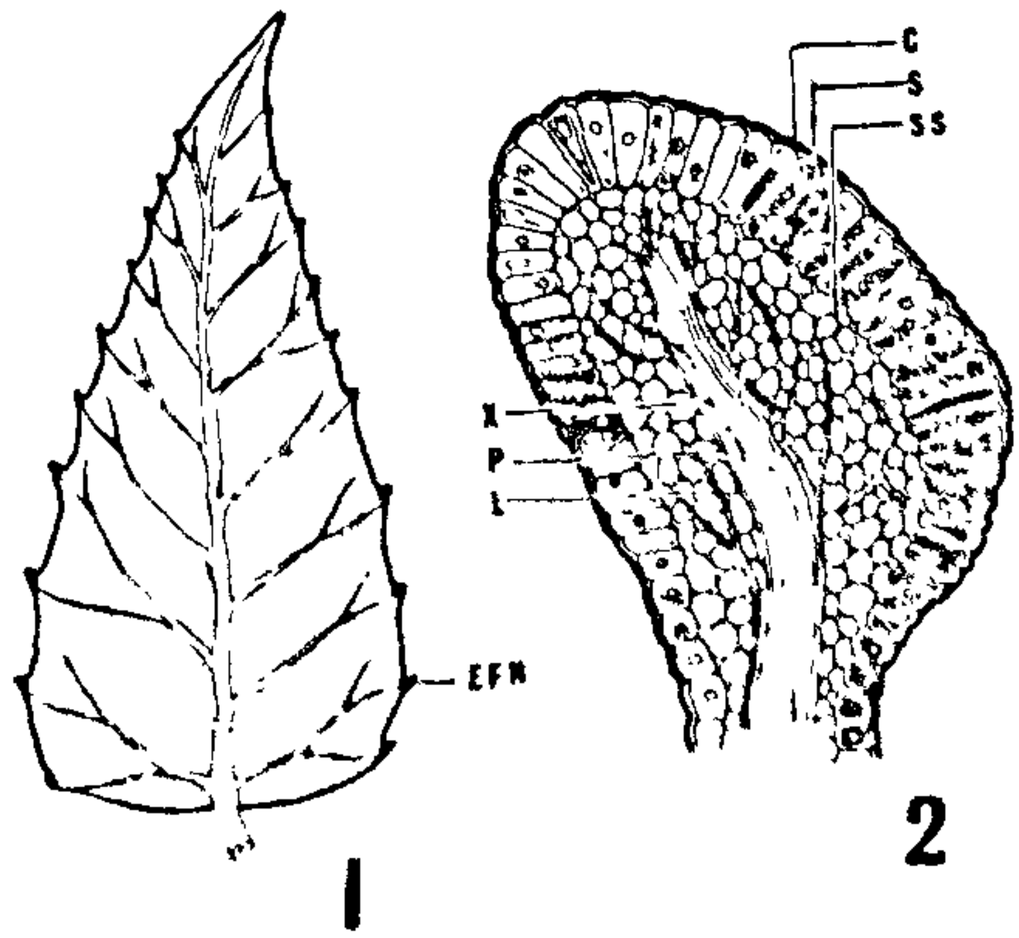
BALIOSPERMUM RAZIANA has been reported as a new species of Euphorbiaceae from Coorg recently[1]. *B. raziana* Keshav. et Yog. collected by the present authors from the forests of Dhulia District (Maharashtra) is an addition to the flora of Maharashtra.

B. raziana is distinguished from *B. montana* on the basis of the leaf marginal glands and long peduncled racemes present in the former[1]. The leaves fixed in FAA after customary methods (like infiltration and dehydration) were used for microtomy. The present study reveals that the term extrafloral nectaries apply more aptly than leaf marginal glands. This is also corroborated by earlier reports[2].

The extrafloral nectaries are distributed along the tips of leaf marginal serrations varying in number from 16 to 20 (figure 1). In rare cases two basilaminar nectaries are also seen as small projections on the upper side of the petiole. The extra floral nectaries are globose in shape, enveloped by a thick cuticle (figure 2). The cuticle is not interrupted by



Figures 1 and 2. **1.** Occurrence of extra floral nectaries along the leaf margin, and **2.** Diagram of LS of an extra floral nectary [C, cuticle; EFN, extra floral nectary; L, laticifer; P, phloem; S, secretory zone; SS, sub secretory zone; X, xylem].