The spores were mounted on aluminium stubs with organic glue and air-dried for 24 hr. These were then coated with 20–30 n.m. gold and were observed in SEM (Philips, Model 500).

The spores appear trilete and triangular with rounded corners and convex sides in equatorial view. Figure 1 shows the spore scanned for the details of the surface morphology which is found covered with granular and spherical depositions with variable number of pores in their centres (figures 2, 3). At higher magnification these pores appear smooth, concave and depressed from inside (figures 3, 4). In the same plant Chandra[4] reported wart-like protuberances which are densely distributed to form an areolate pattern. The present finding, therefore, differs from that of Chandra in matter of details of the exine morphology. Tryon and Tryon[3] have reported the occurrence of two types spores in the American species *L. venustum* and *L. heterodoxum* having relatively smooth base with more or less dense, spherical depositions and *L. volubile* and *L. cubense* with coarsely verrucate spore wall showing a prominent ridge connecting the laesurae. The present observation compares favourably with that of *L. venustum* with respect to the spherical depositions; while the centrally located pores constitute a distinguishing feature of the plant under investigation.

NL is grateful to CSIR, New Delhi, for a fellowship.

7 October 1985

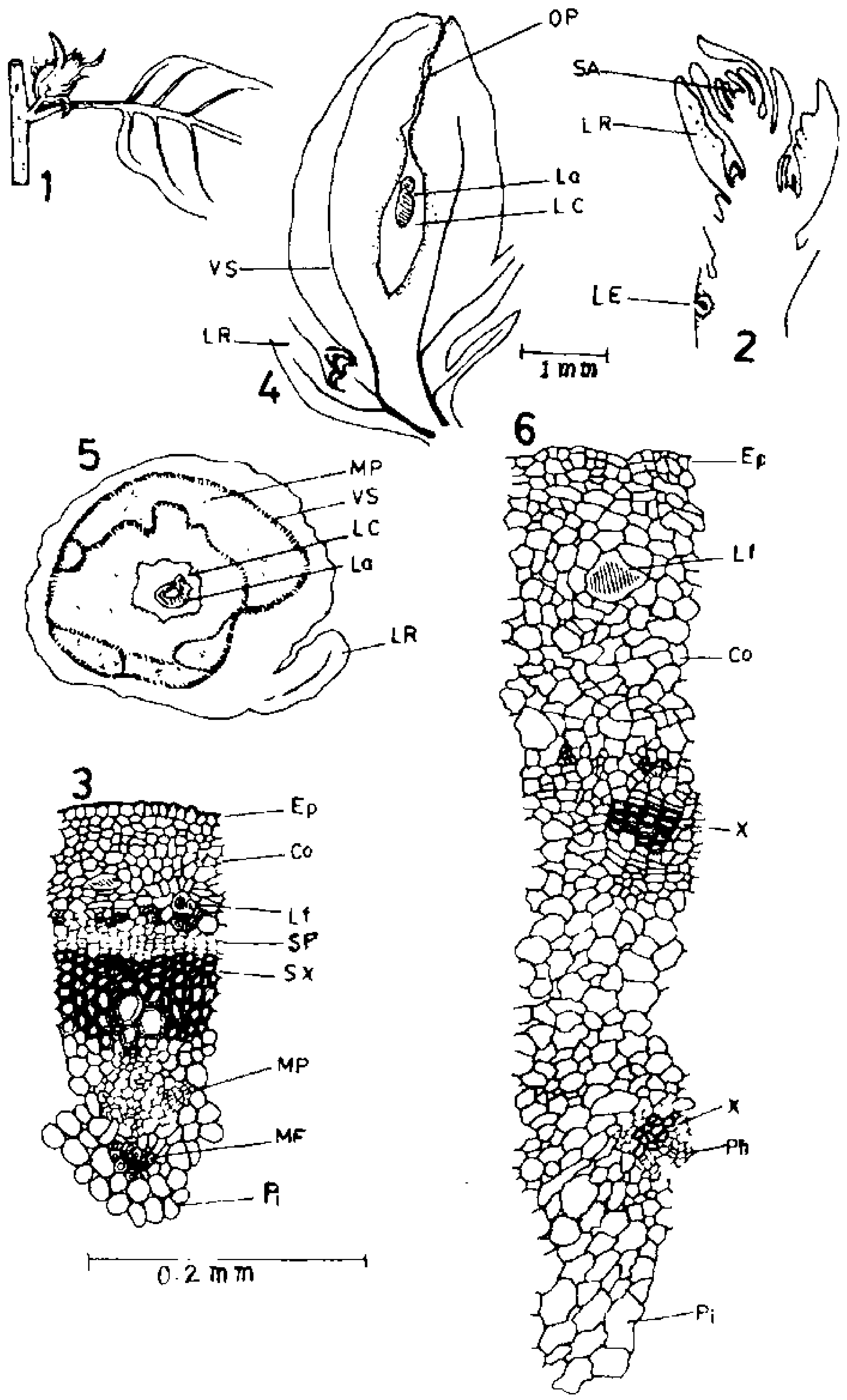
1. Lloyd, R. M. and Gregg, T. L., *Am. Fern. J.*, 1975, **65**, 105.
2. Lloyd, R. M., *Am. Fern. J.*, 1980, **70**, 99.
3. Tryon, R. M. and Tryon, A. F., *Ferns and allied plants with special reference to Tropical America.* 1980. Springer-Verlag N. Y.
4. Chandra, P., *Curr. Sci.*, 1963, **1**, 34.

A NEW MIDGE GALL ON *IPOMOEA STAPHYLINA* R. & S. (CONVOLVULACEAE)

P. JAYARAMAN

Department of Botany, Presidency College, Madras 600 005, India.

Two types of foliar galls have been recorded on *Ipomoea staphylina* R. & S. (Convolvulaceae), one of them being caused by a mite, *Eriophyes gastrotrichus* Nalepa (Acarina) and the other by the midge, *Asphondylia ipomaeae* Felt. (Cecidomyiidae)[1]. The structure and development of these two types of gall have been studied earlier[2]. The present account deals with a third type of axillary bud gall on *Ipomoea staphylina* by a different midge (Cecidomyiidae) which has been recorded for the first time. When compared



Figures 1–6. 1. *Ipomoea staphylina* R. & S. A node bearing the axillary bud gall with undeveloped leaves; **2.** L.S. of an axillary bud showing the entry of the larva into the axis; **3.** A sector of normal stem showing various tissues; **4.** L.S. of gall; **5.** T.S. of gall; **6.** A sector of the gall. (Co: Cortex; Ep: epidermis; La: larva; L.C; larval chamber; L.E: larva entering the cortex of the axillary shoot; Lf: laticifer; L.R: leaf rudiments; M.F: medullary fibers; M.P: medullary phloem; O.P: ostiolar passage; Ph: phloem; Pi: pith; S.A: shoot-apex; S.P: secondary phloem; S.X: secondary xylem; V.S: vascular strands; X: xylem).

with the first two types, the third gall seems to be extremely rare and was collected only once from Vellore (Tamil Nadu).

The Gall: The midge larva, mostly singly, enters into the slender axis of the axillary bud through the cortex somewhere near the base (figure 2). While the larva is in the cortex there is no sign of cecidogenetic effect. Later, the larva migrates to the pith where it starts feeding on the tissue. Only then the cecidogeny initiates. The different tissues of the young axis which are at various levels of differentiation become deviated from their normal sequence of histogenesis. They undergo extensive hyperplasia followed by hypertrophy and the apical meristem of the axillary bud ceases to function; the leaf initials do not develop further beyond the primordial stage and the internodal elongation is also arrested. The total result of all these modifications is that the axillary bud develops into a fleshy, flask-shaped body bearing the leaf rudiments on the surface (figure 1).

A mature gall is smooth; yellowish green, indehiscent and fleshy with a single axial larval chamber which opens to the exterior through a narrow passage (figure 4). The gall measures 10 mm in length and 7 mm in breadth. The proliferating ground tissues of the gall rupture the cambial cylinder which subsequently gives rise to an anastomosing system of vascular tissues (figure 5). The other structures such as laticifers, medullary phloem and fibers seen in normal stem undergo less significant alterations (figures 3, 6).

As the larva matures, it escapes through the vertical canal-like exit passage. Some unidentified fungus is found occupying the larval cavity which does not seem to interfere with the morphogenesis of the gall. A similar instance of fungal occurrence was observed in the midge-induced foliar gall on *Ipomoea staphylina* previously mentioned. The mode of entry of the fungus and its role in the cecidogeny, if any, are worth investigating.

4 October 1985

1. Mani, M. S., *Plant galls of India*, 1973, Macmillan India.
2. Jayaraman, P., *Ontogenetic studies on plant galls induced by mites and insects*, Ph.D. Thesis, University of Madras, 1980.

ALLELOPATHY: SOME NEW TERMINALOGICAL CONSIDERATIONS

S. J. H. RIZVI and V. RIZVI
Department of Botany and Plant Physiology,
Rajendra Agricultural University,
Pusa 848 125, India.

MOLISCH[1] who coined the term allelopath, referred to it as biochemical interactions between all types of plants including micro-organisms and considered both the detrimental and beneficial reciprocal biochemical interactions. However, the term allelopathy has subsequently referred to only harmful effect of one plant on another through production of specific chemicals. Rice[2] modified the definition of Molisch to exclude beneficial effects. During 1974–79 the majority of the workers followed Rice's definition. Later, however, Rice[3,4] himself modified his version of definition and felt that the exclusion of beneficial effects seems highly artificial. In the past decade many workers have included both the deleterious and beneficial aspects in allelopathy[5,8]. However, we have often felt that apart from the controversy regarding the definition of allelopathy, there still remains some terminological ambiguities. In most cases the title of a paper rarely gives a clear idea whether the author has dealt with harmful or useful aspects of allelopathy We propose here symbolic notations to cope with the above mentioned problems.

For a clear expression of harmful or beneficial effects it would be advantageous to use the positive (+) and negative (−) signs respectively before the term allelopathy. Further, if an allelopathic plant differentially behaves with two plants, *i.e.* its effect is beneficial to one and harmful to another, in such situations the use of (±) symbol with allelopathy/allelopathic. . . , would be self explanatory.

It is also being suggested that a worker engaged in allelopathic researches in general may be called an 'allelopath' and persons specifically involved in isolation, identification, biochemical characterisation and physiological aspects of allelopathy should be called an 'allelochemist'.

Financial assistance from International Foundation for Science, Sweden, is gratefully acknowledged.

17 January 1985; Revised 13 November 1985

1. Molisch, H., *Der Einfluss einer Pflanze auf die under Allelopathie*, Jena, 1937.