The culture of *P. parasitica* has been deposited in Type Culture Collection of the Department of Plant Pathology, University of Agricultural Sciences, Bangalore, under Accession No. 119.

The author wishes to acknowledge Dr. H. C. Govindu, Senior Professor and Head, Department of Plant Pathology, University of Agricultural Sciences, Bangalore, for his keen interest and encouragement during the course of this investigation.

Department of Plant Pathology,
University of Agricultural Sciences,
Bangalore, February 8, 1975.


MINIPLANT-TUBES FOR STUDIES ON VIRUS TRANSMISSION WITH LEAF HOPPER VECTORS

In plant virus transmission studies, the viruliferous insects are enclosed for inoculation along with test seedlings, inside the cages of lantern glasses or cellulose butyrate tubes pressed into the soil in pots. Such cages occupy large area and also get soiled easily. Further, many insects under study escape while transferring. A simple method using transparent plastic tubes (3" × 1") with cup-like push-in lids eliminates all these disadvantages.

The lids serve as supporting cups for growing plants when filled with soil or vermiculite. One or two pinholes, made in the base, form the passage for the entry of water and nutrients from outside. Sprouted seeds are placed on the soil medium in the cups which are arranged on a layer of soil-manure mixture (3 : 1), supplemented with fertilizers. When the trays are watered, the soluble nutrients of the mixture in the tray are carried into the cup through pinholes.

The bottom of the tube is cut and a fine mesh muslin cloth is stuck in place by briefly dipping the end in acetone, ether or chloroform and gently pressing it against the cloth. The tube, when placed in position over the cup, forms a complete independent enclosure for the seedling and the insect (Fig. 1). Such plant tubes are simple, easy to handle and require very limited space. They can be arranged in racks and kept either in green houses or growth chambers under artificial illumination. Very young seedlings, soon after sprouting, can be inoculated. It is easy to transfer the insects from plant to plant, as the cups are easily detached along with the seedlings, while retaining the insect in the tubes.

![Diagram of miniplant-tube](image)

**Fig. 1.** Diagram of miniplant-tube. *A*, tube; *B*, Seedling; *C*, Soil + Sand; *D*, Lid; *E*, Pinhole; *F*, Soil + Manure; *G*, Muslin.

The author has used this method with success, for growing and inoculating wheat, sorghum, finger millet, foxtail millet, pearl millet with a virus transmitted by *Cicadulina bipunctella bipunctella* and *C. chinai*. The uninoculated ragi plants remained green and normal but dwarf for two months in the plant tubes when kept either in green house or under artificial illumination.

The author wishes to thank the Indian Council of Agricultural Research, New Delhi and the University of Agricultural Sciences, Bangalore, for giving the financial assistance and facilities respectively. He also thanks Mr. T. M. Mustak Ali, Millets Scheme, University of Agricultural Sciences, for making the drawing and Dr. H. C. Govindu for his encouragement in this study.

Virologist, A.I.C.R.P. (Millets),
Main Research Station,
University of Agricultural Sciences, Bangalore,
January 30, 1975.

A NEW PHYTOPHTHORA LEAF BLIGHT AND DAMPING OFF DISEASE OF PASSION FRUIT FROM INDIA

During a disease survey of local flora, one of us (B. A. U.) observed an outbreak of leaf blight of passion fruit (*Passiflora edulis* Sims.) at Horticultural Experiment Station, Chethalli, Coorg, in two successive monsoon seasons (1972–74). Damping
off symptoms were also noticed on the seedlings in the nursery. The disease incidence was sporadic initially but became serious with prolonged wet weather resulting in severe defoliation in grown-up plants and death of seedlings.

In nature, the disease appears with the onset of rains and the symptoms first appear on lowermost leaves. Subsequently, upper leaves, flowers and young fruits are also attacked. Discoloured to dull green areas appear initially and become more distinct as the colour of the affected tissues change to light tan (Fig. 1). The infected flowers and fruits are shed. Severe defoliation is noticed during favourable weather. On the seedling, irregular water-soaked areas develop at the collar region resulting into damping off.

![Fig. 1. Leaves of Passiflora edulis showing typical symptoms of leaf blight under natural conditions.](image)

**Phytophthora nicotianae** Br. deH. was repeatedly isolated from the diseased tissue (Fig. 2). It proved highly pathogenic on artificial inoculation producing characteristic symptoms in 72 hours. Purple (Local), Purple (Kenya) and Yellow varieties were found susceptible. It also attacked the green fruits of Bell pepper and Tomato.

Earlier, *Phytophthora cinnamomi* Rands has been reported to cause root rot of passion fruit from New Zealand, whereas *P. nicotianae* Br. deH. and *P. cinnamomi* have been responsible for root rot from Western Australia and wilt caused only by *P. nicotianae* from S. Africa and Sarawak. None of these reports has established the association of *P. nicotianae* with leaf blight and damping off symptoms. This is, therefore, the first record of *P. nicotianae* van Breda-de Haan inciting leaf blight and damping off of passion fruit from India.

The writers are extremely grateful to Dr. G. S. Randhawa, Director, for his interest and facilities and Dr. J. A. Von Arx of C.B.S., Baarn, for confirming the identity of the fungus. We are thankful to Dr. Alexander for photomicrography.

Indian Institute of Horticultural Research, Bangalore-6, February 5, 1975.

B. A. ULLAHA
H. S. SOHI


**DEVELOPMENT AND DIVERSITY OF STOMATA IN MICROCCOCA MERCURIALIS BENTH.**

Due to the great paucity of data on stomatogensis in Euphorbiaceae, a fresh survey of stomatal structure and ontogeny was taken up for assessing the range of diversity in stomatal pattern and also to explore the implications of such data in systematic studies of Euphorbiaceae known for their extraordinary diversity in the vegetative, floral, anatomical, embryological and cytological characters.

During the course of such an investigation, on several members of the family (about 30 species), interesting patterns of stomatal types were encountered in *Microccoca mercurialis*, of the tribe Acalyphaeae. According to the earlier workers, parasicytic, anomocytic and anisocytic types of stomata occur in Euphorbiaceae. Besides these three types, a fourth type namely diacytic or caryophyllaceous type of stomata has also been observed in *Microccoca mercurialis*, a feature recorded for the first time in Euphorbiaceae.

In *Microccoca mercurialis*, the leaves are amphistomatic. The principal type of stomata is