

A NOTE ON THE NUCELLAR POLY-EMBRYONY IN *APHANAMIXIS POLYSTACHYA* (WALL) PARKER

THE genus *Aphanamixis* (= *Amoora*) of the family Meliaceae contains 3 species which are distributed in Bengal (Prain, 1905). The investigated species of the plant is *Aphanamixis polystachya* (= *Amoora rohituka* W and A). The plant is a medium sized tree with spreading crown of pinnate leaves and polygamous flower. The literature on the cytology and embryology of the family Meliaceae is still very fragmentary. The occurrence of polyembryony has been recorded in the genus *Azadirachta* (Garudamma, 1956).

Recently Nair (1959) during his reinvestigation on *Melia azadirach* Linn. has reported a case of polyembryony which might have been originated from one of the synergids.

During embryological investigation on the present genus *Aphanamixis*, it has been observed that some of the nucellar cells near the micropylar region in the mature ovules become richly cytoplasmic with large nuclei. These deeply cytoplasmic cells by series of divisions produce a number of embryos embedded therein the nucellar tissue (Fig. 1). It is further interesting to note that in the same preparation two large elongated mature embryos appear to hang from the nucellar tissue into the embryo-sac (Fig. 1). These two embryos probably take their origin from single individual cell of the nucellar tissue and gradually with maturation they protrude into the embryo-sac. Of the embedded embryos in the nucellus two 3-celled, one 4-celled and two somewhat globular multi-celled embryos have been noted (Fig. 1).

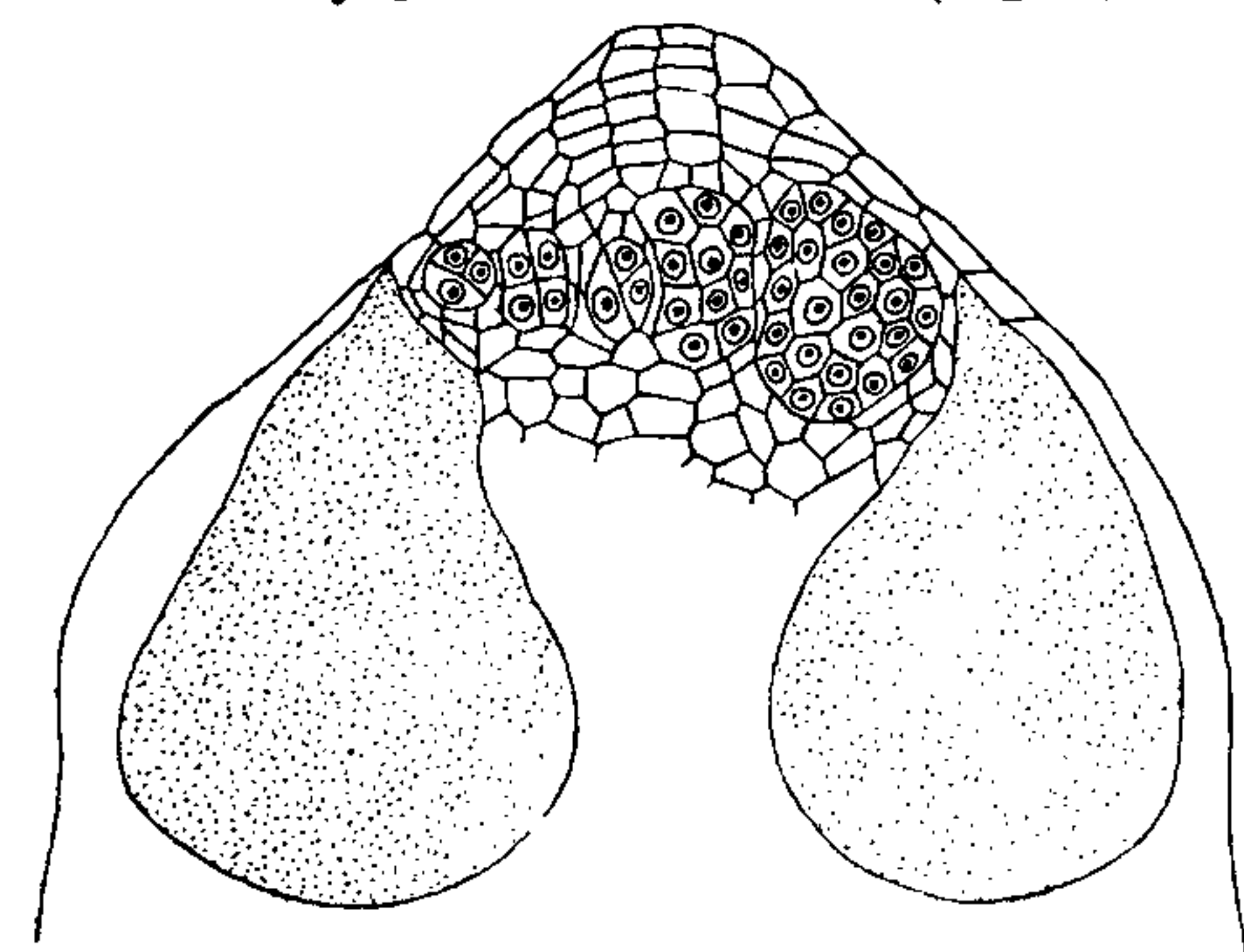


FIG. 1. L.S. of ovule through the nucellus.

It has been observed that more than 50% of the ovules examined had degenerated gametophytes. Fertilisation though occurs rarely, the

normal zygotic embryo is also produced. The occurrence of nucellar polyembryony in *Aphanamixis* takes place in 25-30% of the ovules.

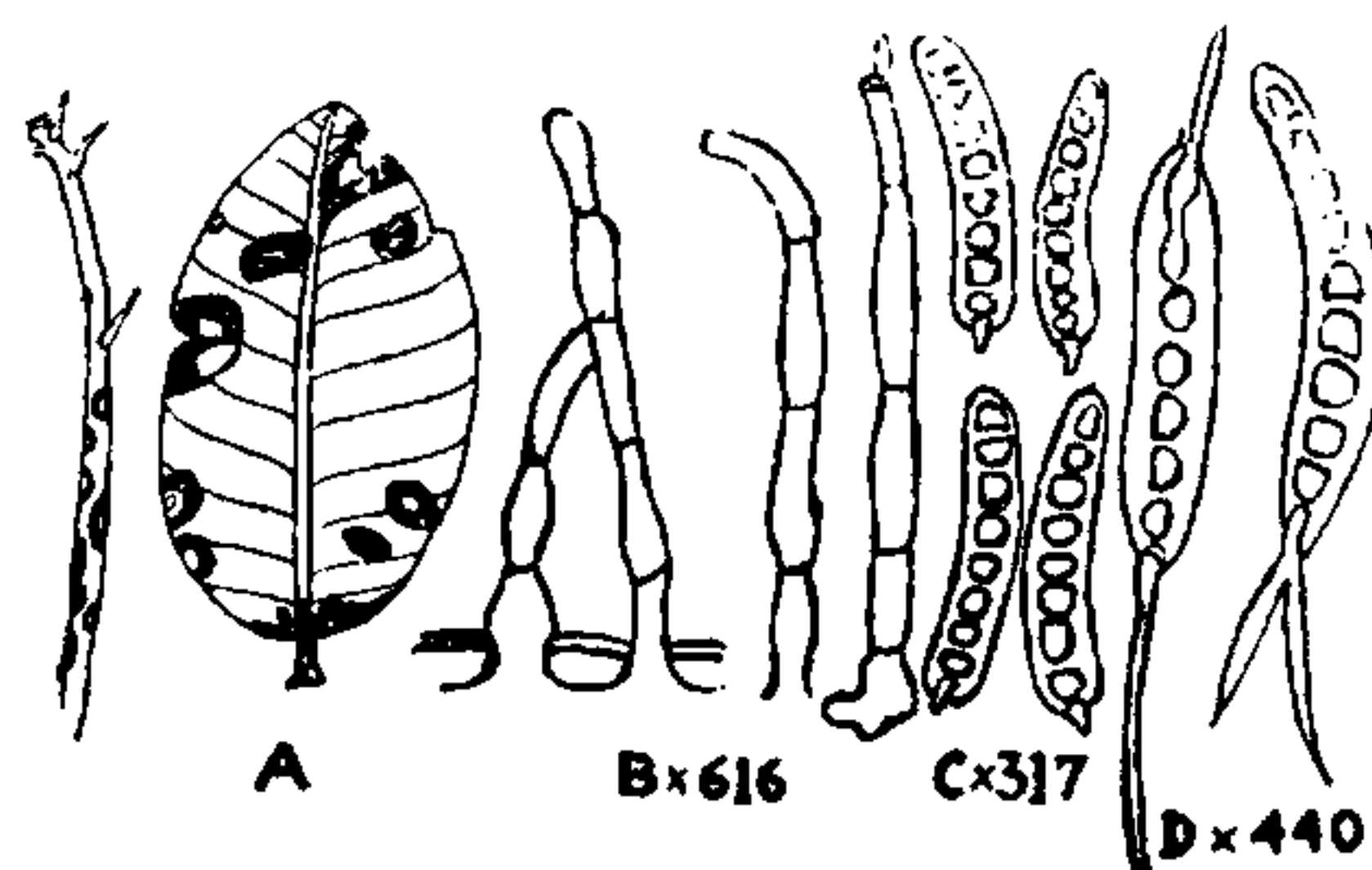
The author is indebted to Dr. I. Banerjee, the former Head of the Department of Botany, Calcutta University, for suggesting the problem and guidance, and to Dr. S. M. Sircar, the present Head of the Department for providing facilities. His thanks are also due to the Ministry of Education, Government of India, for the award of a research scholarship.

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Calcutta, November 27, 1961.

1. Prain, D., *Bengal Plants*, 1905, 1, 316.
2. Garudamma, G. K., *J. Indian Bot. Soc.*, 1956, 35, 222.
3. Nair, N. C., *Ibid.*, 1959, 38, 367.
4. Raizada, M. B., *Indian Forester*, 1958, 84, 471.

A NEW RECORD OF HELMINTHOSPORIUM BLIGHT OF *EUPHORBIA GENICULATA* ORTEG. FROM INDIA

PLANTS of the common weed, *Euphorbia geniculata*, Ortega, were found heavily infected with a blight disease in the campus of the Law College, Poona, during July-August 1961. The disease manifested itself in the form of rusty brown irregular necrotic areas on the leaves and spindle-shaped depressed lesions on the petioles and stems (Fig. A). The disease



FIGS. A-D

appeared to be greatly favoured by high humidity and drizzling showers. A survey made for the presence of this disease on other species of *Euphorbia* growing in the vicinity as *E. pulcherrima* Wild., *E. hirata* Linn., and *E. splendens* Boj. showed that none of these species had developed any infection of the blight. Isolations made from the necrotic areas yielded a species of *Helminthosporium* Nees. (Figs. B, C and D). A careful survey of regional lists showed that there was no previous record of this disease and the fungus causing it from India.

TABLE I

Species	Conidiophores	Conidia	Authority
1 <i>H. euphorbiacearum</i> Pat.	110 × 13 μ	120-126 × 22-25 μ	Saccardo, 1892
2 <i>H. euphorbiae</i> Hans.	120 × 7.0 μ	50-120 × 13-18 μ	Hansford, 1942-43
3 Indian species	125 × 7.4 μ	40-130 × 14-18 μ	..

Two species of *Helminthosporium* have been so far reported on species of *Euphorbia*—*H. euphorbiacearum* Pat. on *Euphorbia* species (Saccardo, 1892)¹ and the other *H. euphorbiae* Hans. on *E. heterophylla* Linn. by Hansford (1942-43)² from Uganda. The Indian species was, therefore, compared with the two above species and the results obtained are given in Table I.

On the basis of comparative morphology and dimensions of conidiophores and conidia, the Indian species closely agrees with *Helminthosporium euphorbiae* Hans. as described by Hansford (1942-43).

Euphorbia geniculata Orteg. is thus a new host record for *Helminthosporium euphorbiae* Hans. and the fungus a new record for India.

The specimens are being deposited in Herb. Orientalis at New Delhi, India.

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October 3, 1961.

1. Saccardo, P. A., 1892, 10, 614.

2. Hansford, C. G., *Proc. Linn. Soc., London*, 1942-43, p. 49.

MOSAIC OF *FICUS* SPP. IN INDIA

A severe mosaic disease of fig (*Ficus palmata* Forsk.) was observed at several places in Himachal Pradesh and Punjab. The symptoms suggested the possibility of a virus being involved, which was later confirmed by experimental evidence. Studies made to establish the nature of the disease and mode of transmission are reported herein.

The symptoms of the disease on the cultivated fig varieties are the presence of yellowish-green spots scattered all over the lamina (Fig. 1B). These spots sometimes coalesce to form bigger spots of various shapes and sizes. Occasionally the leaves develop white mottle and are deformed (Fig. 1A). The leaves of wild varieties develop marked mosaic symptoms with blister-like patches and sometimes also

with oak-leaf symptoms. In advanced stages the entire leaves become pale-yellow and wither away. Diseased plants do not attain normal size and very few fruits are produced.

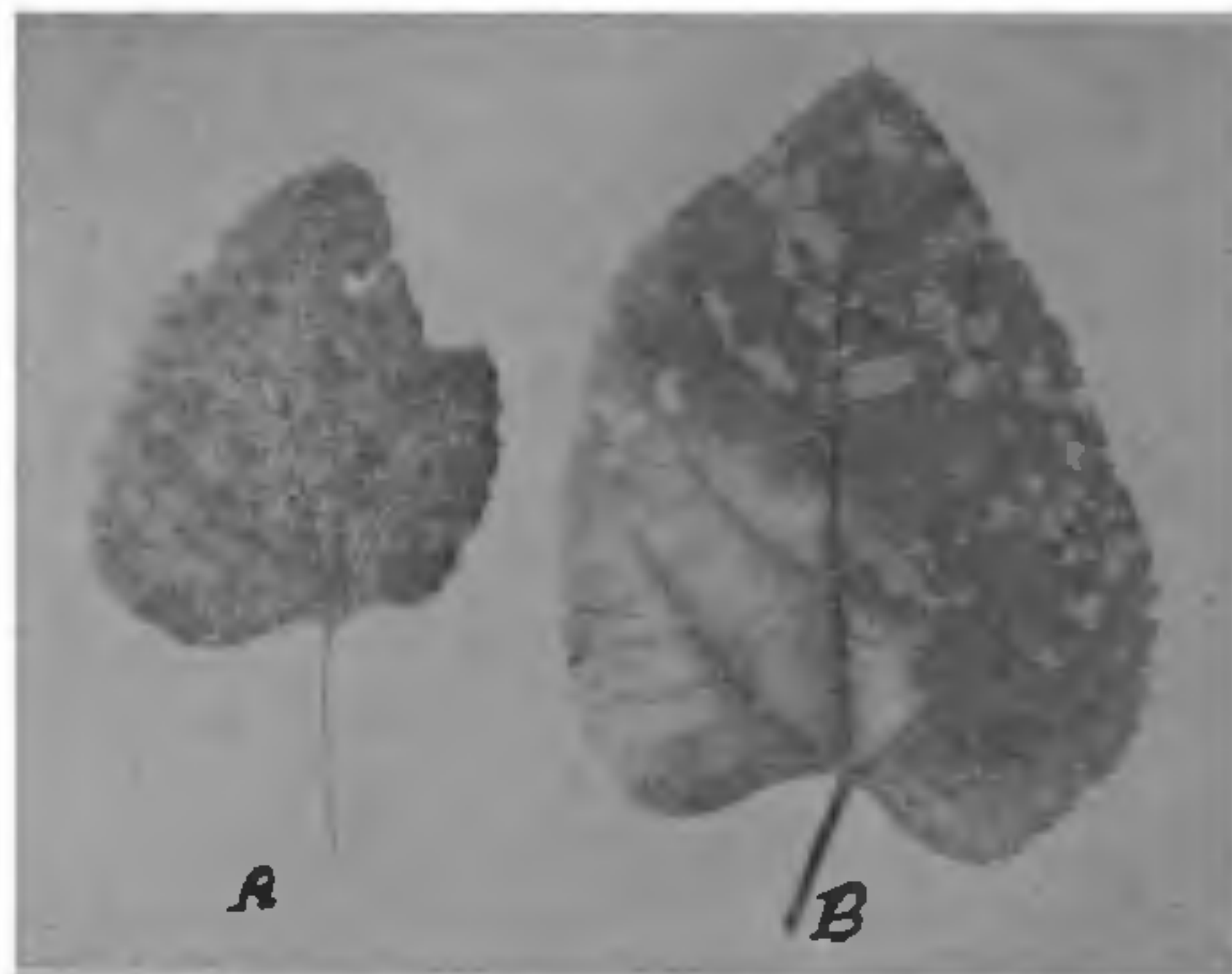


FIG. 1. (A) Mosaic mottling and deformity on *Ficus palmata*. (B) Spot mosaic on *Ficus carica*.

The disease could not be transmitted by *Myzus persicae* Sulz. and an unidentified fig aphid, or by sap inoculation to several species of *Ficus*, tobacco, bean and cucumber. Since eriophyid mites were observed on some of the diseased plants, the bud wood cuttings were either sprayed with Meta Systox, Aramite solution, or swabbed with sulphur to make them free from mites as far as possible, although these treatments seemed to reduce the percentage of successful grafts. After about 2-3 months of budding, the symptoms appeared on healthy stock seedlings grafted with buds from diseased plants but not on stocks grafted with buds from healthy plants. The plants were maintained in an insect-proof glass-house and sprayed as a routine with Meta Systox solution at weekly intervals. The host-range included *F. palmata* Forsk., *F. carica* Linn., and *F. nemoralis* Wall.

Since no organism could be isolated from the cuttings of diseased plants, and since the causal factor was infectious, it is apparent that the disease is caused by a virus. This is the only record of fig mosaic in India, although similar diseases have been reported from England (Ainsworth, 1935), U.S.A. (Condit and Horne,