

small sized flowers, a breeder would like to be sure of the genuineness of the crosses he takes up. This character of hypocotyl pigmentation can be advantageously utilised as a marker gene.

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* The work was carried out at I.A.R.I. Vegetable Research Station, Katrain, Kulu Valley.

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NOTE ON THE DEVELOPMENT OF VESICULAR-ARBUSCULAR MYCORRHIZA— *ENDOGONE FASICULATA* IN COCONUT ROOT

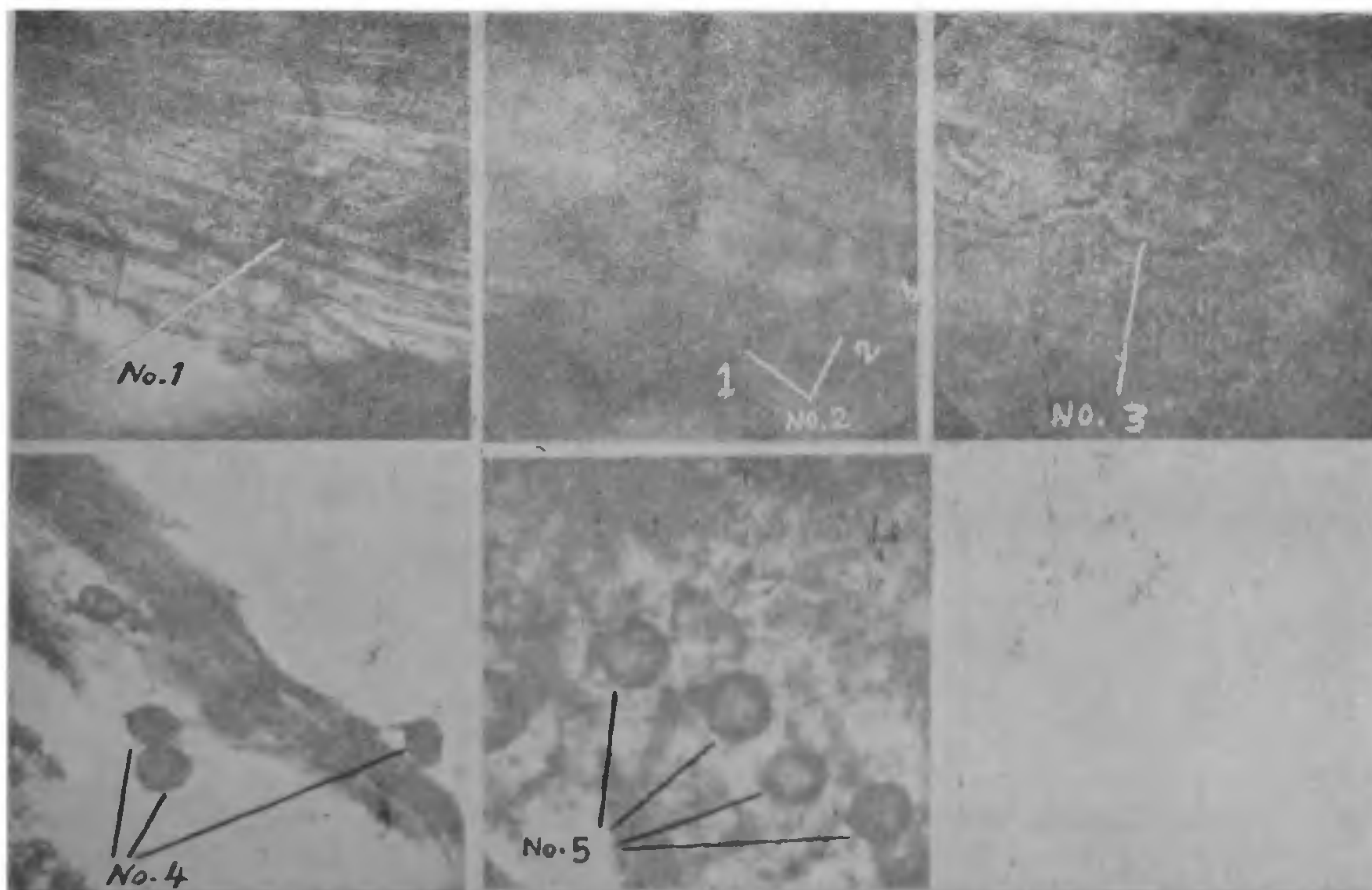
OF the various mycorrhizas reported the most widespread is the so-called vesicular-arbuscular type (Nicolson, 1967). Gerdemann (1968) made a review on this and later more than hundred papers have been published on this aspect, reviewed by Mosse (1973). The long standing speculation about the identity of vesicular-arbuscular endophytes (Gerdemann, 1968) has largely been resolved in favour of one or another species of *Endogone*. Improvement in growth and also the uptake of

increased phosphate was observed in many plants having micorrhizal association (Mosse, 1973). Occurrence of the vesicular-arbuscular mycorrhiza was noted in the roots of healthy and diseased coconut palm while studying the lower form of fungi associated with coconut root.

Coconut root materials were collected from different places in Kerala. Longitudinal sections of these were stained by boiling for one minute in acid fuchsin-lacto-phenol, destained and mounted in clear lacto-phenol for microscopic examinations. The hyphae on the root surface were broad with globules inside, measured 12 to 16 $m\mu$ in width whereas the hyphae in the inner cortical cells measured 2 to 8 $m\mu$ in width. The mycelium on the surface as well as inner cells appeared swollen at the apical portion to form vesicles ranging in size from 40 $m\mu$ to 100 $m\mu$ (Fig. 1). Dark thick-walled vesicles were also seen on the surface of the root. This was identified as *Endogone fasciculata*. This appears to be the first report on coconut.

This fungus was also observed in the roots of *Cassia tora*, *Melothria* sp., *Phyllanthus neuri*, *Solanum nigrum*, *Leucas aspera*, *Mullugo* sp., *Physalis minima*, etc., common weeds growing in coconut gardens.

Grateful thanks are due to Dr. Harley, Professor, Forest Science, Oxford University and Dr. T. H.



FIGS. 1-5. Fig. 1. Vesicle in the tender root of coconut, $\times 125$. Fig. 2. Vesicle in clusters in the tender root of coconut, $\times 125$. Fig. 3. Single vesicle with aseptate mycelium, $\times 400$. Fig. 4. Vesicles in mature root of coconut, $\times 125$. Fig. 5. Thick-walled spores in mature root of coconut, $\times 125$.

Nicolson. Professor. Department of Biological Science, the University of Dundee, for identification of the fungus. Thanks are also due to Dr. K. Radha and Dr. P. Shanta, of the CPCRI, Regional Station, Kayangulam, for the suggestions given in this study. CPCRI, Regional Station.

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Kerala. July 1, 1974.

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A NEW LEAF BLIGHT OF *CLERODENDRON FRAGRANS*, R. BR.

A SEVERE leaf blight disease of *Clerodendron fragrans*, R. Br., a roadside and a popular ornamental plant, was observed during the summer season of 1973 and 1974 around Madanapalle, Chittoor District, Andhra Pradesh. The disease manifests itself in the form of irregular grey brown necrotic areas or patches measuring 4–14 mm long in size. The disease is very characteristic in that the patches appear or begin mostly along the margins and tips of the leaves. These areas gradually extend downwards along the margin involving the major part of the leaf tissue, ultimately resulting in blight (Fig. 1). In cases of severe infection, the plants

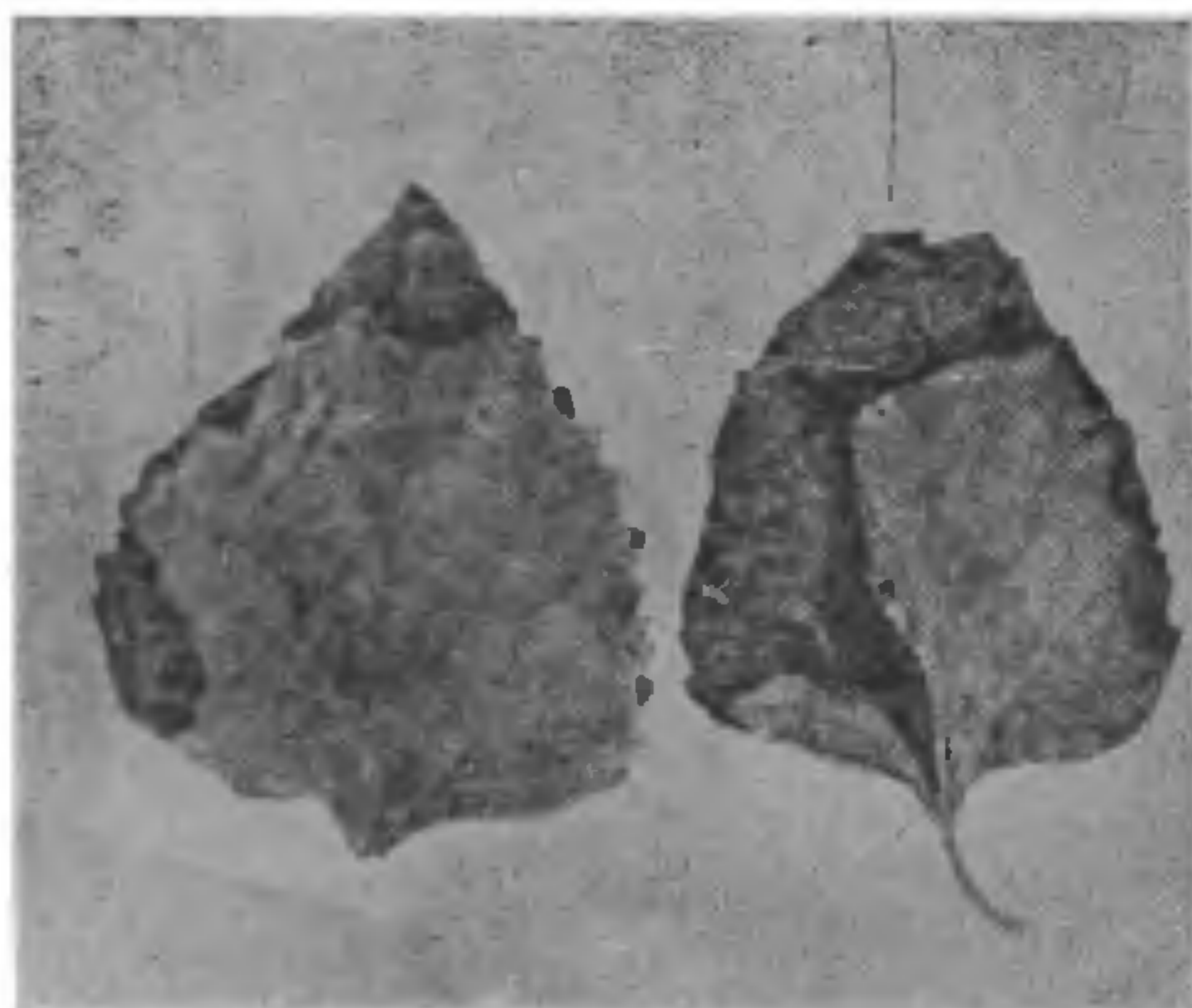


FIG. 1

look withered and could be spotted from a distance. Individual spots appear very rarely in the middle of the leaves. Severe attack results in complete drying of the leaves and occasional defoliation. The young as well as mature leaves were seen to be equally attacked.

The fungus was isolated by plating on PDA medium and all the single spore isolations made were found to be identical. The fungus was established in pure culture on PDA and its pathogenicity was proved by spraying spore suspension (prepared in sterile water from one week old culture) on the leaves of around one month old healthy plants. Slight injuries were made over some of the leaves with a sterile needle before inoculation. Control plants were sprayed with sterile water only. The inoculated plants were kept inside a humid chamber for 48 hours. Typical blight symptoms developed in 10–12 days in both the injured and uninjured leaves but none in the control. Re-isolations yielded the original fungus.

Aerial mycelium bluish green, cottony, abundant and appearing somewhat powdery with conidial formation and produced dark blue pigmentation on the medium. The hyphae septate, branched and measured 3–4.5 μ in width. On the leaf, the pathogen produced conidiophores and conidia. Conidiophores light to dark brown simple or branched having distinct geniculations. Conidia yellowish brown, obclavate, smooth walled 2–7 (3–8 celled), transverse and 1–2 longitudinal septa with or without beak. The length of the conidia varies (with beak) from 21 to 45 μ and width 3 to 15 μ .

The causal organism has been identified and confirmed as *Alternaria* state of *Pleospora infectoria* Fuckel. (IMI 184579).

Grateful thanks are due to Dr. Ellis of CMI Ferry Lane, Kew, England, for identification of the fungus and to Prof. V. S. R. Das for providing necessary facilities.

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CYTOLOGICAL STUDY OF A POLYPLOID O. RADISH OBTAINED AS A RESULT OF INBREEDING

ALMOST all the inbred lines of radish (*Raphanus sativus* L. var. *radicola* Pers.) in the genetic collection of Dr. S. I. Narbut of the Chair of Genetics and Plant Breeding, Leningrad State University, Leningrad (USSR), significantly differ in many characters from their original populations and are generally characterized by reduced fertility¹. One of the lines, namely, LB-274, which was isolated