TABLE I

Characteristics of the parental variety L-235, Tendril-1 and Tendril-2 mutations

Character	Parent variety (L-235)	Tendril-1	Tendril-2
Height (cm)	33·8±0·39	25·4±0·31	28·5±0·34
Stem	Normal	Thin and smooth	Normal
Leaf modifications (unipinnate to bipinnate)	Absent	Present	Absent
Tendril modifications	Absent	Present (any leaflet)	Present (two or three terminal leaflets)
Leaflet modifications	Absent	Present	Absent
Petiolated, funnel-shaped and multifoliate leaflets	Absent	Present	Absent
Pollen grains	Fertile	Fertile	Fertile
Seed set	Normal	Nil	Normal
Pod size	Normal	..	..
Seed weight (gm/1000)	21·6	..	20·2

One of the authors (S. K. S.) is thankful to the I.C.A.R. for financial assistance.

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LIGHT MICROSCOPIC DETECTION OF MYCOPLASMA-LIKE ORGANISM (MLO) IN SESAMUM PHYLLODY

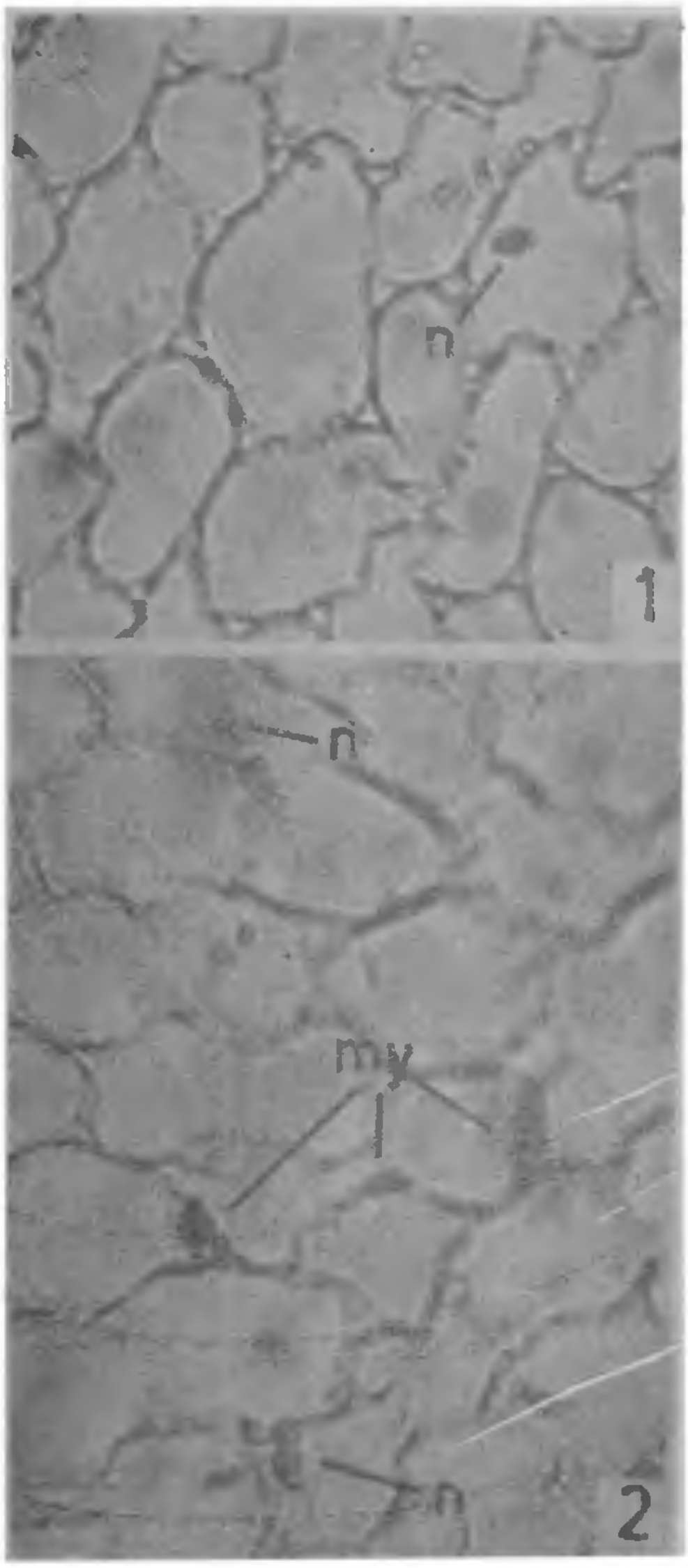
PHYLLODY is a serious and widespread disease of sesamum in India[1,2]. The disease has been reported from almost all parts of the country where sesamum is grown. The electron microscopic studies of the infected tissues of sesamum have revealed presence of Mycoplasma-like organism (MLO) associated with phyllody[3]. Though electron microscopy is the surest method for the detection of these organisms, but, for rapid diagnosis, light microscopy proves better. The disadvantages and importance of light and electron microscopy have been discussed[4]. Light microscopic detection of plant mycoplasma in *Nicotiana tabacum* L. var. *Xanthi* and *Vinca rosea* L. (*Catharanthus roseus*) has been reported[5].

In this paper we report observations on the light microscopic detection of mycoplasma associated with sesamum phyllody using Feulgen's staining procedure.

Healthy and diseased plant material was collected from experimental plot at University Campus. Stem portions (10 cm) from the top of the old plants were used. The stem segments were cut into 0·5 cm pieces and fixed in Helly's fixative, following the method given by Kartha *et al*[6]. Transverse sections (10 μ) were cut with the help of ordinary microtome and stained with basic fuchsin in dark for 1 hour, The sections were examined under phase contrast.

When the sections from diseased plants were compared with those from healthy plants, difference in the staining pattern was observed. The nuclei in both the types were uniformly stained light purple; in the case of diseased material, groups of stained bodies of different shapes and forms were observed in the phloem elements (Figs. 1, 2). Since the phloem elements in the diseased plants show an intense stain reaction it is assumed to have been attributed by the stained DNA of the mycoplasma bodies. The presence of these types of bodies in the infected tissues of sesamum has been confirmed by electron microscopy[3].

The significance of Feulgen's staining procedure for detection of MLO has been discussed[5]. Electron microscopic detection of MLO in sesamum and light microscopic observation in other plants support our findings.



FIGS. 1–2. *Fig.* 1. Healthy sesamum plant. No mycoplasma zones are stained. *my* = Mycoplasma zone, *n* = nucleus. *Fig. 2. Cross sections of Sesamum indicum* Linn. stained by Feulgen stain. Mycoplasma zones located in the phloem elements of phyllody infected sesamum plant.

In these studies old and severely infected plant materials have been used which ensure the presence of MLO in high density. The organism can escape detection if the early stage of the infected material is taken.

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IN VITRO PLANT REGENERATION IN PAPAYA

PAPAYA (*Carica papaya* L.) is essentially a cross pollinated crop and propagated through the seed. This leads to a high degree of variability in various morphological characters in the progeny. This adversely affects productivity of the crop. The presence of almost equal number of unproductive male plants in a papaya grove is also an impediment in the successful commercial cultivation of this crop. It is well known that vegetative propagation of papaya through conventional methods has not been successful. Thus the only alternative left to overcome the above limitations is vegetatative propagation of papaya through tissue culture. This technique has been successfully employed in the regeneration of citrus[1], strawberry[2], almond[3], apple[4] and a number of ornamental plants. However, papaya is a problematic crop for tissue culture since it contains latex. Therefore, the present study was undertaken with a view to evolve a tissue culture technique in papaya, which may be helpful in the vegetative regeneration of plants. Initially young papaya seedlings were taken for this purpose.

The 4–5 mm long stem segments of papaya seedlings, raised aseptically on White's medium supplemented with 4 mg/l GA_3, were used as inoculum. Modified White's, Heller's, Nitsch's, Murashige and Skoog's (*see* Butenko[5]) and Linsmaier and Skoog's[6] were used as basal media. These media were also supplemented with auxins (IAA; 2, 4-D; and NAA, 1–10 mg/l) and kinetin (0·5–5·0 mg/l) individually and in combination with each other. The proliferation of the tissue was observed only when NAA was used as auxin in MS and LS medium. A nutrient medium was standardized to enable vigorous growth of papaya callus and a 40–50 fold enlargement of stem tissue of papaya seedling was achieved in 4 weeks on a modified LS medium which contained inorganic salts in kind and concentration as recommended and organic addenda as follows (mg/l): alpha-naphthaleneacetic acid, 2·0; kinetin 0·5; gibberellic acid, 1·0; glycine, 1·0; casein hydrolysate, 1000; malt extract, 500;