

lipids showed that the outer and middle layers of the cyst wall are faintly PAS positive showing the presence of traces of glycogen. These layers further showed positive reaction with mercuric bromphenol blue indicating the presence of protein but did not give a consistent result for lipids with Sudan black B.

TABLE I

Cyst	PAS	MBM	SB
Outer wall	+	++	?
Middle wall	+	++	?
Inner wall	++	++	—

+ Weak reaction; ++ Moderate reaction;  
? = Doubtful reaction; — Negative reaction.

The inner layer is moderately PAS positive and diastase resistant which suggest that this layer may consist of PAS positive inclusions such as glycolipids, mucoproteins or glycoproteins<sup>4</sup>. Mercuric bromphenol blue test shows sure indications of mucoproteins and glycoproteins in this layer.

Thus the indications are that the cyst of *L. hemirhamphi* is mainly composed of proteinaceous matter with very small amounts of glycogen.

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#### OCCURRENCE OF *PHAEOSARIOPSIS GRISEOLA* (SACC.) FERRARIS ON FRENCH BEANS

In October 1975 French beans, *Phaseolus vulgaris* Linn. var. 'Contender' were grown in the University of Agricultural Sciences, Hebbal Campus, Bangalore. The maximum temperature of 28° C, minimum 18° C and R.H. 60–90% were recorded during that period. There was 61.5 mm rainfall and about 13% soil moisture.

An interesting dematiaceous hyphomycete was collected on leaves and stems of *P. vulgaris* which on examination was found to be *Phaeoisariopsis*

*griseola* (Sacc.) Ferraris. The genus *Phaeoisariopsis* was erected by Teodoro Ferraris in 1909 based on *Isariopsis griseola* Sacc. He has transferred three more species namely, *grayana* Ell., *mexicana* Ell. and Ev. and *pilosa* Earle. Srinivasan<sup>2</sup> recorded *I. griseola* on *P. vulgaris* from Tamil Nadu, which is a *nomen dubium* and insufficiently described. He has further reported that varieties 'Black valentine', 'Bountiful yellow' and local french beans were susceptible to the disease. Hocking<sup>1</sup> described a new virulent form causing circular leaf-spots of french beans, commonly found on leaves and petioles from Tanzania. A short description of the fungus is given below.

*Phaeoisariopsis griseola* (Sacc.) Ferraris (Fig. 1) in *Ann. Mycol.*, 1909, 7, 280; Ellis, M. B., *Dematiaceous Hyphomycetes*, 1971, p. 268.

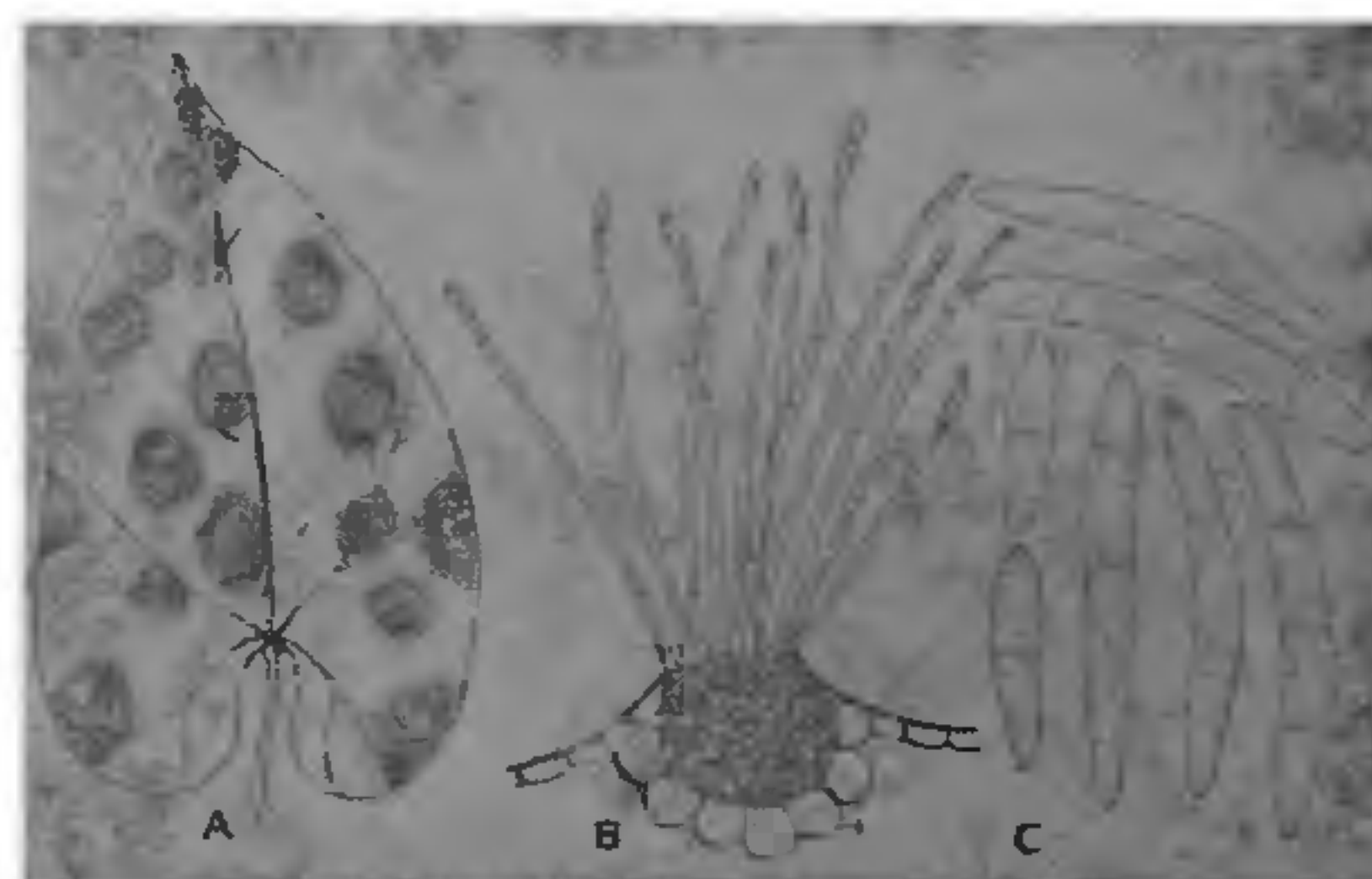


FIG. 1. *Phaeoisariopsis griseola* (Sacc.) Ferraris. A, Habit; B, Conidiophores emerging from the stroma ( $\times 150$ ); C, Conidia ( $\times 330$ ).

Follicolous and caulicolous. Spots numerous, amphigenous, irregularly circular, 5–20 mm long and 5–15 mm wide, coalesced to form irregular patches involving complete lamina. Fructifications mostly hyphophyllous, a few epiphyllous. The spots appear mostly on the first leaves in the beginning and later spread to other leaves. The spots appear water-soaked under humid conditions. In advanced stage of infection, most of the leaves and petioles are affected resulting in complete defoliation. As a result the yield is reduced up to 80% and the plants die prematurely.

Colonies effuse, brown and hairy. Mycelium immersed. Stroma present, prosenchymatous and brown. Setae and hyphopodia absent. Conidiophores macronematous, mononematous, forming synnemata up to 520  $\mu$  long, individual threads unbranched, straight or flexuous, pale to mid-brown, smooth, about 3.75  $\mu$  thick near the base, swelling up to 5.75  $\mu$  near the apex, 2–4 septate. Conidigenous cells polyblastic, integrated, terminal, sympodial, cylindrical to clavate, cicatrized, scars flattened against the side of the conidigenous cells.



Conidia solitary, dry, acropleurogenous, simple mostly obclavate, conico-truncate at the base, pale olive to olivaceous brown, smooth, 1–5 septate, 30–60 (55)  $\times$  6.5–7.0 (6.5)  $\mu$ m in dimension.

On living leaves and stems of *P. vulgaris*. October 10, 1975. UAS, Hebbal Campus, Bangalore. Leg. P. C. Hiremath. Specimens deposited in Herbaria of the Commonwealth Mycological Institute, Kew and in the Department of Plant Pathology as IMI 198914 and MYSP 1961 respectively.

Further studies regarding host-range, chemical control and other aspects are in progress.

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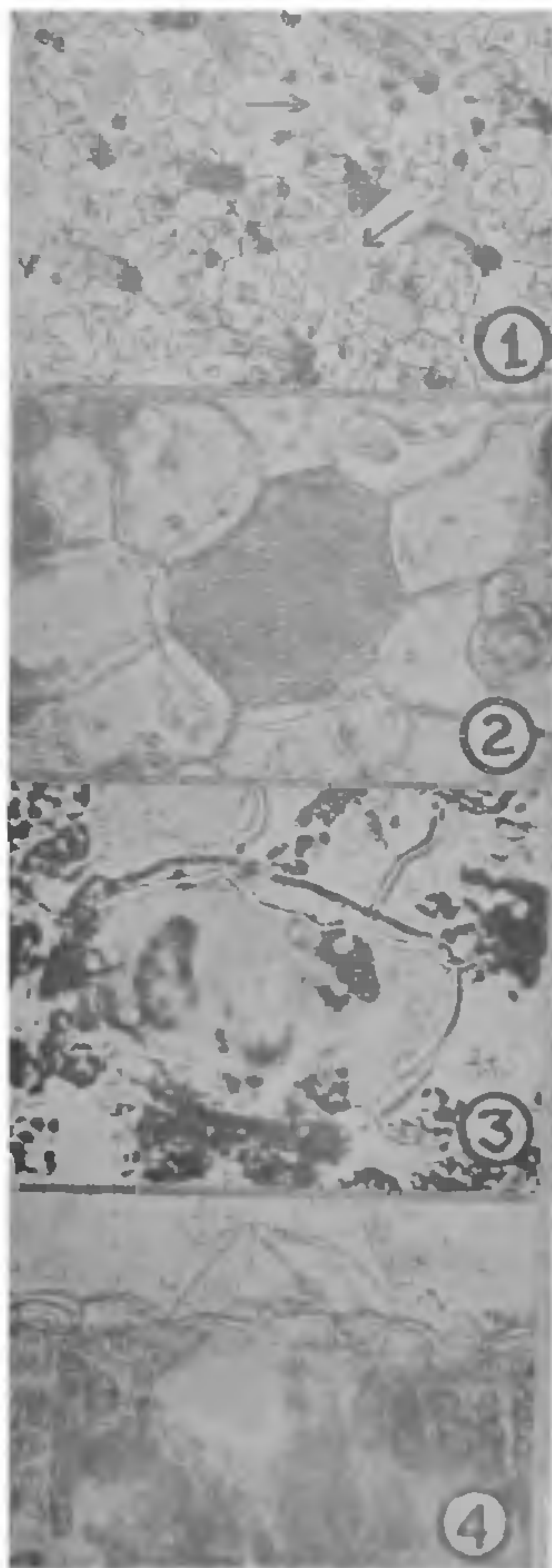
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#### UNICELLULAR STORAGE IDIOBLASTS' NORMAL AND MUTAGEN INDUCED *CROTALARIA* L. SPECIES

THE objective of this communication is to report the occurrence of unicellular storage idioblasts in foliar epidermis of normal and mutagen induced *Crotalaria* species. With the main purpose of studying the comparative efficiency of physical and chemical mutagens on *Crotalaria* L. species, seeds of *C. juncea* L. cv. PLC 31, *C. medicaginea* L. var. 1. *luxuriance*, 2. *neglecta* and 3. *typica*, and *C. triquetra* Daltz. were treated with gamma rays ( $\gamma$ -rays; 20–100 kR) and dimethyl sulphate (DMS; 0.2–0.4%), and plants were raised in 12" earthenware pots. The treatment produced varying degrees of lethality and morphological variability including phyllody where the leaves were compactly arranged and very much reduced in size, and the floral parts were proliferately modified into leaf-like structures in  $M_1$  generation. In the epidermal studies of these induced variants and normal plants, storage idioblasts were observed in control and treated plants of *C. medicaginea* var. *typica*, and  $\gamma$ -rays (80 and 100 kR) and DMS (0.4%) induced phyllody types of *C. juncea* (Figs. 1–4) with a comparatively high frequency on the adaxial surface of the leaves.

The idioblasts are generally larger than the tabular epidermal cells and more or less spherical in shape. Their upper surfaces protrude slightly above the

epidermal cells (Figs. 2, 3) and their bases are surrounded by palisade parenchyma (Fig. 4). The cell wall is comparatively thick and the cytoplasm shows greater chromaticity in contrast to that of surrounding epidermal cells. It is presumed that the contents of these cells may impart the characteristic violet pigmentation to the leaves.



FIGS. 1–4. Fig. 1. Surface view of storage idioblast cells in upper foliar epidermis of *C. medicaginea* var. *typica*,  $\times$  150, Fig. 2. Single idioblast magnified,  $\times$  500. Fig. 3. Same, in gamma rays induced phyllody type of *C. juncea*,  $\times$  500. Fig. 4. Same, in side view from transection of leaf,  $\times$  500.