

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)  $\mu$  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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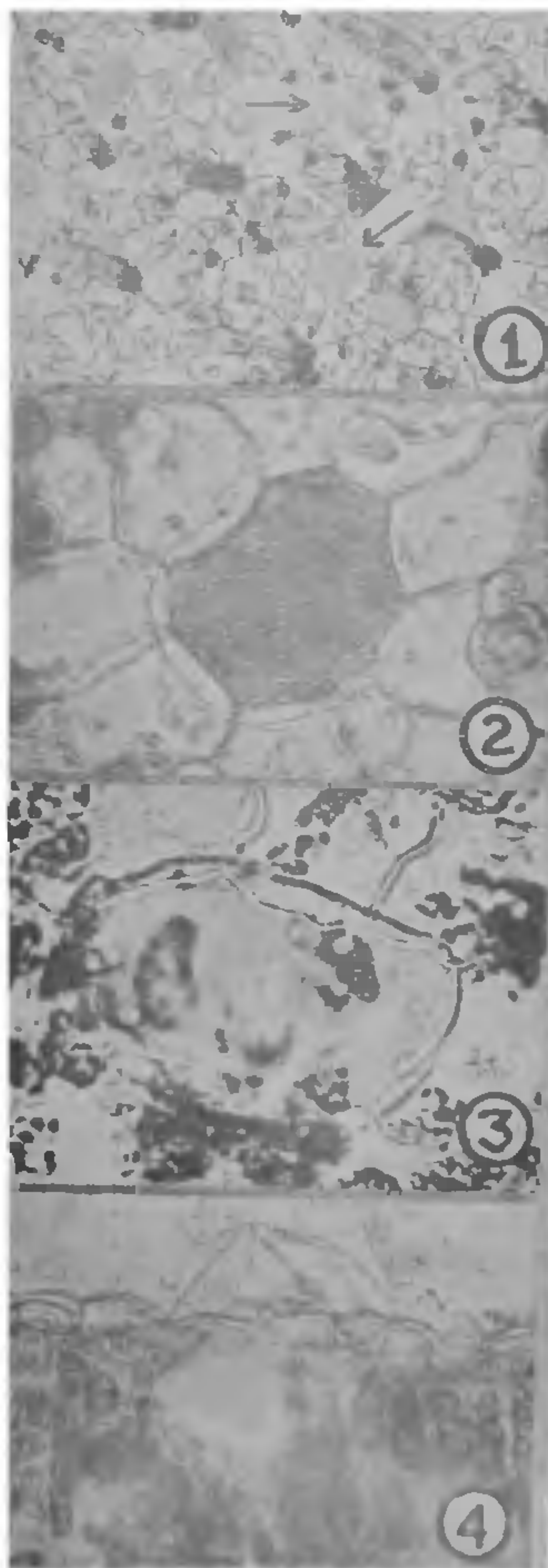
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#### UNICELLULAR STORAGE IDIOBLASTS' NORMAL AND MUTAGEN INDUCED *CROTALARIA* L. SPECIES

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.

Formation of epidermal idioblasts has been considered to be related with micro-environmental influences<sup>1</sup>. The concept seems plausible, since in untreated populations, they are present only in *C. medicagmea* var. *typica*, a prostrate form having its own micro environmental surroundings different from those of the erect forms. Their formation in induced phyllody types of *C. juncea* is caused by morphological changes brought about by lethal doses of mutagen treatment. It results in destruction of biological activity of growth regulators<sup>2,3</sup> and induction of physiological and biochemical disturbances<sup>4</sup>. However, the change is not genetical but morphologically epigenetic since, induced phyllody types are completely sterile without fruit and seed setting.

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#### MODIFICATION OF SEX EXPRESSION BY KINETIN, MORPHACTIN AND UREA IN CASTOR (*RICINUS COMMUNIS* L.)

CHEMICAL control of sex expression was achieved mostly in cucurbits<sup>1-3</sup>. The work on monoecious plants other than cucurbits is scanty. In castor, separate male and female flowers are borne on the same plant so that the sexes are separated flower for flower but not plant for plant. While investigating the physiological basis of sex expression, it was intended to modify the sex ratio by growth regulators.

Castor seeds var. Aruna were selected for the investigation. Morphactin, kinetin, and urea were sprayed at different stages of vegetative growth. As castor is a 90 days crop, the total vegetative period was divided into six stages of 15 days interval, the fifth stage being the flower initiation stage. In general the untreated castor plants showed a ratio of 4 : 1 (Male : Female) flowers. Kinetin (10 ppm) reduced the maleness significantly although femaleness was not increased with a ratio of 2 : 1 (M : F). Urea (2-3%) also modified the sex ratio to nearly 2 : 1, similar to that of kinetin. In monoecious plants kinetin may not increase femaleness but reduces male tendency. It is also evident that nitrogen in any form (urea and kinetin) may reduce the maleness in monoecious plants. Earlier work by Gopala Rao<sup>4</sup> indicated that decapitation

of shoot apex in castor increased the male tendency possibly by reducing the auxin level and increasing the gibberellin level.

An interesting finding is that morphactin at high concentrations (500 ppm), when sprayed only once just before flowering, reduced femaleness giving a ratio of 10 : 1 (M : F) and when sprayed throughout vegetative stage at different intervals of 15 days, during the 90 days period, also reduced the femaleness giving a ratio of 10 : 2 (M : F) at a concentration of 50 ppm. In general, it was found that treatment with kinetin, morphactin or urea delayed anthesis period. It is finally concluded that nitrogen supply to monoecious plants reduces maleness and higher concentration of morphactin (500 ppm) sprayed once, prior to flower initiation, reduces femaleness drastically.

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#### *TRYPANOSOMA ACANTHOBRAE* N. SP. FROM A FRESHWATER FISH, *ACANTHOBRA* *MARMID* HECKEL (FAMILY: CYPRINIDAE) FROM THE RIVER TIGRIS, IRAQ

TRYPANOSOMES have been reported from freshwater and saltwater fishes in various parts of the world. During a survey of fish parasites in 1973-74, the authors came across a new species of *Trypanosoma* from the blood of a Cyprinid fish, *Acanthobrama marmid* Heckel.

#### Materials and Methods

For the study of trypanosomes, thin blood films were made on clean glass slides from the blood obtained by clipping the caudal peduncle of the fish. The films were air-dried, fixed in methyl alcohol and stained with Giemsa's stain. Camera lucida drawings were made as well as phase-contrast photographs.

#### Observations

The organisms are slender and attenuated at both the ends. Their configuration varies, some of them have a "C"-shaped body, while others are "S"-shaped. No polymorphism is observed and no dividing stages found in the blood smears.