

FIGS. 1-7. (All magnified ca. $\times 90$). Fig. 1. *Koteshwaria* sp., view from opposite to spire side of No. LUG/JAH/804. Fig. 2. *Protocaudina* sp., upper view of No. LUG/JAH/807. Fig. 3. *Theelia* sp., upper view of No. LUG/JAH/811. Fig. 4. *Eocaudina* sp., No. LUG/JKH/903. Fig. 5, cf. *Elgerius* sp., No. LUG/JKH/908. Fig. 6. *Frizzellus irregularis* Hampton, No. LUG/JKH/915. Fig. 7. *Fletcherina* sp., view from spire side of No. LUG/JKH/921.

remains, from the coeval Jurassic rocks of Kutch and Jaisalmer may bring to light the utility of this microfossil group in biostratigraphic correlation on regional and inter-regional scale.

The figured specimens are deposited in the Micropalaeontology Laboratory of the Department of Geology, Lucknow University.

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PERFECT STAGE OF *PESTALOTIOPSIS NEGLECTA* THUEN.

D. K. PUROHIT AND S. P. JOSHI

Department of Botany

Mycology and Plant Pathology Laboratory

University of Jodhpur, Jodhpur 342 001, India

THE authors collected infected leaves of *Agathis robusta* Bailey in 1979 near Coonoor. Infection of these leaves was initiated from the tips as well as the margins in the form of circular to irregular light brown spots. At the advancement of the disease the lesions enlarged in size and covered with black, epiphyllous, scattered fruiting pustules. On microscopic examination it was found that the asexual stage of *Pestalotiopsis neglecta* Thuem. was associated with its perfect stage, i.e., *Leptosphaeria* sp. Isolations from such leaf spots invariably resulted in the culture of *P. neglecta* Thuem. and development of perithecia in close association. The host inoculated with conidia developed perithecia also. The morphological characters of both the conidial stage and perfect stage were as follows:

Conidial stage

Fruiting pustules were conical, erumpent, subepidermal $166.5-225\mu\text{m}$ with 2-4 layered thick wall, filled with numerous conidia developed on short conidiophores.

Conidia 5-celled, fusiform, $18.9-24.3 \times 4.05-5.4\mu\text{m}$ concolours, sometimes the two upper cells slightly darker, $12.15-16.2\mu\text{m}$ long; apical hyaline cells conical bearing 2-3 setulae, $5.4-13.5\mu\text{m}$ long; the

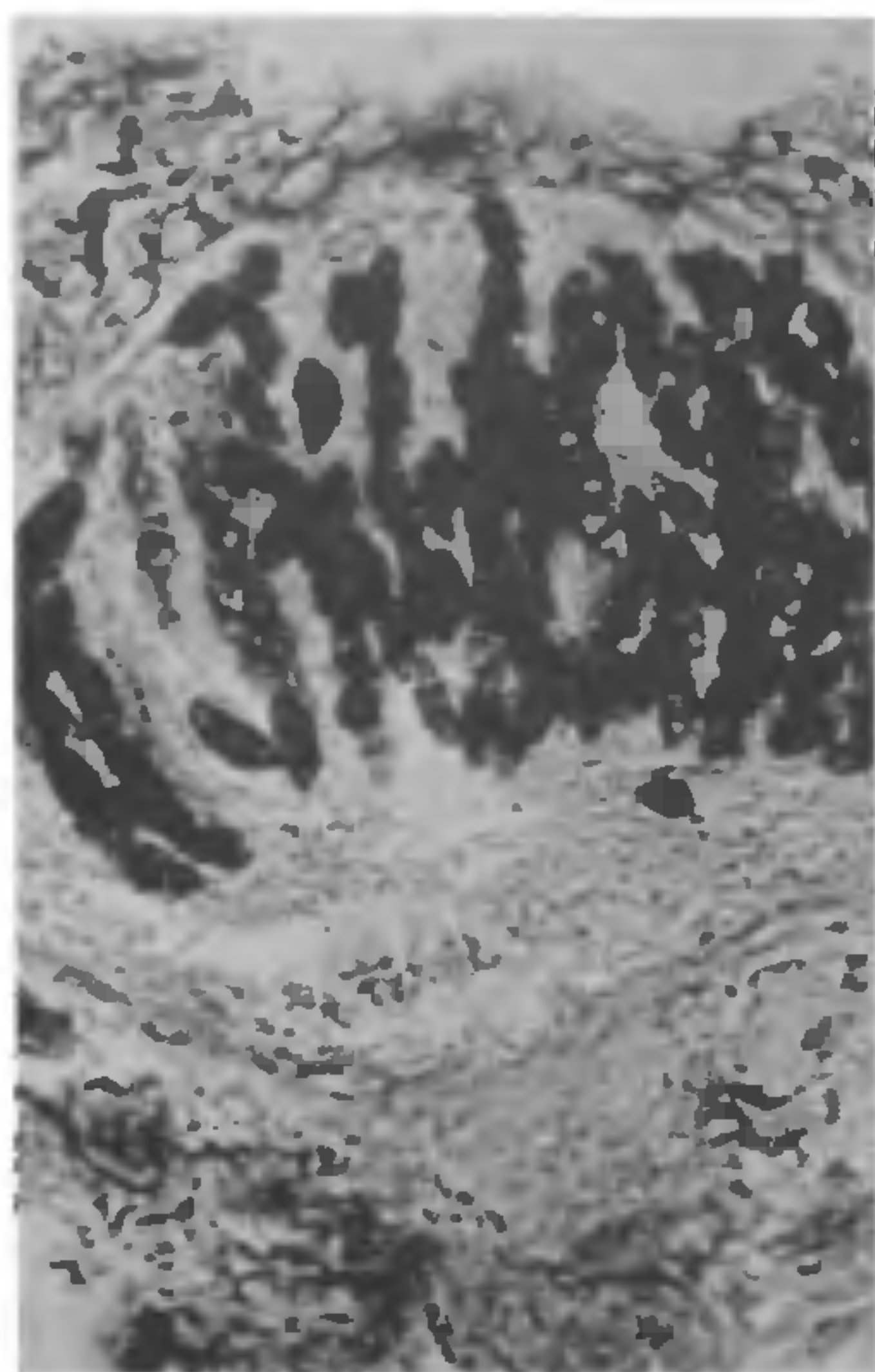


FIG. 1. Photomicrograph showing a perithecium with asci and ascospores, $\times 300$.

basal hyaline cell acute, tapering into a short pedicel upto $4.5 \mu\text{m}$ long.

Perfect stage

Perithecia subglobose to globose, carbonaceous, immersed with erumpent ostiole $88.8-222.0 \mu\text{m}$ in diam.; outer wall composed of 3-4 light-brown to black polygonal pseudoparenchymatous cells, inner 2-3 layers of hyaline pseudoparenchymatous cells; asci numerous, bitunicate, cylindric to clavate $72.9-99.9 \times 8.1-10.8 \mu\text{m}$; ascospores 8, uniseriate, 3-celled, light brown, middle cell slightly darker, fusoid to ellipsoidal, obtuse at both end, $13.5-20.25 \times 4.05-6.75 \mu\text{m}$ in size (Fig. 1).

Earlier Bilgrami and Purohit¹ and Hansen *et al.*² have also reported the perithecial stage of *Pestalotia osyridis* Thuem. and *P. palmarum* corresponding to genus *Leptosphaeria*.

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PARTHENIUM HYSTEROPHORUS L. (ASTERACEAE) EXHIBITING LOW PHOTORESPIRATION

G. RAJENDRUDU AND V. S. RAMA DAS*

Centre for Photosynthetic Studies,
School of Life Sciences, University of Hyderabad
Hyderabad 500 134, India

* Present address : Department of Botany, Sri Venkateswara University, Tirupati 517 502 (A.P.), India.

THE efficient photosynthetic system, suspected in the leaves of *Parthenium hysterophorus*, probably allows it to have uncontrolled luxurious spreading. Hence it is worth while tracing some of the reasons for its luxurious growth under arid environment.

Materials and Methods

Plants of *Parthenium hysterophorus* L. were collected from the campus of University of Hyderabad (approximately 11th photoperiod with temperatures regime of 31°C by day and 23°C by night). The other two plant species of the same family, *Flaveria australasia*, a C_4 plant and *Eclipta alba*, a C_3 plant were selected for comparison.

Free-hand sections cut from fresh and fixed leaf tissues were used for light microscopic studies. Paradermal view of the leaf tissue was observed by the method of Crookston and Moss¹. CO_2 compensation concentration was determined in a closed system using IRGA-20 (Grubb Parsons, England) calibrated for carbon dioxide on an absolute mode. Photorespiratory ratio (CO_2 released in light/dark) was calculated by measuring CO_2 evolution into CO_2 -free air using an open IRGA system. Apparent photosynthesis measurements were made with IRGA system on an absolute mode. Activities of PEP and RuBP carboxylases in the leaf extracts were determined following the incorporation of H^{14}CO_3 into acid stable products².

Results and Discussion

Light microscopic observation of the leaf tissue of *P. hysterophorus* showed a layer of parenchymatous cells with substantial number of chloroplasts around the vascular tissue. A paradermal view of the leaves also showed a layer of parenchymatous cells around the vascular tissue with positive reaction for $\text{I}_2\text{-KI}$ solution in addition to other mesophyll cells. However, a low CO_2 compensation concentration and photorespiratory ratio revealed that the species in exhibiting a low magnitude of photorespiration compared to *E. alba*, a C_3 plant (Table I). The rate of apparent photosynthesis was approximately similar to the other C_3 plants reported by others but significantly lower than *F. australasia* or any other known C_4 plants (Table I)³⁻⁵.

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