

tive nitrate reduction test, H₂S production, positive catalase test, utilization of carbohydrates such as xylose, glucose, fructose, sucrose, lactose and non-utilization of adonitol, dulcitol, inulin, salicin and inositol indicated that the bacterium causing the leaf spot of peppervine is *Xanthomonas* spp. (Dye, D. W.)¹.

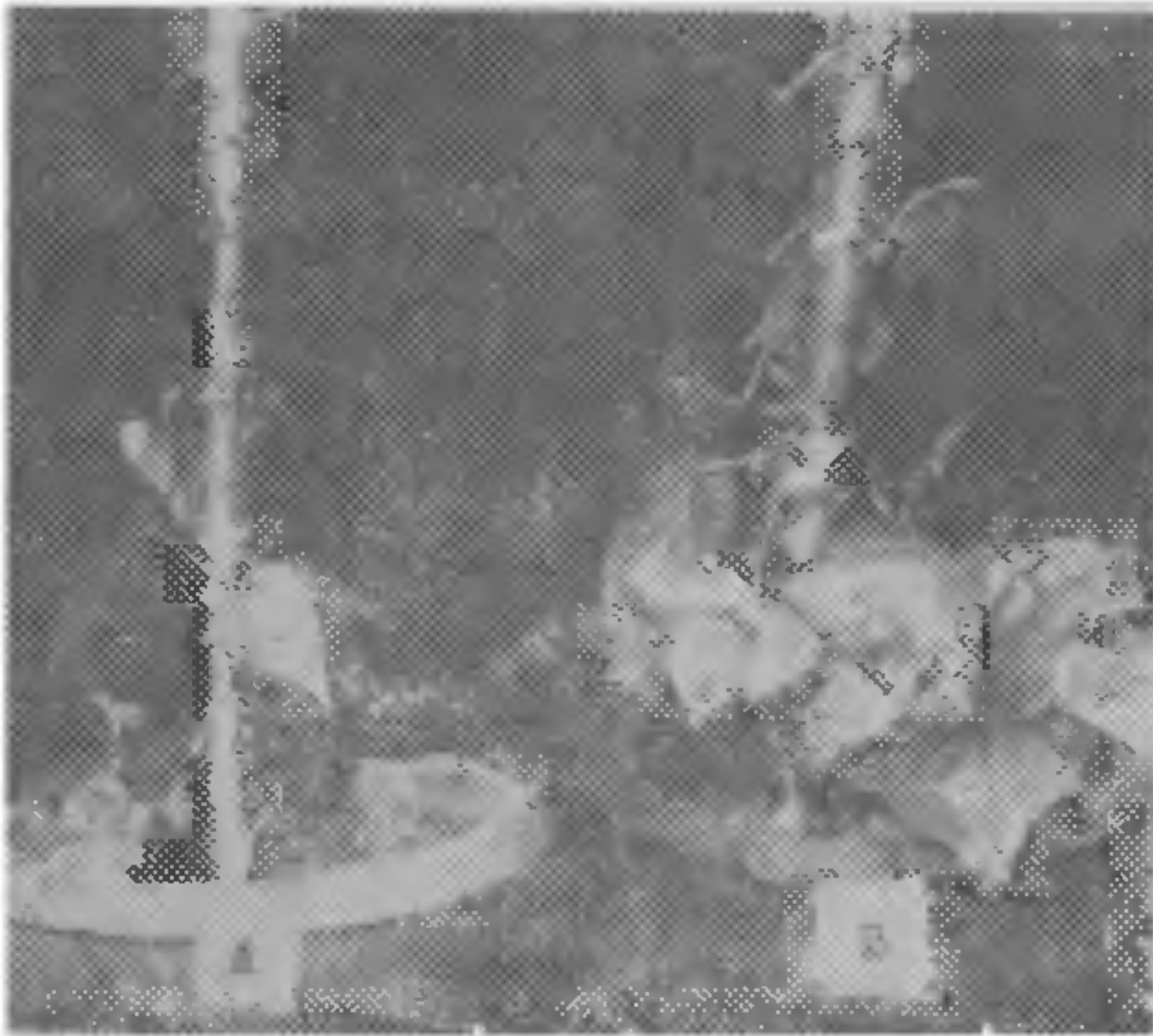


FIG. 1. Bacterial leaf spot on betelvine (A) and peppervine (B).



FIG. 2. Infected leaves. A. Peppervine; B. Betelvine.

Buchanan and Gibbons² have reported that the organism *X. betlicola* goes to the members of the family Piperaceae. Based on the pathogenicity of the organism to pepper leaves, positive results of cross-inoculation tests and the symptomatological characters, the bacterium is tentatively identified as *X. betlicola* Patel *et al.*³. Detailed studies on the pathogen, disease and its control are in progress in this laboratory.

We are grateful to the Kerala Agricultural University for facilities given for these investigations.

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1. Dye, D. W., *Newz. J. Agric. Sci.*, 1962, 5, 393.
2. Buchanan, R. E. and Gibbons, N. E., *Bergey's Manual of Determinative Bacteriology*, VIII ed., Williams and Wilkins Company, Baltimore, 1974, pp. 1268.
3. Patel, M. K., Kulkarni, Y. S. and Dhande, G. W., *Curr. Sci.*, 1951, 20, 106.

SPOROSCHISMA SACCARDOI MASON AND HUGHES STATE OF CHAETOSPHERIA COELESTINA HOHNEL, AN ADDITION TO INDIAN MYCOFLORA

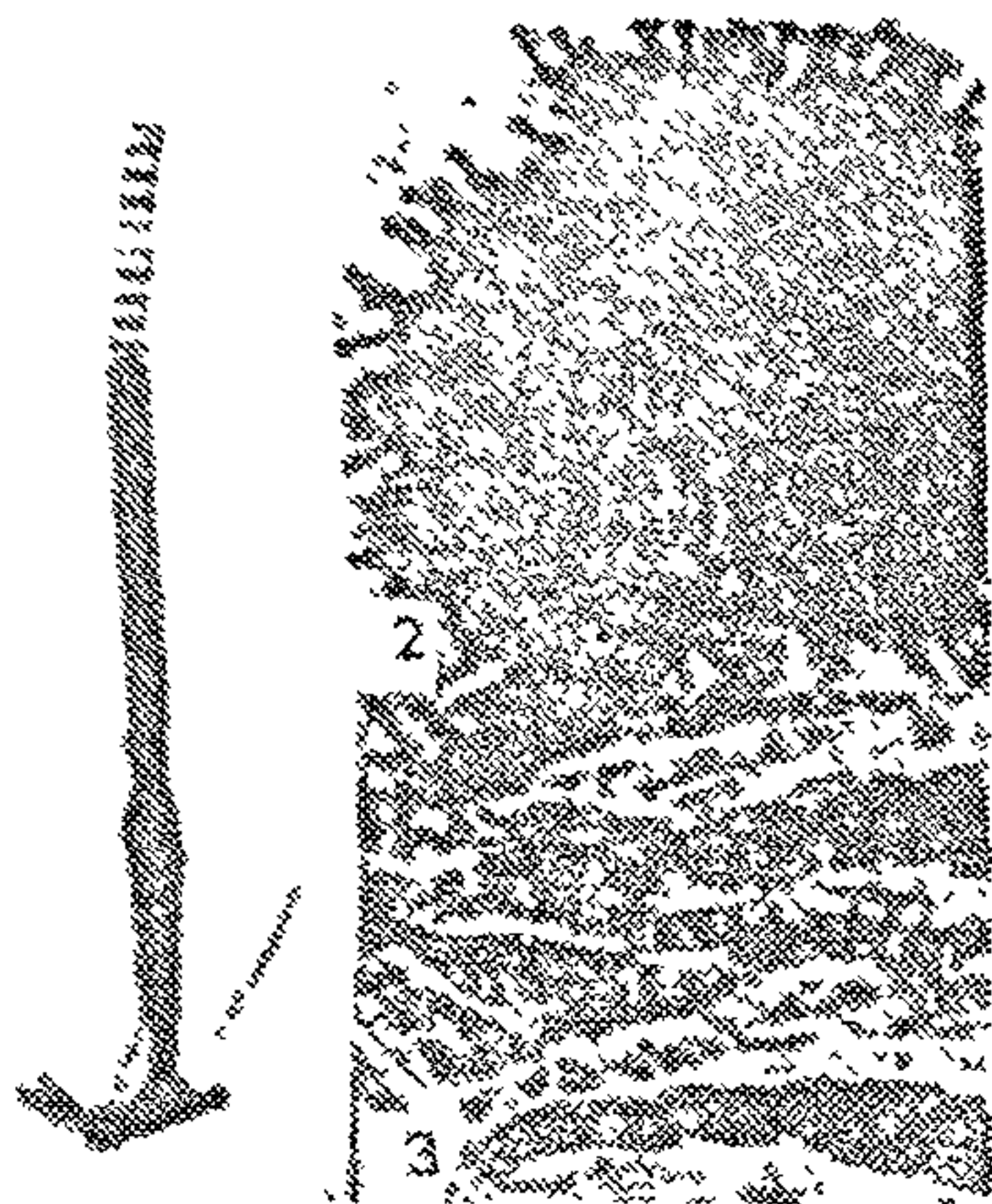
THE genus *Sporoschisma* Berk. and Br. in India is represented by a single species, viz., *S. nigroseptata* Rao and Rao¹. During the survey on hyphomycetes of Warangal the authors collected another interesting species of *Sporoschisma*, i.e., *S. saccardoi* Mason and Hughes which is reported in this communication.

Sporoschisma saccardoi Mason and Hughes

The fungus was collected growing saprophytically from Pakhal forest (A.P.) mixed with sporodochia of *Berkleasium papillatum* Rao and Rao. Colonies on the substratum scattered, dark-brown, spreading. Mycelium branched, creeping, immersed in the substratum, sometimes aggregated to form black, thick, pseudoparenchymatous stromata. Sporodochia black scattered or in groups from which conidiophores and sterile setae arise. Conidiophores simple, erect, tubular, single or in groups, dark-brown, 1-3 septate, 145.1-252.3 μ m long swollen at the middle, 7.5-11.25 μ m broad at the base, 12.6-13.8 μ m at the apical fertile region (Fig. 1). The portion above the swollen region is much longer than the lower region. The swollen region measures 18.3-36.5 \times 15.6-17.5 μ m. Sterile setae simple, subhyaline to light-brown, 1-7 septate with terminal as well as intercalary capitate regions and measure 80-130 μ m long, 4.3-6.2 μ m broad and 7.5-16.25 μ m at capitate regions. Conidia endogenous-phialospores produced from the apical fertile part of the phialide, dark-brown, cylindrical, 5-septate, catenate 32.3-36.6 \times 8.2-10.1 μ m. The end cells hyaline, thin walled, truncate and the penultimate cells longer (6.2-9.5 \times 8.2-10.1 μ m) than middle central cells (5.7-7.6 \times 8.2-10.1 μ m). Conidia at various stages of development are found to be enclosed in the conidiophore.

The material was collected by S. R. R. on dead culms of *Sorghum* sp. from Pakhal (A.P.) forest on 6-9-1976. During our frequent visits to the same area it was observed that the same material developed some perithecia intermingled with sporodochia of *Sporoschisma*. The perithecial fungus was identified as *Chaetosphaeria coelestina* Hohnel.

Perithecia growing amongst stalked phialides and capitate sterile hyphae superficial, scattered, solitary or in groups of 2-5, olive-green, sub-globose to sub-pyriform, glaucous, with costular papillae, upto 500 μm in diameter with numerous radiating sterile capitate hyphae (Fig. 2). Sterile hyphae 51.2-62.5 μm long, 6.25-8.6 μm broad, 8.5-11.9 μm broad at the capitate regions. Asci numerous, unitunicate, clavate to cylindrical, 8-spored, 200-360 μm long and 10.5-15.6 μm wide. Ascospores fusoid, curved, smooth, 5-septate, rarely 3-4 septate, 39.2-56.4 μm long and 5.8-9.6 μm wide (Fig. 3). Four central cells are bigger and deep in colour than the end cells.



FIGS. 1-3. Fig. 1. Photomicrograph of phialide with phialospores of *S. saccardoi* ($\times 840$). Fig. 2. Photomicrograph of perithecium with sterile papillate setae of *C. coelestina* ($\times 210$). Fig. 3. Photomicrograph of asci and ascospores of *C. coelestina* ($\times 840$).

The appearance and constant association of conidial and ascigerous stages gave an idea of imperfect and perfect states of a single fungus. In order to establish their organic relationship, conidial state was allowed to grow in a controlled humid chamber and examined at regular intervals. In about a month's time, perithecia with mature ascospores were observed. In a separate treatment, a few perithecia placed on sterilized culms also yielded both the states.

So far, two species of *Sporoschisma* are known to produce ascocarps and both of them belong to the genus *Chaetosphaeria* Hohnel². Perusal of the literature revealed that neither conidial nor ascigerous stage is reported earlier from India. Hence, they form new additions to Indian mycoflora.

Collection bearing both the stages was deposited as Herbarium KUBL No. 201.

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1. Rao, D. and Rao, P. R., *Mycopath Mycol. Appl.*, 1964, 24, 81.
2. Hughes, S. J., *N.Z.J. Bot.*, 1966, 4, 77.

A CONTRIBUTION TO THE FLORAL ANATOMY AND MORPHOLOGY OF THE GYNOECIUM OF *SERICOSTOMA PAUCIFLORUM* STOCKS

Sericostoma pauciflorum belongs to the tribe Lithospermae of the sub-family Boraginoideae of the Boraginaceae. Lawrence³ has studied the floral anatomy of certain members of this family for taxonomic considerations. Sharma⁴ and Pal⁵ have made a comparative study of some species of *Heliotropium*. Joshi¹ has studied floral anatomy of *Bothriospermum tenellum*. The present investigation has been undertaken to consider the importance of floral anatomy (Puri⁷).

Sericostoma pauciflorum are perennial straggling under-shrubs with woody bases. Their branches are clothed with appressed stiff hairs with bulbous bases. The flowers are white, arranged in racemes. Fruits are schizocarpic, with two mericarps or rarely with four nutlets. They flower twice a year, August-September and March-April and form common thickets on the vast sandy areas of western Rajasthan.

The pedicel shows a simple siphonostele, consisting of discrete collateral vascular bundles (Figs. 1, 2). At the base of the flower, five strong traces depart to the calyx whorl and the central stele first becomes circular in outline (Fig. 3) which later assumes a pentangular shape (Fig. 4). The sepaline bundles remain undivided for sometime in the calyx tube (Figs. 5-9) but as they reach the sepal lobes, each sepal bundle splits tangentially to give rise a sepal dorsal and a pair of sepal laterals (Fig. 10).

The corolla whorl receives five strong traces slightly above and alternate with the sepaline traces (Fig. 5). The five stamen traces emerge from the central stele alternating with the petaline traces (Figs. 5, 6). These ten, petal and stamen traces enter into the corolla tube (Fig. 10). The petaline bundles also remain undivided in greater part of the corolla tube, but at its throat each petal bundle produces a petal dorsal and a pair of petal laterals (Figs. 18-20). In the petal lobes these lateral bundles branch profusely and form a network of veins (Figs. 21, 22).