

OCCURRENCE OF CUTICULAR PAPILLAE IN CYPERUS

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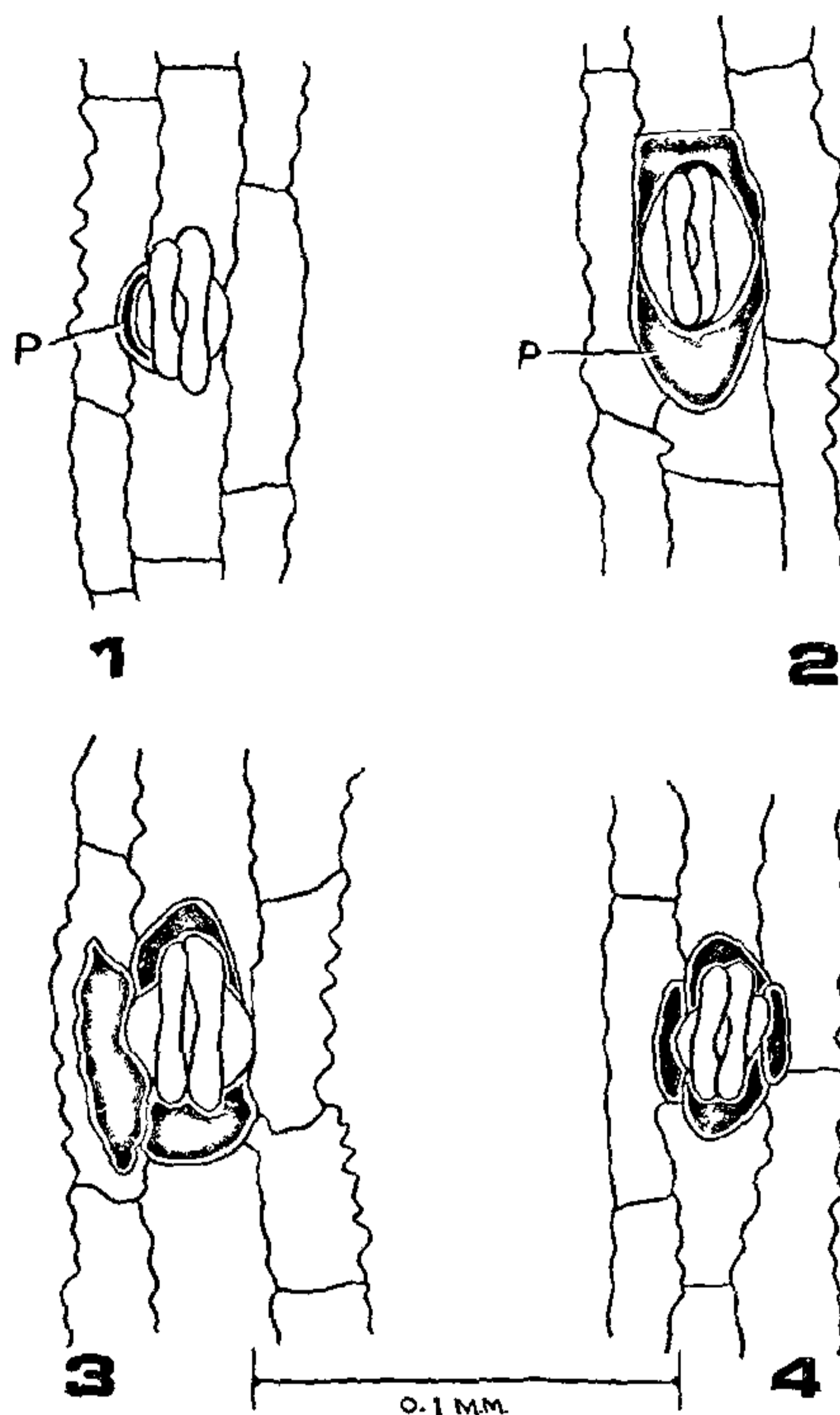
In Cyperaceae, papillae have earlier been reported only in some species of *Carex*, *Caustis*, *Chorizandra*, *Chrysithrix*, *Cladium Epischoenus*, *Fimbristylis*, *Lepidosperma*, *Lepironia*, *Machaerina*, *Microdracoides*, *Neesenbeckia* and *Scleria* (Metcalf²) and *Eriophorum* (Ziegenspeck³), but so far there is no report of their occurrence in *Cyperus*, the second largest genus of the family with about 700 species (Lawrence¹). While observing epidermal features of the leafy bracts in some species of this genus, cuticular papillae were found in species given in Table I.

Cuticular papillae, though occur rarely except in *C. pilosus*, have been observed overarching the stomata in all these species (Table I, Figs. 1-4). Each such stoma is surrounded by the epidermal cells of normal shape and size.

TABLE I

Sl. No.	Species	Occurrence	No./stoma	Position per stoma
1.	<i>Cyperus alopecuroides</i>	Rare	4	Two polar and two lateral
2.	<i>C. digitatus</i>	Rare	1	Overarching a subsidiary cell
3.	<i>C. exaltatus</i>	Rare	2	Either polar or lateral
4.	<i>C. pilosus</i>	Common	1-4	Present either on one (Fig. 1), two (Fig. 2), three (Fig. 3) or all the four (Fig. 4) sides of stomata
5.	<i>C. rotundus</i>	Very rare	1	Overarching a subsidiary cell

In other Cyperads, four papillae per stoma are present in *Chrysithrix*, *Lepidosperma*, *Lepironia*, *Machaerina*, *Microdracoides* and *Neesenbeckia* (Metcalf²), and their number varies from 1-2 (*Scleria*) to many (*Caustis*) per stoma. In *Cyperus*, however, their number varies from 1-4 per stoma. Use of papillae for diagnostic purposes at the species level has been suggested by Metcalf², but in *Cyperus* the occasional presence of papillae hardly appears to be of much taxonomic significance except in *C. pilosus*.



FIGS. 1-4. Abaxial epidermal cells of leafy bract of *C. pilosus* showing cuticular papillae on one, two, three and all the four sides of stomata respectively.

June 19, 1980.

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A NEW SPECIES OF VERONAEA

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WHILE making a survey of parasitic fungi of the Gorakhpur region (U.P.), authors collected a leaf spotting fungus on *Smilax macrophylla* Roxb. from

the Madhulia range of North Gorakhpur Forest Division. Microscopic studies led to the conclusion that the fungus infecting the host is an undescribed species of *Veronaea*. The same is named, described and illustrated in the present communication.

Veronaea smilacis sp. nov.

Contagionis maculae amphigenae, irregulares coloniae hypophyllae, effusae, primo inaequaliter sparsae, maturescentes coalescentes, brunneae vel obscure brunneae mycelium partim immersum, partim superficiale, hoc ehyphis septatis, ramosis, subhyalinis vel pallide brunneis, levibus, and $3.5\ \mu\text{m}$ crassis compositum; conidiophori macronemati, mononemati, singillatim ex apice vel latere hypharum orti, simplices, recti vel nonnumquam flexuosi, cylindrici vel subulati, laeves, a septis numero and 12 divisi, brunnei, apicem versus pallidiores et paulo geniculati, conidiorum cicatricibus pluribus incrassatis notati, $70\text{--}165$ (vulgo $90\text{--}125$) μm longi, $3.5\text{--}5.5\ \mu\text{m}$ diametro cellulae conidiogenae polyblasticae, integratae, terminales, sympodiales, cicatricibus crassis notatae, cylindricae, quam caeterae pallidiores; conidia singularia, accrogenera, levia, cylindrica vel parum obclavata, apice rotundato, basi conico-truncate et cicatrice prominenti notato, vulgo hyalina, interdum subhyalina, transverse $1\text{--}12$ septata (vulgo $3\text{--}5$ -septa), $14\text{--}16.4$ (vulgo, $21.5\text{--}32.5$) μm longa, $2\text{--}4\ \mu\text{m}$ crassa.

In follis vivis *Smilacis macrophyllae* Roxb. (Smilacaceae) Gorakhpur Feb.-Mar., 1978 leg. R. P. Singh, 310; IMI 212616, Typus.

Infection spots amphigenous, irregular, colonies hypophyllous, effuse, irregularly scattered in the beginning but coalescing with age, brown to dark brown, with partly immersed and partly superficial mycelium, composed of septate, branched, subhyaline to pale brown, smooth walled, up to $3.5\ \mu\text{m}$ wide hyphae; conidiophores macronematous, mononematous, arising singly either terminally or laterally from the hyphae, simple, straight, sometimes flexuous, cylindrical or subulate, smooth walled, with up to 12 septa, brown, becoming paler towards the apex with less distinct geniculations $70\text{--}165\ \mu\text{m}$ (usually $90\text{--}125\ \mu\text{m}$) long and $3.5\text{--}5.5\ \mu\text{m}$ in dia.; conidiogenous cells polyblastic, integrated, terminal, sympodial cicatrized, cylindrical, paler than the rest of the cells, bearing several thick scars, conidia smooth walled, cylindrical to slightly obclavate, with rounded apex and conico-truncate base, bearing prominent scar at the base, usually hyaline to subhyaline, $1\text{--}12$ transversely septate (usually $3\text{--}6$), $14\text{--}16.5\ \mu\text{m}$ (usually $21.5\text{--}32.5\ \mu\text{m}$) long and $2\text{--}4\ \mu\text{m}$ thick (Fig. 1a, b, c).

On living leaves of *Smilax macrophylla* Roxb. (Smilacaceae); Madhulia range, Gorakhpur Forest Division Feb.-March, 1978; leg. R. P. Singh, 310, IMI 212616, type.

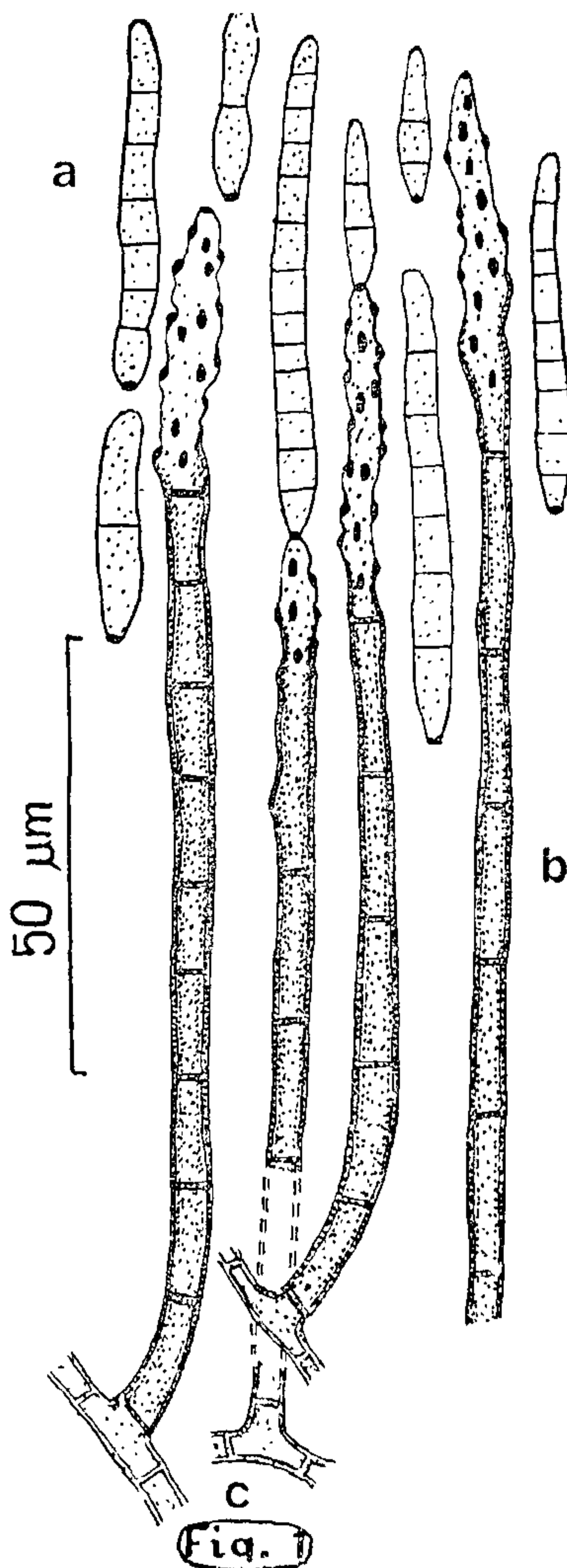


FIG. 1. *Veronaea smilacis* sp. nov. (a) Conidia (b) Conidiophores; (c) Superficial hyphae giving rise to conidiophores.

Present fungus was compared with most of the species of genus *Veronaea* described so far (Ellis ^{1,2}). It comes closer to *V. musae* M. B. Ellis morphologically but the conidiophores of the present fungus (upto $165 \times 3.5\text{--}5.4\ \mu\text{m}$) are smaller and thicker as against the conidiophores of *V. musae* (up to

400 × 2-3 μm). This species is peculiar in having larger and densely septate conidia which are mostly hyaline as against the conidia of other species of the genus which are either aseptate or having few septa.

Authors are thankful to the Director, C.M.I., Kew, England, for the identification of the fungus, Dr. D. P. Rogers, University of Illinois, Urbana, U.S.A. for preparing the Latin diagnosis and Prof. K.S. Bhargava, University of Gorakhpur, for providing facilities.

July 23, 1980.

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SIMULTANEOUS OCCURRENCE OF POWDERY MILDEWS ON CUCURBITA MAXIMA DUSH AND ABELMOSCHUS ESCULENTUS (L.) MOENCH FROM KARNATAKA, INDIA

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POWDERY mildew infected leaf samples from experimental fields infecting *Cucurbita maxima* Dush var. Arka Suryamukhi and *Abelmoschus esculentus* (L.) Moench var. Pusa Sawani were periodically collected for the presence of perfect stage, nature of imperfect state, and occurrence of hyperparasite. Some of the powdery mildew infected leaf samples of *A. esculentus* collected during the months of October 1978 and April 1980 and *Cucurbita maxima* collected during the month of January 1979 and March 1980 showed the presence of powdery mildew caused by *Leveillula taurica* in addition to *Oodinium* sp.

In pumkin variety, powdery mildew due to *Sphaerotheca fuliginea* usually covers both the leaf surfaces, and more commonly occurs in this region on all the cucurbits (Ullasa *et al.*¹). *Leveillula taurica* infection was restricted to lower leaf surface as small specks or angular spots restricted by veinlets. Due to its restricted colony growth and also due to its sporadic nature mostly it goes unnoticed. Careful microscopic examination of such small colonies on the lower surface revealed the presence of *Leveillula taurica* producing its conidial pores through stomata either singly or in small clusters bearing conidia at their apex singly (Fig. 1).



FIG. 1. Conidia of *L. taurica* on *Cucurbita maxima* × 200 Approx.

While the okra powdery mildew due to *E. cichoracearum* could be easily identified due to its ectophytic growth habit, it became somewhat difficult to distinguish infection due to *Leveillula taurica* because of its suppression due to the severe infection of *E. cichoracearum*. However, in the early stage scattered yellowish patches were observed on the upper leaf surface which corresponded to infection due to *Leveillula taurica* on the lower surface. As symptoms get diffused and overlap each other the symptoms due to *Leveillula taurica* goes unnoticed in latter stage. Whenever localized yellowish patches are seen on the leaves, infection due to *Leveillula taurica* can be suspected. Simultaneous occurrence of *L. taurica* with oidial powdery mildew is not uncommon. Ullasa and Sohi² have reported occurrence of *L. taurica* along with *O. caricae* on papaya and Mahrishi *et al.*³ reported the same thing on egg plants.

Apart from their simultaneous occurrence *L. taurica* is reported for the first time on these hosts from India.

The authors are grateful to Dr. G. S. Randhawa, Director and Dr. H. S. Sohi, Senior Plant Pathologist, for their interest and facilities. *L. taurica* on *A. esculentus* and *C. maxima* are deposited under IMI Nos. 238766 and 238767 at C.M.I., respectively.

August 4, 1980.

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