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### A NEW SPECIES OF PSEUDOCERCOSPORA

DURING a survey of fungi from Gorakhpur region, authors collected a leaf spotting fungus on *Gymnema tingens* W. and A. This fungus was found to be a *Pseudocercospora*. A comparison of this fungus with certain known species (Ellis<sup>1,2</sup>; Deighton<sup>3</sup>), is given in Table I.

evolutum, satyre brunneum, subglobosum vel angulare, conidiophori, macronemati, mononemati, plus minusve fasciculati, pallide vel olivaceo-brunnei plerumque flexuosi, erecti, septati, leves, haud ramosi, divergentes, geniculati, in apicem nonnihil expansum inflati, denticulis conidiogenis praediti, ad  $70 \times 2.8-4 \mu\text{m}$ ; cellulae conidiogenae integratae, terminales, juvenes crebre monoblasticae et percurrentes, maturiores polyblasticae, sympodiales, denticulatae denticulis brevibus, amplis, cicatricibus conidicis nullis; conidia singularia, acrogena vel acropleurogena, simplicia, sub-hyalina, levia, obclavata, ad basim conico-truncata, apice subacuto, recta vel paulum arcuata, transverse multi septata, ad septa parum constricta,  $16.5-60.5 \times 2.5-4.3 \mu\text{m}$ . (Fig. 1a, b).

In foliis vivis *Gymnema tingens* W. and A. (Asclepiadacearum) Gorakhpur m. januario 1978 leg. P. Kumar 2, IMI 229183, typum.

TABLE I

Name of the species	Conidiophores		Conidia		
	Size (in $\mu\text{m}$ )	Structure	Size (in $\mu\text{m}$ )	Color	Septation
<i>P. vitis</i>	upto $500 \times 2-7$	unbranched	$35-95 \times 6-8$	..	5-14
<i>P. helleri</i>	upto $400 \times 3-6$	branched	$20-35 \times 6-10$	Pale olivaceous	2-5
<i>P. terminaliae</i>	upto $100 \times 5-10$	unbranched	$50-115 \times 7-9$	Pale to midbrown	2-9
<i>P. pterocauli</i>	upto $150 \times 3-5$	branched	$20-75 \times 4-7$	Pale brown	1-8
<i>P. gymnematis</i> (Present sp.)	upto $70 \times 2.8-4$	unbranched	$16.5-60.5 \times$ $2.5-4.3$	Subhyaline	Multiseptate

A perusal of the morphological features of the *Pseudocercospora* spp. presented in the table suggests the distinct specific identity of the present collection. This taxon is neither conspecific with the known species nor any species of *Pseudocercospora* that has ever been described on the host in question. The present fungus, therefore, merits description as a new species. The descriptions and illustrations of this new taxon are as follows:

*Pseudocercospora gymnematis* sp. nov.

Contagionis maculae maximam partem hypophyllae, rotundatae vel ovaes, saepe effusae, brunneae vel satyre brunneae; mycelium e hyphis immersis, hyalinis, septatis, levibus, ramosis compositum; stroma valide

Infection spots predominantly hypophyllous, circular to oval, often effuse, brown to dark brown; mycelium of hyphae immersed, hyaline, septate, smooth, branched, stroma well developed, dark brown, subglobose to angular; conidiophores macronematous, mononematous, more or less fasciculate, pale brown to olivaceous brown, usually flexuous, erect, septate, smooth, unbranched, divergent, geniculate, blowing out in somewhat swollen apex, with conidial denticles, upto  $70 \times 2.8-4 \mu\text{m}$ ; conidiogenous cells integrated, terminal, often monoblastic and percurrent in young conidiophores, later polyblastic, sympodial, denticulate with short and broad denticles, with no conidial scars; conidia solitary, acrogenous to acropleurogenous, simple, subhyaline, smooth walled, obclavate, conico-truncate at base, apex slightly acute, straight to

slightly curved, transversely multiseptate (usually 6).  
slightly constricted at septa,  $16.5-60.5 \times 2.5-4.3 \mu\text{m}$ .

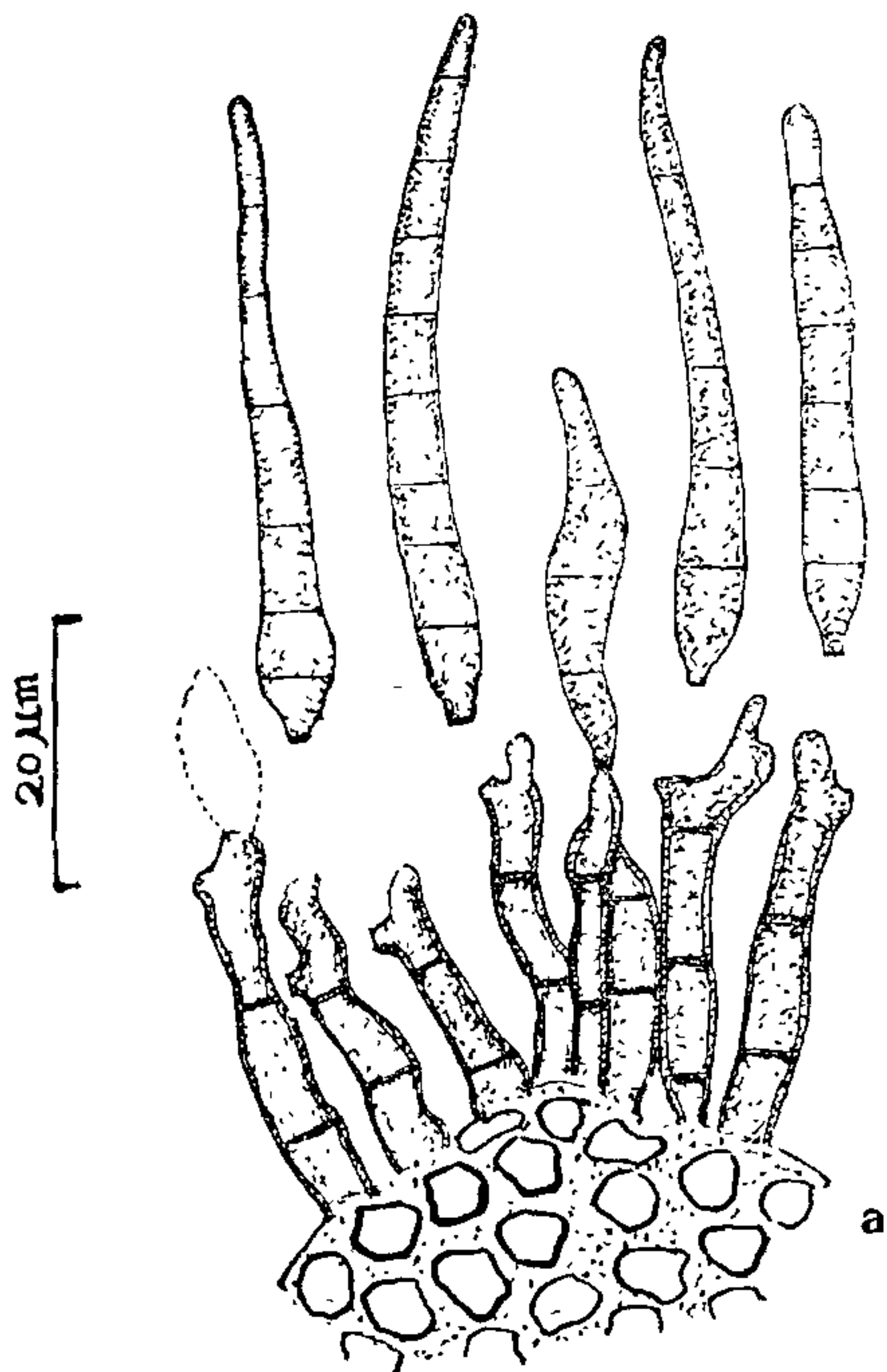


FIG. 1. *Pseudocercospora gymnematis* sp. nov.  
a, stroma; b, conidiphores and conidia.

On living leaves of *Gymnema tingens* W. and A. (Asclepiadaceae), Jan., 1978; Gorakhpur; leg. P. Kumar, 2; IMI 229183.

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### SOME EMBRYOLOGICAL FEATURES OF *EMILIA FLAMMEA* CASS.

THE family Compositae with about 900 genera and 13,000 species (Willis<sup>8</sup>) constitutes one of the largest families of the flowering plants. The composites are of unique interest, since, besides manifesting no less than five types of embryo sac developments (namely, *Polygonum*, *Allium*, *Peperomia*, *Drusa* and *Fritillaria*), they exhibit polyembryony, parthenocarpy and apogamy and even variation in synergids and antipodals. The available embryological information has been summarised from time to time by Venkateswarlu and Maheswari Devi<sup>7</sup>, Davis<sup>1</sup> and Deshpande<sup>3</sup>. As far as is known to the authors the embryological data concerning the genus, *Emilia* Cass. is confined to *Emilia sonchifolia* (Sundara Rajan<sup>6</sup>). Therefore, it was felt desirable to work out the embryology of other species of the genus and the present communication concerns the structure and development of micro- and megasporangia, sporogenesis and gametogenesis in *Emilia flammea* Cass. (= *Cacalia coccinea* as quoted in Haines<sup>4</sup>), a common delicate erect herbaceous garden plant with scarlet homogamous heads, belonging to the tribe Senecioneae of Compositae.

The anther is 4-sporangiate. The archesporium differentiates in each lobe as a single row of hypodermal cells which divide periclinally to form an outer layer of parietal cells and large inner sporogenous cells. The cells of the parietal layer by periclinal and anticlinal divisions, form a wall of three layers circumscribing sporogenous cells (Fig. 1). The development of the anther wall from the parietal layer conforms to the Dicot type of Davis<sup>1</sup>. The secretory tapetum is 1-layered throughout and is at variance with the perioplasmoidal condition reported by Sundara Rajan<sup>6</sup> in *Emilia sonchifolia*. By the time meiosis begins in microspore mother cells, the cells of the tapetum become enlarged and project into the anther locule as a balloon or finger-like processes (Fig 3), probably effectively nourishing the microspore mother cells and their derivatives. To begin with, the tapetal cells are uninucleate, but later become polyploid in consequence of nuclear divisions and fusions (Figs. 2-9). The tapetum, which is most active during meiosis, persists till about the formation of 2 or 3-nucleate pollen grains and subsequently breaks down and becomes absorbed *in situ*. The endothecium is hypodermal and regularly 1-layered and bears no fibrillar thickenings thereby resembling *Emilia sonchifolia* (Sundara Rajan<sup>6</sup>). The cells of the middle layer become stretched, flattened and crushed at maturity of the anther (Fig. 3).