

THREE NEW FOLIICOLOUS FUNGI

IN the course of their study of leaf-spot diseases of Allahabad and adjacent regions, the authors came across with three foliicolous fungi, viz., a species of *Sirodesmium*, another of *Phoma* and a third of *Phyllosticta*. Amongst all the known species of *Sirodesmium*, the present isolate showed some similarity with *Sirodesmium diversum* (Cooke) Hughes. Hughes (1952)¹ proposed this new combination for *Tarula diversa* Cooke following the creation of genus *Sirodesmium* by de Not. (1863).² He considered *T. diversa* to be cogeneric with the type species of *Sirodesmium*, *S. granulorum*. In spite of the similarity of the present isolate with *S. diversum*, it could not be accommodated in that because of some pronounced differences and thus a new species of the genus is proposed here.

The morphological characters of the species of *Phyllosticta* and *Phoma* were studied in detail and were compared with those of other known species but they could not be matched with any species so far recorded. They are, therefore, presented here as new species.

Sirodesmium indica CHANDRA AND TANDON

Black cushion-like growth, creeping branched hyphæ, brown in colour; conidiophores dark, bearing terminal chains of conidia borne in simple or branched chains, frequently entire branches of mycelium developing into simple or branched chains of conidia; conidia dark brown, globose to subglobose, thick-walled, warty, diameter 5.2–18.4 μ , septate, mostly didymospores, rarely amerospores or two and

three septate phragmospores and dictyospores (Fig. 2), conidia mature basipetally.

On leaves of *Agave americana* L., Alfred Park, Allahabad, India, August 1963, leg. Sudhir Chandra.

The type specimen has been deposited in the herbarium of the Commonwealth Mycological Institute, Kew No. 102519.

Sirodesmium indica CHANDRA AND TANDON

Nigrum pulvinatum, hyphæ repentes ramosæ, brunneæ; conidiophora fusca, supportantia catenas terminales conidiorum; conidia in catenis simplicibus vel furcatis, sæpe ramis integris mycelii evolventibus in catenas simplices vel furcatas conidiorum; conidia fusce brunnea, globosa vel subglobosa, parietibus crassis, verrucosa, 5.2–18.4 μ diam., septata, vulgo didymospora, rarius amerospora, vel 2–3 septata phragmospora et dictyospora; conidia maturant basipete.

In foliis *Agaves americanæ* L., in horto alfred, ad Allahabad, mense augusto 1963, leg S. C. Typus positus in herbario Instituti Mycologici ad Kew sub numero 102519.

Phoma garflorida CHANDRA AND TANDON

Symptoms of the disease.—The disease first appears on the upper surface of the leaf as small Pale vinaceous-fawn coloured spots with a sharp outline. Spots are usually circular in the beginning but as they increase in size they assume irregular shape. Mature spots have light Vinaceous-fawn colour and are bounded by a well-defined narrow marginal ring of Metal brown or Army brown colour. At maturity pycnidia appear as small black dots throughout the spotted part of the leaf. The reverse side of a mature spot shows an Avelaneous or Wood brown colour. Spots may occupy any position on the leaf and may freely traverse the midrib or vein.

Morphological characters.—Pycnidia covered by epidermis, later erumpent, membranous, globose or subglobose, single or subgregarious, generally in groups of two to three, with a distinct ostiole, not beaked but papillate, light brown in colour, 120–150 μ (average 170 μ) in diameter (Fig. 4); texture of the pycnidial wall thin, parenchymatous, subtranslucent, formed of one layer of brown polyhedral cells; conidiophores short; spores one-celled, hyaline, majority cylindrical, few ovate, 2–6.2 \times 1.5–2 μ (average 4.1 \times 1.6 μ).

Mycelium light brown, up to 6.4 μ in thickness, closely septate, slightly constricted at septa; chlamydo-spores rarely seen.

On living leaves of *Gardenia florida* L., Alfred Park, Allahabad, India, October 1963, leg. Sudhir Chandra.

The type specimen has been deposited in the Herbarium of the Commonwealth Mycological Institute, Kew, No. 105630.

Pycnidia operta epidermide postea erumpentia, membranacea, globosa vel subglobosa, singula vel subgregaria, vulgo bina ternave, ostiolo distincto, non-rostrata sed breviter papillata, pallide brunnea, 120–250 μ (mediet. 170 μ) diam.; textus parietum pycnidialium tenuis, parenchymaticus, subtranslucidus; conidiophora brevia; sporæ unicellulares, hyalinæ, quarum plurimæ cylindricæ, nonnullæ ovaltæ, 2–6.2 \times 1.5–2 μ (mediet. 4.1 \times 1.6 μ).

Mycelium pallide brunneum, ad 6.4 μ crassum, arcte septatum, aliquantum constrictum ad septa; chlamydo-spore raro notatæ.

In foliis *Gardeniæ floridæ* in horto Alfred, ad Allahabad, mense octobri 1963, leg S. C. Typus positus in herbario Instituti Mycologici ad Kew, sub numero 105630.

Phyllosticta halduana CHANDRA AND TANDON

Symptoms of the Disease.—The disease starts as small Buff pink coloured spots at any place on the leaf-blade. The spots rapidly increase in size and with their increase the centre assumes Vinaceous tawny colour. The mature spots are surrounded by a peripheral zone of Pecan brown or Buff pink colour. Coalescence of spot is very rarely seen. In severely infected leaf the spot covers a major area of the lamina showing one or two big spots which frequently include a portion of the margin.

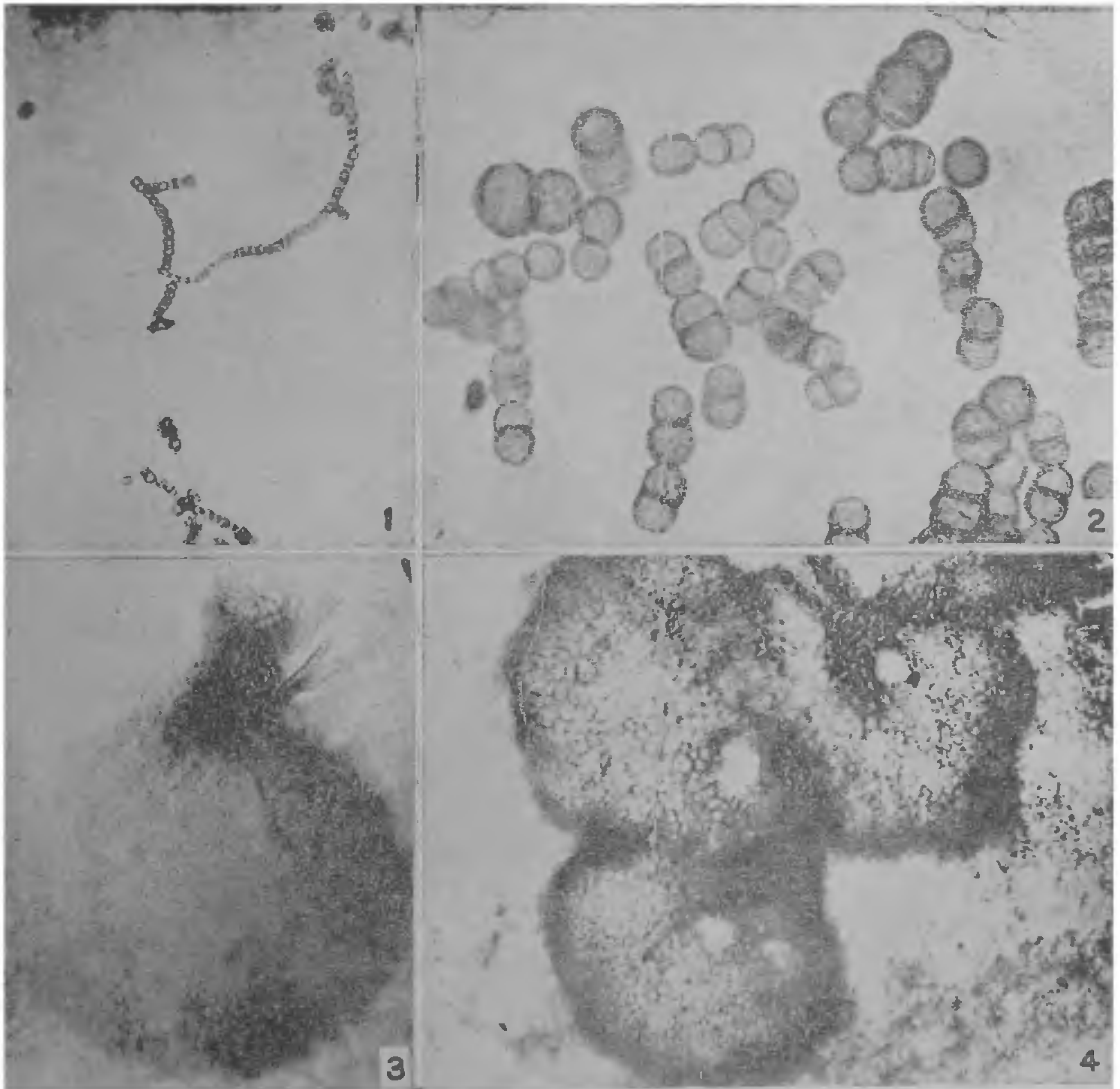
Morphological characters.—Pycnidia brown, generally separate, sometimes in groups of two to three, at first covered by epidermis afterwards erumpent and projecting, occasionally enclosed by a translucent covering, 150–250 μ (average 240 μ) in diameter; ostiolate with prominent broad papilla, papilla provided with well-defined brown hairs (Fig. 3); texture of pycnidial wall parenchymatous, cells of the wall polygonal, 6–10 μ in diameter; conidiophores short; conidia one-celled, hyaline, cylindrical, 2–6.5 \times 1–2 μ (average 4 \times 1.5 μ).

Mycelium hyaline or light brown, generally thin with distinct septa, up to 5.2 μ in thickness; many pseudopycnidia also formed, pseudopycnidia black, globose to subglobose or elongated, translucent, plectenchymatous, 120–330 μ (average 260 μ).

On living leaves of *Adina cordifolia* Hook. f., Govt. House, Allahabad, India, November 1963, leg. Sudhir Chandra.

The type specimen has been deposited in the herbarium of the Commonwealth Mycological Institute, Kew, No. 103807.

6–10 μ diam.; conidiophora breviter; conidia unicellularia, hyalina, cylindrica 2–6.5 \times 1–2 μ (mediet. 4 \times 1.5 μ). Mycelium hyalinum vel



FIGS 1-4. Fig. 1. Conidiophores of *Sironiesmium indica*, \times 120. Fig. 2. Conidia of *Sironiesmium indica*, \times 668. Fig. 3. Pycnidium of *Phyllosticta halduana*, \times 200. Fig. 4. Pycnidium of *Phoma variflorida*, \times 258.

Phyllosticta halduana TANDON AND CHANDRA

Pycnidia brunnea, vulgo septata, nonnumquam bina ternave, primo epidermide operta, tum erumpentia, interdum circumdata peridio translucido, 150–250 μ (mediet. 240 μ) diam., ostiolatus, ornatus eminenti papilla, quæ ornatur pilis bene definitis brunneis; textus parietum pycnidii parenchymaticus, cellululis polygonalibus,

pallide brunneum, vulgo crassum septis distinctis; pseudopycnidia plurima quoque efformata; pseudopycnidia nigra, globosa vel subglobosa, vel elongata, translucida, plectenchymatica, 120–330 μ (mediet. 260 μ).

In foliis viventibus *Adinae cordifoliae*, in Govt. House, ad Allahabad, mense novemberi 1963, leg. S.C. Typus positus in herbario Institutii Mycologici ad Kew, sub numero 103807.

Grateful acknowledgement is made to Dr. J. C. F. Hopkins, Dr. M. B. Ellis and Prof. H. Santapau for their kind help.

Plant Pathology Lab., SUDHIR CHANDRA.
Botany Department, R. N. TANDON.
University of Allahabad,
Allahabad, India, October 27, 1964.

-
1. Hugbes, S. J., *The Naturalist*, July-Sept. 1952, p.93.
 2. de Notaris, *Micr. ital.*, Dec. 1863, p. 16.
-