HYPHOMYCETES ON LITTER FROM INDIA—I*

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ABSTRACT

This paper presents descriptions of six hyphomycetes from litter. Two new species, *Pyricularia vandalurensis* and *Spadicoides aggregata* are described. Four other species, *viz.*, *Circinotrichum fertile* Pirozynski and Hodges, *Endophragmia alternata* Tubaki and Saito, *E. atra* (Berk. & Br.) M. B. Ellis and *Periconia sacchari* Johnston are reported for the first time from India.

1. *Pyricularia vandalurensis* sp. nov.

THIS fungus was collected on dry leaves of *Ficus bengalensis* from Vandalur, Chingleput Dt., Tamil Nadu, India.

The growth of the fungus was confined to the hairs on the ventral side of the leaves and consisted of long conidiophores spreading in all directions (Fig. 7 B). The conidiophores are simple, erect or procumbent, straight or flexuous, up to 7-septate (septa 6–22 μ apart and often obscure), dark brown below, subhyaline at the apex, and 120–240 × 3–4 μ; the fertile part of the conidiophore is conspicuously denticulate and often studded with persistent conidia (Figs. 1 A, 7 C). The conidia are blastoconidia produced terminally at the apex of the conidiophore and successively on its sympodially produced growing points. The conidia are hyaline, pyriform with a single distal septum, somewhat pointed towards the tip, with a conspicuous protuberant hilum, and 9–10 × 3–4 μ (Fig. 1 B).

The taxonomy of the fungus has presented some difficulty and it has not been easy to decide to what genus it should be assigned. Tentatively it is disposed in the genus *Pyricularia* Sacc. because of the striking similarities in conidium ontogeny and in morphology of the conidia. However, this fungus is distinct from known species of *Pyricularia* in that the fertile part of the conidiophore is long and denticulate and the characteristic 2-celled

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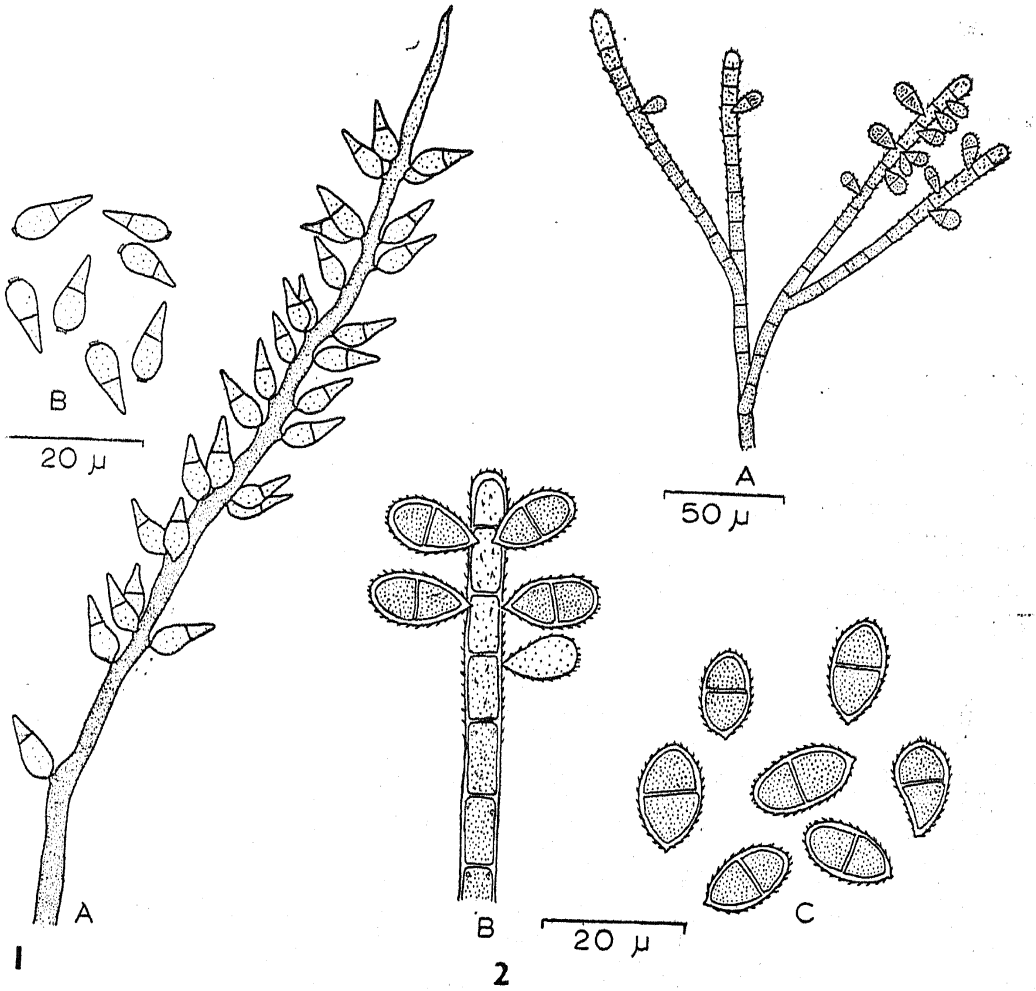
conidia are not easily shed, being persistent; the conidia are also smaller than those of the *Pyricularia* spp. so far known. Hence, this fungus is described as a new species.



FIGURES 1 & 2. Fig. 1. *Pyricularia vandalurensis.* A: Conidiophore with persistent conidia; B: Conidia. Fig. 2. *Spadicoides aggregata.* A: Conidiophore showing branching; B: Single conidiophore branch with young and mature conidia; C: Conidia.

Pyricularia vandalurensis sp. nov.

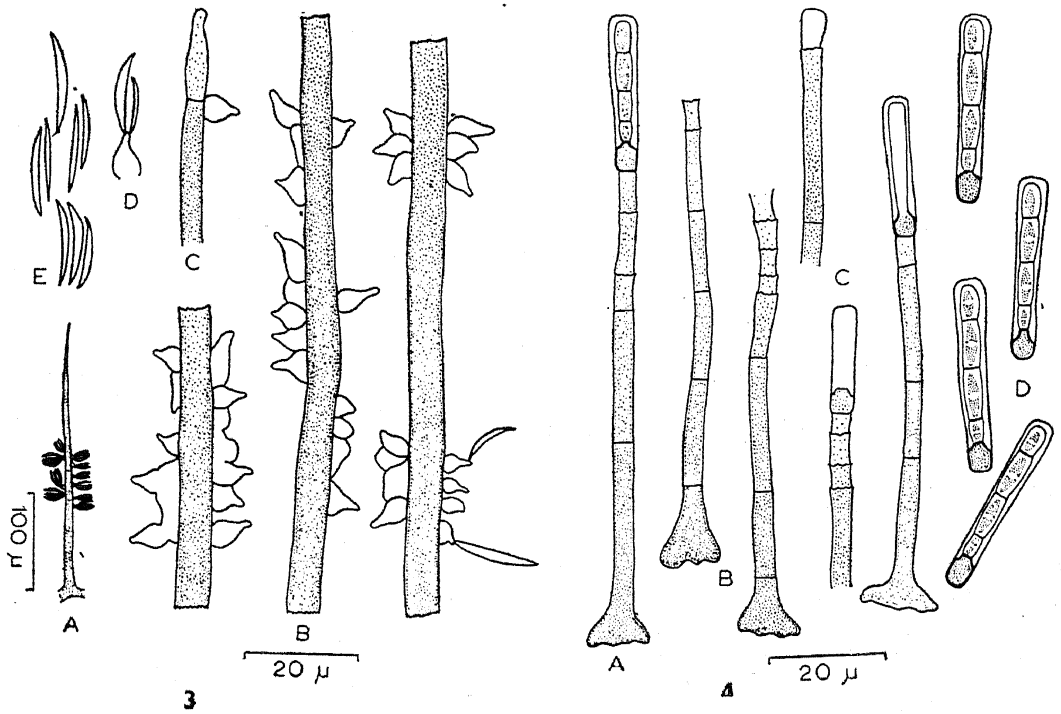
Conidiophora simplicia, erecta vel procumbentia, recta vel flexuosa, fusca, 5–7 septata (septa 6–22 μ distantia et obscura) cum parte longa, conspicue denticulata, fecunda, 120–240 × 3–4 μ, saepe conidiis persistentibus punctata. Conidia blastica, solitaria, terminaliter producta in apice conidiophori et successive in punctis ejus sympodialiter productis, pyriformia, hyalina, distaliter 1-septata, aliquantum acuta ad apicem, cum hilo conspicuo protuberante 9–10 × 3–4 μ,

Typus.—Collectus in foliis siccis *Fici bengalensis*, Vandalur, Chingleput Dt., Tamil Nadu, India, a B.P.R. Vittal, October 1971, Herb. MUBL No. 2259.

2. *Spadicoides aggregata* sp. nov.

The fungus was collected on litter of *Bauhinia* sp. from Narsapur, Andhra Pradesh, India.

The colonies consist of scattered sporodochia which are up to 300 μ tall and 216 μ wide (Fig. 7 D). The conidiophores are thick-walled, straight or flexuous, dark brown below, paler above, up to 20-septate (septa 12–16 μ apart, septa being closer at the tip), slightly constricted at the septa, up to 210 μ long, 3·5–4·5 μ wide, branched once or twice (Fig. 2 A), branches arising from immediately below septa, often arising unilaterally and up to 180 μ long. The tip of the conidiophore is flatly rounded; it is minutely spiny, 5–6 μ wide and broader than the remaining part. The conidia are tretic, pleurogenous, arising mostly from the upper half of conidiogenous cells (Figs. 2 B; 7 E), 2-celled, ellipsoidal to obovoid, reddish brown, minutely spiny all over, 12–16 × 6–8 μ, and with a minute projecting hilum (Fig. 2 C).



FIGURES 3 & 4. Fig. 3. *Circinotrichum fertile*. A: Habit; B: Setae showing clusters of conidiogenous cells; C: Fertile tip of seta; D: Conidiogenous cell with young conidia; E: Conidia. Fig. 4. *Endophragmia alternata*. A: Habit; B: Conidiophores showing swollen base and apical annellations; C: Stages in conidial development; D: Conidia.

The characters of the fungus indicate that this may be placed in the genus *Spadicoides* Hughes. However, in none of the described species of this genus, branching of the conidiophore is seen. The fungus resembles *Spadicoides bina* (Corda) Hughes in producing 2-celled conidia, but the conidia of our fungus are minutely spiny and have a characteristic obovate shape with a minute projecting hilum and are also larger than those of *S. bina*. Further, the septa of the conidia are not conspicuously thick and dark as in those of *S. bina*. Hence the fungus is described as a new species; the specific epithet *aggregata* connotes the sporodochial nature of the fungus.

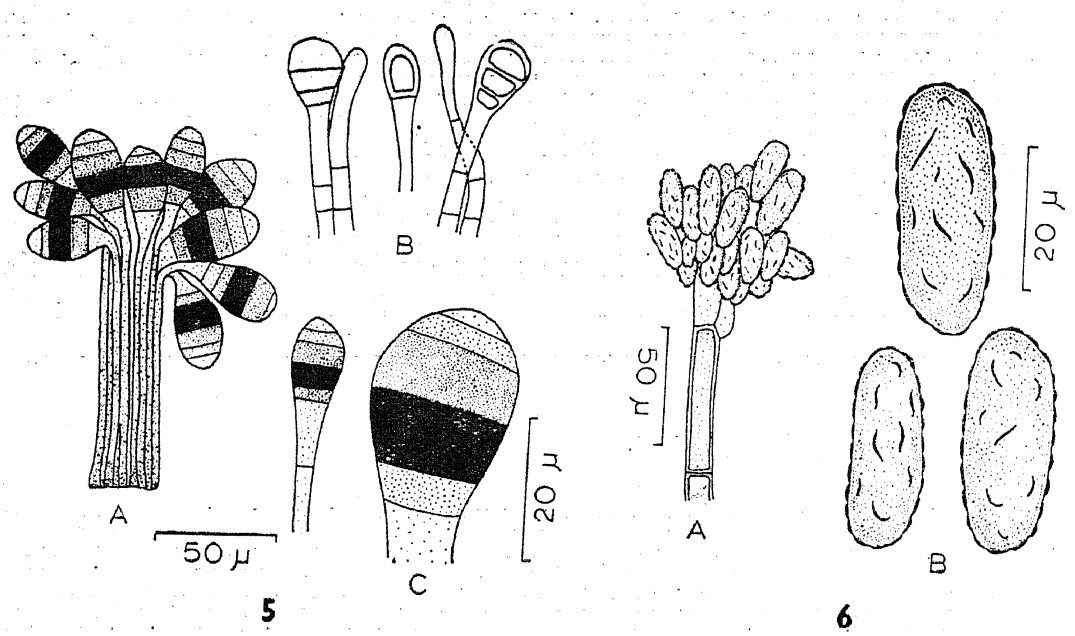
Spadicoides aggregata sp. nov.

Coloniae constantes ex sporodochiis dispersis. Conidiophora recta vel flexuosa, pariete crassa, ad 20-septata (septa 12–16 μ distantia), ad apicem arcte septata, leviter constricta ad septa, infra fusca, supra pallidiora, aliquantum latiora ad apicem, ad 210 μ longa, 3·5–4·5 μ lata basi, 5–6 μ lata in apice; semel vel bis ramificata, ramificatione occurrente aliquoties in unosolo latere conidiophori; rami ad 180 μ longitudinis. Conidia tretica, pleurogena, orientia ex superiore parte cellularum conidiogenarum, ellipsoidea vel obovoidea, rubello-brunnea, ubique minute spinosa, 2-cellularia, 12–16 × 6–8 μ et cum hilo minuto.

Typus.—Collectus in foliis mortuis *Bauhiniae* sp., Narsapur, Andhra Pradesh, India, a B. P. R. Vittal, September 1972, Herb. MUBL No. 2261.

3. *Circinotrichum fertile* Pirozynski and Hodges, *Can. J. Bot.*, 1973, **51**, 160.

Colonies amphigenous, predominantly hypophyllus, widely effused, scattered or coalescing to form irregular patches covering wide areas of the leaf surface, ash-coloured, velvetty. Setae erect, straight or somewhat flexuous, bristle-like (Fig. 3 A), smooth, septate, up to 330 μ long, 6–7 μ wide, fairly thick-walled and dark brown near the base, paler above and tapering at the apex, fertile, bearing conidiogenous cells either aggregated at one region or in clusters at one or two places (Figs. 3 B, 7 H). Conidiogenous cells arising at more or less right angles to the fertile hyphae, ampulliform to lageniform (Fig. 3 D), subhyaline to hyaline, thin-walled, 4–7 μ long, 3–5 μ wide at the base, 1·0–1·5 μ wide at the neck. Conidia in compact clusters, continuous, fusiform, slightly curved, hyaline, 11–16 × 1·0–1·5 μ (Fig. 3 E).



FIGURES 5 & 6. Fig. 5. *Endophragmia atra*. A: Synnema: B: Conidiophores with young and developing conidia; C: Conidia. Fig. 6. *Periconia sacchari*. A: Conidiophore with apical head of conidia; B: Conidia.

Recorded on unidentified litter collected from Kambakkam, Andhra Pradesh, February 1973, Herb. MUBL No. 2270.

This is reported for the first time from India.

4. *Endophragmia alternata* Tubaki and Saito, *Trans. Br. mycol. Soc.*, 1969, **52,** 477.

Conidiophores arising singly (Figs. 4 A, 7 A), erect, simple, straight to flexuous, subcylindrical, dark brown, smooth-walled, with swollen base (Fig. 4 B), septate, annellate (Fig. 7 A), with up to 5–12 annellations, 3–4 μ wide at base and gradually narrowing above, up to 110 μ long. Conidia gangliar (Fig. 4 C), cylindrical, truncate at base, slightly broader at the tip, pseudo-septate, 30–34 × 3·5–5·0 μ (Fig. 4 D).

Recorded on litter of *Ixora* sp. collected from Vandalur, Tamil Nadu, July 1971, Herb. MUBL No. 2271.

This is the first record of the fungus from India.

5. *Endophragmia atra* (Berk. & Br.) M. B. Ellis, *Mycol. Pap.* 72, 1969.

Conidiophores synnematous (Figs. 5 A, 7 F), unbranched, straight, brown; synnema up to 200 μ long. Conidia gangliar (Fig. 5 B), acrogenous,

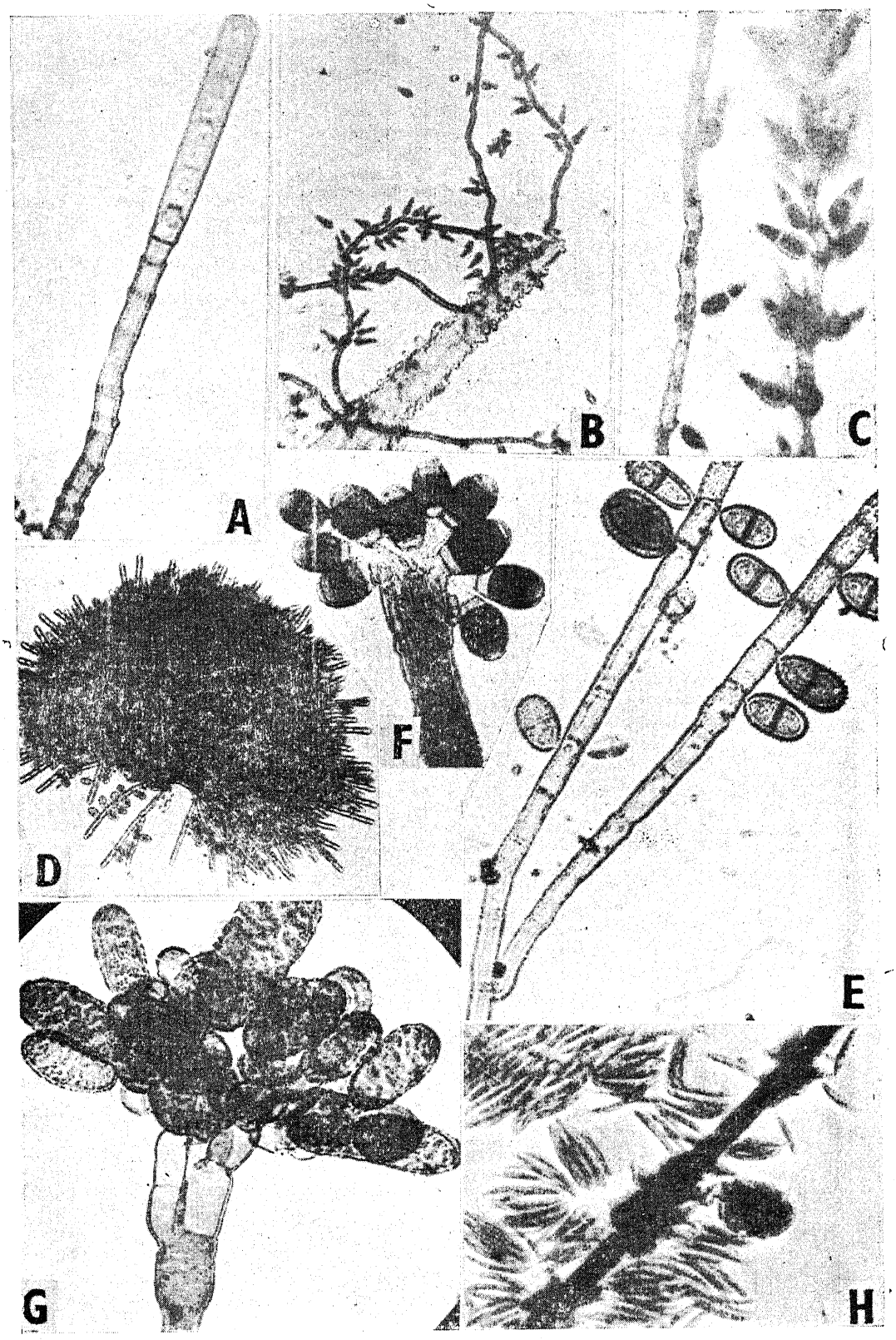


FIG. 7

simple, ellipsoidal, pyriform, obovoid or clavate, dark brown, 1–5-septate with black band at the middle septum, 25–42 × 12–24 μ (Fig. 5 C).

Recorded on unidentified litter collected from Nilgiris, Tamil Nadu, December 1971, Herb. MUBL No. 2272.

This fungus is a new record for India.

6. ***Periconia sacchari*** **Johnston, apud Johnston and Stevenson,** *J. Dep. Agric. P. Rico,* 1917, **1**, 225.

Ellis, M. B. 1971. *Dematiaceous Hyphomycetes*, p. 347.

Conidiophores straight, septate, dark brown, thick-walled, up to 360 μ long, 5–6 μ wide bearing apical heads of conidia (Figs. 6 A, 7 G). Conidia oblong or cylindrical, brown, verrucose, 22–38 × 10–14 μ (Fig. 6 B).

Recorded on sugarcane (*Saccharum officinarum*) litter collected from Anakapalle, Andhra Pradesh, July 1968, Herb. MUBL No. 2273.

This is the first report of this fungus from India.

ACKNOWLEDGEMENTS

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REFERENCE

1. Ellis, M. B., Dematiaceous hyphomycetes—V. *Mycological Pap. No. 93,* 1963.

EXPLANATION OF PLATE VIII

FIGURE 7. A: *Endophragmia alternata*, Conidiophore with apical conidium and annellations (× 1,300).

B, C: *Pyricularia vandalurensis.*

B: Habit (× 290).

C: Conidiophores with persistent conidia (× 700).

D, E: *Spadicoides aggregata.*

D: Sporodochium (× 360).

E: Branched conidiophore with young and mature conidia (× 2,800).

F: *Endophragmia atra*, synnema with conidial head (× 900).

G: *Periconia sacchari*, conidiophore with conidia (× 1,100).

H: *Circinotrichum fertile*, seta showing conidiogenous cells and clusters of conidia (× 1,800).