

FUNGI IMPERFECTI FROM MADRAS—I

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It is proposed to describe in a series of papers the Fungi Imperfecti occurring in the Madras State, and this paper is the first of the series. Species recorded for the first time in the State are indicated by a single asterisk, and those recorded for the first time in India by two asterisks.

1. ***Torula herbarum* (Pers.) Link ex Fries, 1832, *Syst. Mycol.*, III, ii, p. 501.

Saccardo, *Syll. Fung.*, 4: 256, 1886; Mason, E. W., *Annotated Account of Fungi Received at the Imperial Mycological Institute*, List II (Fascicle 3-Special Part), 1941, pp. 113-16, ic.

Colonies black, powdery; mycelium scanty; hyphæ brownish, septate, 1-3 μ broad. Conidia produced in chains, which may be branched or unbranched, unbroken chains up to 100 μ long, arising from the swollen apex of a hypha or a lateral branch, or from a subglobose cell arising laterally from a hypha; conidia produced in acropetal succession, 4-10 μ broad, dark brown in colour when old, hyaline when young, and usually falling apart into short lengths, singly, in twos, in threes, in fours or fives, markedly or faintly echinulate. The older cells of fragments of conidial chains are often ruptured.

The following collections have been examined and include a few from the Travancore-Cochin State*: On dead leaf-sheath of *Cocos nucifera* L., Santhome, Madras, 14-2-1951, coll. C.V.S. (No. 48), Luz, Madras, 6-3-1951, coll. K.R. and C.V.S. (No. 134); on dead leaf rachis of *Cocos nucifera* L., Ernakulam (Travancore-Cochin), 7-9-1951, coll. C.V.S. (No. 456); on dead peduncles of *Areca catechu* L., Thottumugham, Alwaye (Travancore-Cochin), 7-9-1951, coll. C.V.S. (No. 482); on dead leaf-sheath of *Musa paradisiaca* L., Ernakulam, 6-9-1951, coll. C.V.S. (No. 467); on dead stems of *Acalypha wilkesiana* Muell. Arg., Univ. Bot. Lab. campus, Madras, 21-2-1951, coll.

* The following abbreviations are used to indicate the name of the collector. K.R. = K. Ramakrishnan; C.V.S. = C. V. Subramanian. The numbers in brackets indicate accession numbers of the collections in Herb. M.U.B.L.

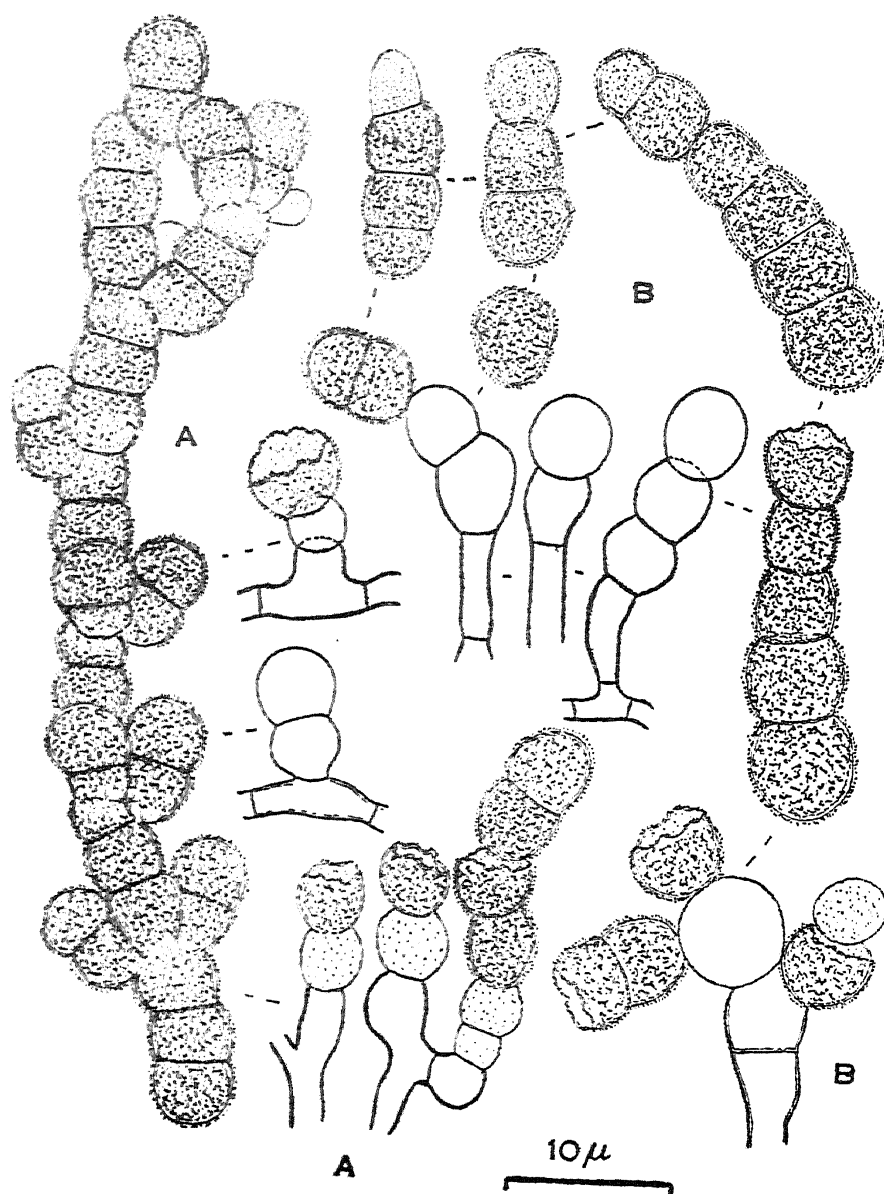


FIG. 1. *Torula herbarum*. A, from Herb. M.U.B.L. No. 578; B, from No. 499. C.V.S. (No. 88); on dead stem of *Artocarpus integrifolia* L., Ernakulam, 7-9-1951, coll. C.V.S. (No. 499); on dead stems of *Cajanus cajan* (Linn.) Millsp., Univ. Bot. Lab. campus, Madras, 18-12-1951, coll. C.V.S. (No. 659); on dead stem of *Barleria* sp., St. Berchmann's College campus, Changanacherry (Travancore-Cochin), 5-10-1951, coll. K.R. (No. 579); on dead stem (? Crassulaceæ), Agr. Hort. Soc. Garden, Madras, 21-12-1951, coll. C.V.S. (No. 667); on dead stem (? Euphorbiaceæ), Agr. Hort. Soc. Garden, Madras, 21-12-1951, coll. C.V.S. (No. 668); on dead stem (Rubiaceæ), Ernakulam, 7-9-1951, coll. C.V.S. (No. 492); on dead stems, Univ.

Bot. Lab. campus, Madras, 12-8-1951, coll. C.V.S. (No. 282); 30-8-1951, coll. C.V.S. (No. 430), St. Berchmann's College campus, Changanacherry, 5-10-1951, coll. K.R. (No. 578).

2. ***Zygosporium oscheoides* Montagne, 1842, in *Ann. Sci. nat.*, 2 Ser., xvii, p. 121.

Saccardo, *Syll. Fung.*, 4: 329, 1886; Mason, E.W., *Annotated Account of Fungi Received at the Imperial Mycological Institute*, List. II (Fascicle 3-Special Part), 1941, p. 134-35, 139-43, ic; Hughes, S. J., *Mycol. Pap. C.M.I.*, 44, pp. 2-5, ic, 1951.

Repent hyphæ sub-hyaline to brown, 2-3 μ thick. Falciphores simple, erect, broader at the base and tapering upwards, concolorous with the brown hyphæ except for the apical cell, 2-3 septate, 35-65 μ long, 3-4 μ broad at the base; apical cell of the falciphore hyaline to subhyaline, narrowly clavate at maturity and falling off. Falces normally arising as lateral branches at right angles to the falciphores, one from the base of each falciphore; stipe usually obconic, one-celled, concolorous, 3-7 \times 3-5 μ ; prophialide brown to black, strongly curved, 9-15 μ along its greatest length, 4-10 μ across its greatest width; phialides subhyaline, obpyriform with a tapering neck when mature, 4-7 \times 3-7 μ . Conidia hyaline, oval, smooth, 5-10 \times 4-8 μ .

The following collections have been examined and includes one from the Travancore-Cochin State: On dead leaves (No. 84) and petioles (No. 86) of *Musa paradisiaca* L., Univ. Bot. Lab. campus, Madras, 20-2-1951, coll. C.V.S.; on dead leaf-sheath of *Musa paradisiaca* L., Luz, Mylapore, Madras, 6-3-1951, coll. K.R. and C.V.S. (No. 129); on rotting leaves of *Odina wodier* Roxb., Univ. Bot. Lab. campus, Madras, 30-8-1951, coll. K.R. (No. 431), 28-9-1951, coll. K.R. (No. 528); on decaying leaves of *Ixora* sp., Ernakulam (Travancore-Cochin), 7-9-1951, coll. C.V.S. (No. 504).

3. *Beltrania indica* Subramanian sp. nov.

Coloniæ sepiaceo-brunneæ, effusæ, velutinæ. Setæ fusce brunneæ, rectæ, erectæ, distanter septatæ, crassis parietibus præditæ, 120-325 μ longæ, 3-5 μ latæ supra basim tumescentem, desinentes in apicem acutum atque pallidum. Conidiophori simplices, raro furcati in apice, erecti, recti vel curvati, usque septies septati, emergentes simul cum setis turmatim, 30-130 μ longi, 3-4 μ lati, brunnei colore ad basim, 4-7 μ lati ad apicem subhyalinum, qui est distincte denticulatus; "cellulæ separantes" hyalinæ, ovatæ, denticulatæ in utroque apice, 4-12 \times 3-5 μ . Conidia bicornia, levia, sicca, unicellularia, pallide vel fusce brunnea, zona equatoriali pallidiori vel subhyalina ornata, 13-25 \times 8-12 μ (mediet. 21 \times 10) μ , rotundata et cicatrice

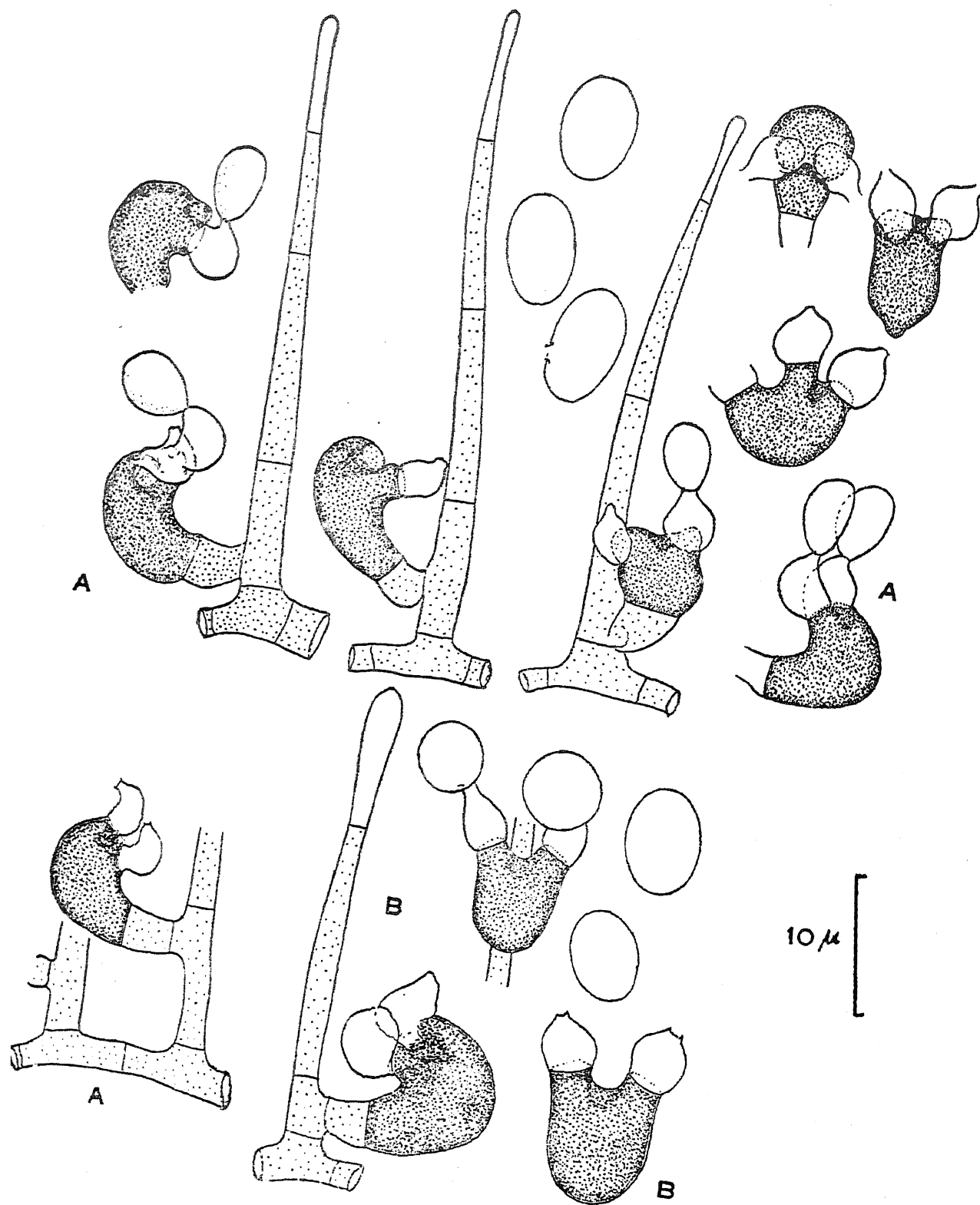


FIG. 2. *Zygosporium oscheoides*. A, from Herb. M.U.B.L. No. 528 ; B, from No. 504.

ornata vel denticulata ad basim, ornata unica seta longa, conica, unicellulata, hyalina vel subhyalina ad apicem, seta vero est 2–10 μ longa, circiter 2 μ lata

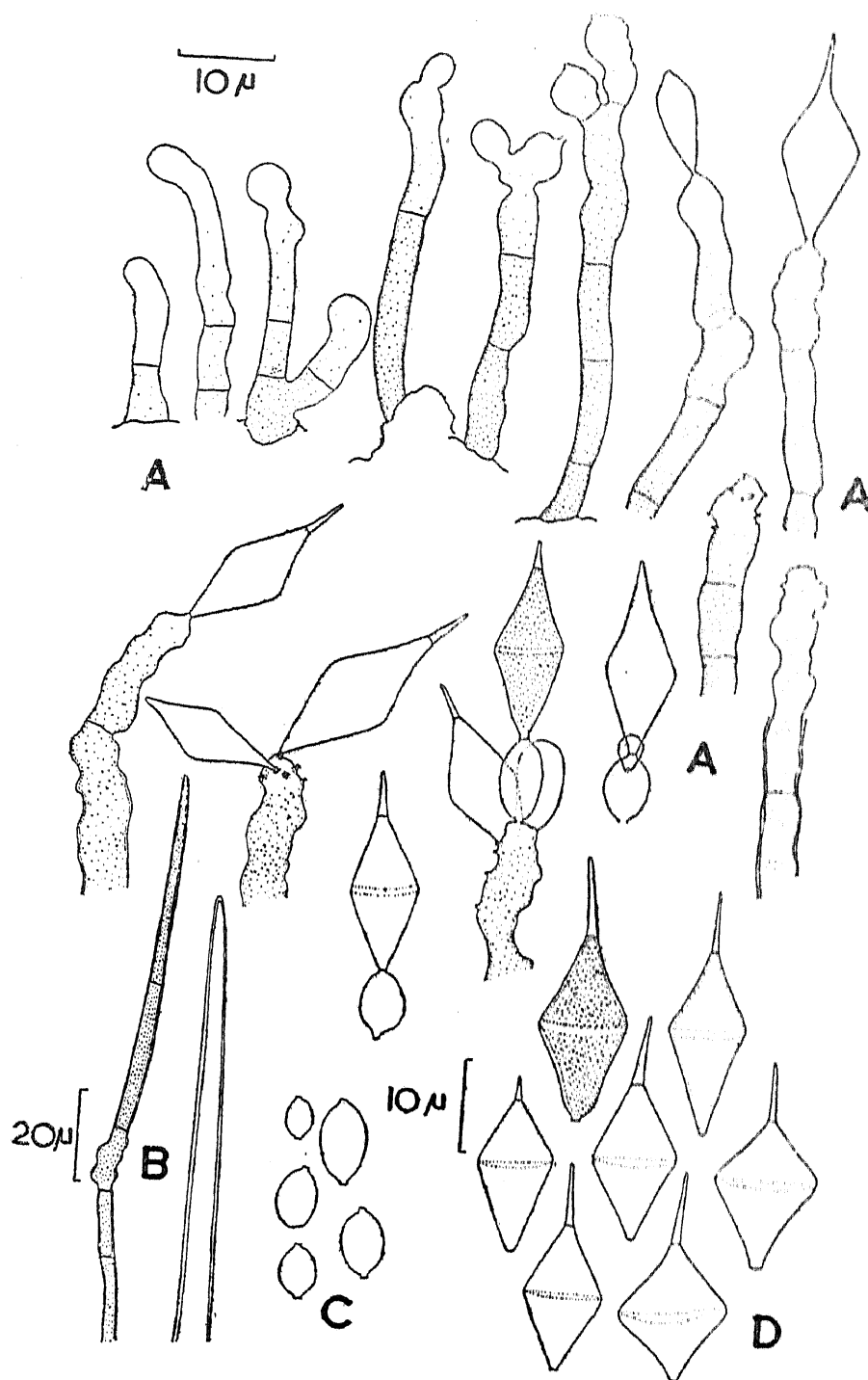


FIG. 3. *Beltrania indica* from Herb. M.U.B.L. No. 673. A, showing conidiophores and conidia and their development; B, setæ; C, "separating cells"; D, mature conidia.

ad basim. Conidia singula insident "cellulis separantibus," vel nulla "separante cellula" directe conidiophoro insident.

Habitat in fructibus emortuis *Cæsalpinia pulcherrimæ* Sw. (Leguminosæ, Madras, in campo Universitatis Botanices laboratorii, 4 januarii anni 1952) legit C.V.S., No. 673 (Typus); 28 Januarii 1952, legit C.V.S., No. 716.

Colonies coffee brown, effuse, velutinous. Setæ dark brown, straight, erect, distantly septate, thick-walled, $120-325\mu$ long, $3-5\mu$ broad just above the swollen base, tapering to an acute and paler apex. Conidiophores simple, rarely forked into two at the tip, erect, straight or bent, up to 7-septate, arising in groups along with setæ $30-130\mu$ long, $3-4\mu$ wide and brown in colour at the base, $4-7\mu$ wide at the subhyaline to hyaline apex which is markedly denticulate; "separating cells" hyaline, oval, denticulate at both ends, $4-12 \times 3-5\mu$. Conidia biconic, smooth, dry, unicellular, pale to dark brown, with a paler or subhyaline equatorial band, $13-25 \times 8-12$ (mean 21×10) μ , rounded with a scar or denticulate at the base, with a long, conical, one-celled, hyaline to subhyaline seta at the apex, $2-10\mu$ long and about 2μ wide at the base. Conidia are borne singly on the "separating cells", or without a "separating cell" and borne directly on the conidiophore.

Habit: on dead pods of *Cæsalpinia pulcherrima* Sw. (Leguminosæ), Univ. Bot. Lab. campus, Madras, 4-1-1952, coll. C.V.S., No. 673 (Type); 28-1-1952, coll. C.V.S., No. 716.

Four species of *Beltrania* are known: *B. rhombica* Penzig (the type species), *B. querna* Harkness, *B. malaiensis* Wakefield, and *B. africana* Hughes (see Hughes, *Mycol. Pap. C.M.I.*, 47, 1951). In conidial measurements *B. indica* comes closest to *B. querna* but differs from it, and also from all the other species, in having much longer setæ and conidiophores, and smaller conidia. Following the authors of *Beltrania querna*, *B. malaiensis* and *B. africana*, this fungus is placed in the genus *Beltrania*, although the type species *B. rhombica* is stated to have one-septate conidia.

4. ***Stachybotrys atra* Corda, 1837, in *Ic. Fung.* I, p. 21, f. 278 B.

Saccardo, *Syll. Fung.*, 4:269. 1886; Bisby, G. R., *Trans. Brit. mycol. Soc.*, 26:133-43. 1943; 28:11-12. 1945.

Colonies black; mycelium subhyaline to hyaline, septate, $2-4\mu$ broad; phialophores $30-65 \times 2-4\mu$, brownish except at the base which is subhyaline, 1-2-septate, the apical cell of the phialophore paler in colour, often longer than the lower cells, with a slightly swollen tip on which are borne

phialides; phialides 5-8, subhyaline or faintly coloured, obovate to pyriform or clavate, $6-10 \times 2-4 \mu$. Mature conidia opaque black, smooth, oval, $3-10 \times 2-4 \mu$.

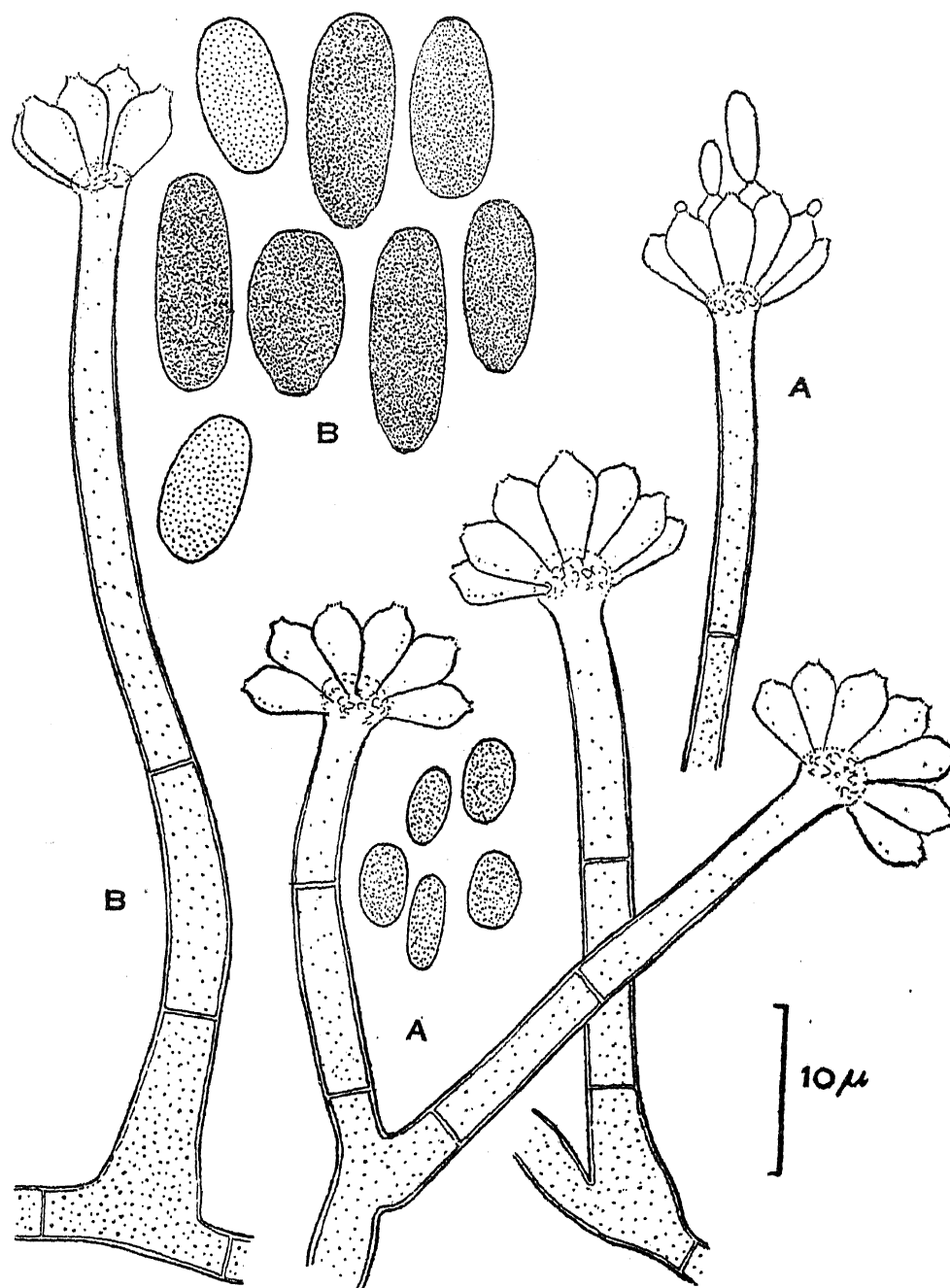


FIG. 4. *Stachybotrys*: A. *S. atra*, phialophores and conidia, from Herb. M.U.B.L. No. 83; B, *S. pulchra*, phialophores and conidia, from Herb. M.U.B.L. No. 614.

The following collections have been examined and includes one from the Travancore-Cochin State; On dead leaf base of *Musa paradisiaca* L.,

Univ. Bot. Lab. Campus, Madras, 20-2-1951, coll. C.V.S. (No. 83); on dead leaf-sheath of *Musa paradisiaca* L., Ernakulam (Travancore-Cochin), 6-9-1951, coll. C.V.S. (No. 465); on paper, Univ. Bot. Lab. campus, Madras, 28-11-1951, coll. C.V.S. (No. 633).

5. ***Stachybotrys pulchra* Spegazzini, 1896, in *Rev. Agr. y. Veter. La Plata*, p. 248.

Saccardo, *Syll. Fung.*, 14:1071. 1899; Bisby, G. R., *Trans. Brit. mycol. Soc.*, 26:141. 1943 (as a possible synonym of *S. atra* Corda).

Colonies blackish; mycelium hyaline to subhyaline, 2-4 μ broad, septate; phialophores 50-110 \times 2-4 μ , brownish except at the base which is subhyaline, 1-2-septate, the apical cell of the phialophore often longer than the lower ones, with a slightly swollen subhyaline tip on which are borne phialides; phialides up to 5, subhyaline, obovate to pyriform or clavate 11-17 \times 2-4 μ ; mature conidia greenish black to opaque black, smooth, oval, 8-19 \times 4-7 (mean 15 \times 5.8) μ .

Only one collection has been examined: on dead leaf of *Ficus bengalensis* L., Univ. Bot. Lab. campus, Madras, 6-11-1951, coll. C.V.S. (No. 614).

6. **Memnoniella echinata* (Riv.) Galloway, 1933, in *Trans. Brit. mycol. Soc.*, 18:163-66, ic.

Bisby, G. R., *Trans. Brit. mycol. Soc.*, 26:133-43; 1943; 28:11-12, 1945.

Colonies deep black, velvety to floccose, up to 10 mm. long and 5 mm. broad; mycelium composed of hyaline, septate hyphae, 2-3 μ thick; conidiophores erect, hyaline at the base and black to greenish black above, 2-3-septate, 60-170 \times 2-5 μ , slightly swollen and 4-5 μ broad at the tip which is hyaline; phialides hyaline, with characteristic shape, 6-12 \times 3-7 μ , usually about seven in number, and arising from the swollen tip of the conidiophore; conidia deep black, globose to squarish, echinulate, 5-9 μ in diameter, produced basipetally from the tip of the phialides in chains, chains up to 160 μ long and with over 50 conidia, often breaking up into short chains of two or three conidia.

The following collections have been examined: On decaying palm frond, near Senate House, Chepauk, Madras, 13-2-1951, coll. K.R. and C.V.S. (No. 41); on dead petioles of *Musa paradisiaca* L., Univ. Bot. Lab. campus, Madras, 20-2-1951, coll. C.V.S. (No. 87); on dead leaf-sheath of *Musa paradisiaca* L., Luz, Mylapore, Madras, 6-3-1951, coll. K.R. and C.V.S. (No. 130); on dead stems of *Euphorbia tirucalli* L., Agr. Hort,

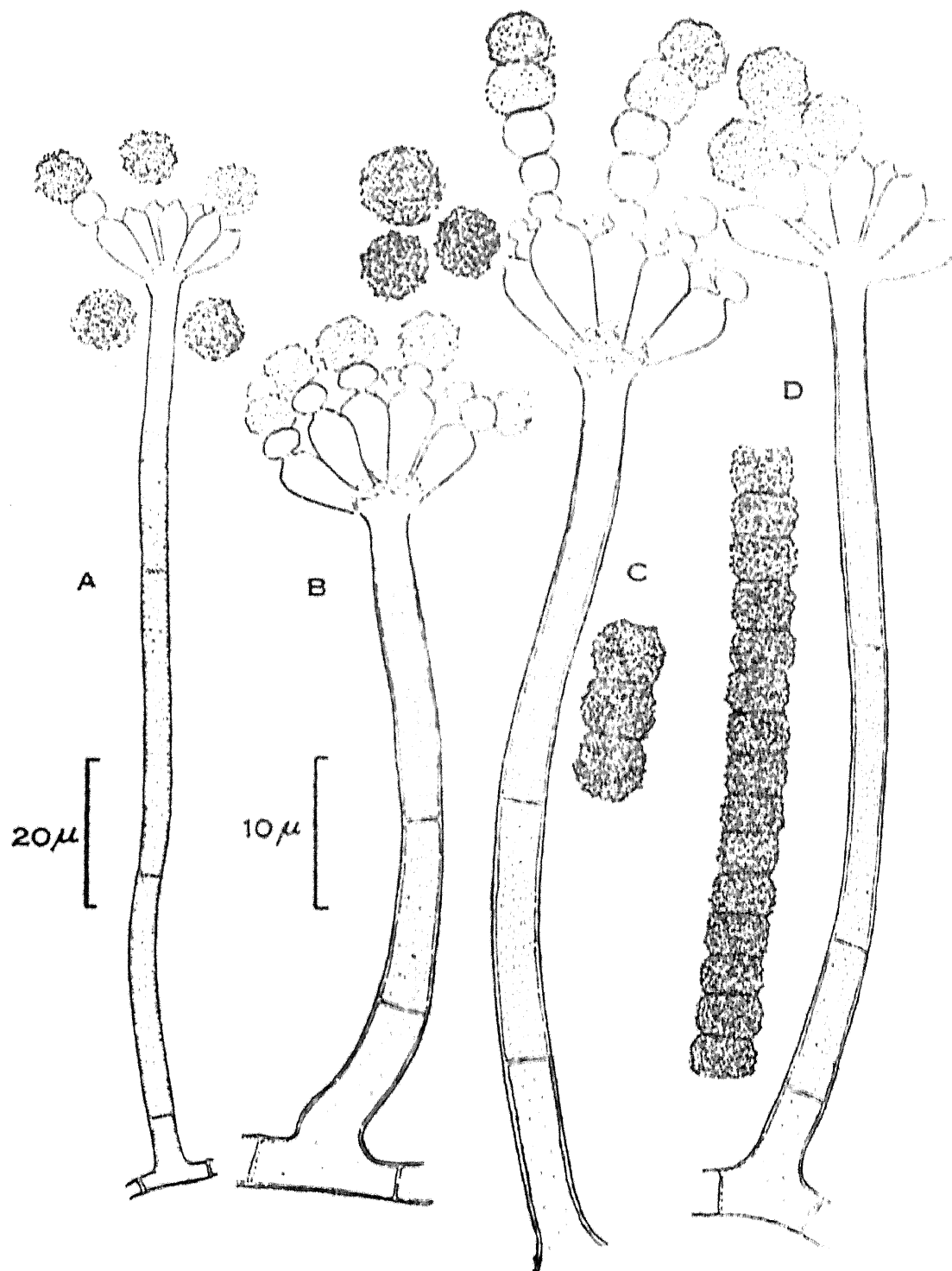


FIG. 5. *Memmoniella echinata*, phialophores and conidia from four collections; A, from Herb. M.U.B.L. No. 130; B, from No. 99; C, from No. 656; D, from No. 494. Soc. Garden, Madras, 25.2.1951, coll. K.R. and C.V.S. (No. 99); on decaying spathe of *Areca catechu* L. (the spathe came from Mysore as pack-

ing material for arecanuts), 14-9-1951, coll. K.R. and C.V.S. (No. 494); on dead stems of *Cyamopsis tetragonoloba* Taub., Univ. Bot. Lab. campus, Madras, 25-10-1951, coll. C.V.S. (No. 605); on dead seed of *Thevetia neriiifolia* Juss., Univ. Bot. Lab. campus, Madras, 17-12-1951, coll. C.V.S. (No. 656); on dead stem, Univ. Bot. Lab. campus, Madras, 12-8-1951, coll. C.V.S. (No. 283).

7. ***Corynespora cassiicola* (Berk. and Curt.) Wei, 1950, in *Mycol. Pap. C.M.I.*, 34, p. 5, ic.

Colonies brownish in colour, up to a centimetre or more in length and 5 mm. wide; mycelium deep brown, septate; conidiophores arising per-

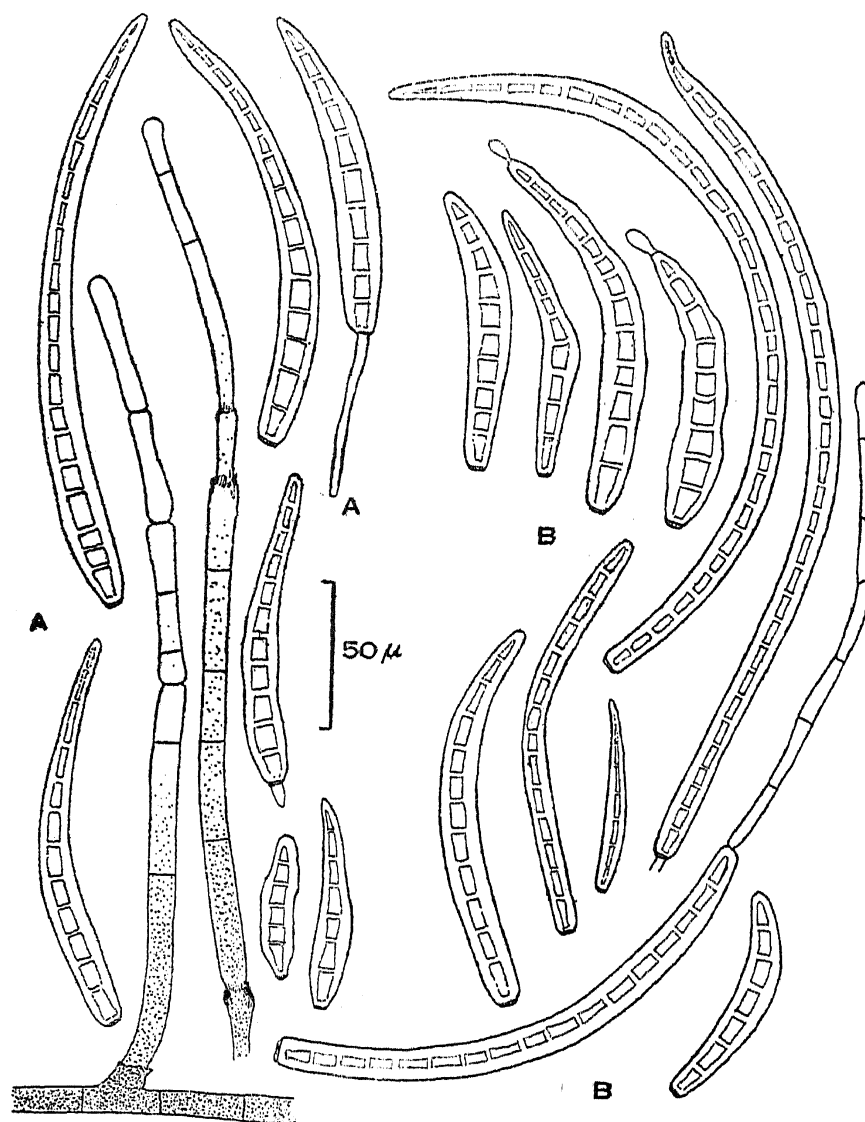


FIG. 6. *Corynespora cassiicola* from two collections: A, from Herb. M.U.B.L. No. 474; B, from No. 584.

pendicularly from the repent hyphæ, sometimes swollen at the base, of variable length (50–400 μ), septate, concolorous with the hyphæ, 3–9 μ wide; conidia borne singly at the tip, usually connected by a hyaline isthmus to the conidiophore, mostly cylindrical or sometimes obclavate, straight or slightly or markedly curved, tapering slightly or markedly towards the apex, subhyaline, up to 30-pseudoseptate, 35–280 \times 7–18 μ , germinating by polar germ tubes.

No conidial chains have been seen. The conidiophores proliferate terminally through the scar of the fallen conidia or sometimes through the injured tip of the conidiophore. The proliferating joints are variable in length (30–190 μ) and are lighter in colour towards the apex.

Four collections have been examined of which two are from Travancore-Cochin State: On dead stem of *Cassia* sp., Kolathuraar, Chingleput District (Madras State), 2–9–1951, coll. K.R. (No. 439); on rotting leaves of *Carica papaya* L., Chingavanam (Travancore-Cochin), 8–10–1951, coll. K.R. (No. 584); on dead stem, Ernakulam (Travancore-Cochin), 7–9–1951, coll. C.V.S. (No. 474); Kolathuraar, 2–9–1951, coll. C.V.S. (No. 508).

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