FUNGI IMPERFECTI FROM MADRAS—II

By C. V. Subramanian
(*University Botany Laboratory, Madras* 5, *India*)

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This is the second of a series of papers on the Fungi Imperfecti collected in the Madras State, India. All species mentioned except *Napicladium cratævæ* Syd. (which is now made the type of a new genus) are new records for India.

8. *Arthrinium saccharicola* Stevens apud Johnston and Stevenson in *J. Dept. Agric. Porto Rico*, 1917, **1**, 223. Saccardo, *Syll. Fung.*, 1931, **25**, 771.

Colonies black, up to 2·5 mm. in diameter. "Catkins" of conidia 40–105×4·8–6·4 μ. Conidiophores simple, erect or bent, closely aggregated, hyaline, with transverse septa occurring as dark bands at intervals of about 5–7 μ, 40–105×1·5–3 μ; conidia sessile, arising laterally from the cells of the conidiophore or from its apex, crowded together, pointed upwards simulating the appearance of a catkin, lenticular, pale brown in colour when mature, hyaline when young, 4·8–8·0 μ in diameter, 3·2–5·6 μ thick.

Only one collection has been examined: on dead stem, Thanthipandal, Kambakkam, Chingleput District, Madras State, 3–2–1952, coll. C. V. Subramanian (Herb. M.U.B.L. No. 718).

9. *Dictyoarthrinium quadratum* Hughes, in *Mycol. Pap. C.M.I.*, 1952, **48**, 30, ic.

Colonies black, irregular, powdery, up to 2 mm. broad, of variable length (up to 2 cm.), often coalescing. Mycelium composed of septate, branched, anastomosing, pale brown hyphæ, 2–5 μ broad. Conidiophores simple, densely crowded and aggregated, erect or oblique, straight or slightly curved or wavy, somewhat cylindrical, unbranched, subhyaline or pale brown in colour, up to 155 μ long, 3–5 μ broad, transversely septate, septa dark and simulating bands, cells of the conidiophore 3–10 μ long; conidiophores arising endogenously from somewhat cup-like, dark-coloured verrucose cells borne on short stalks or sessile and arising laterally on the hyphæ;

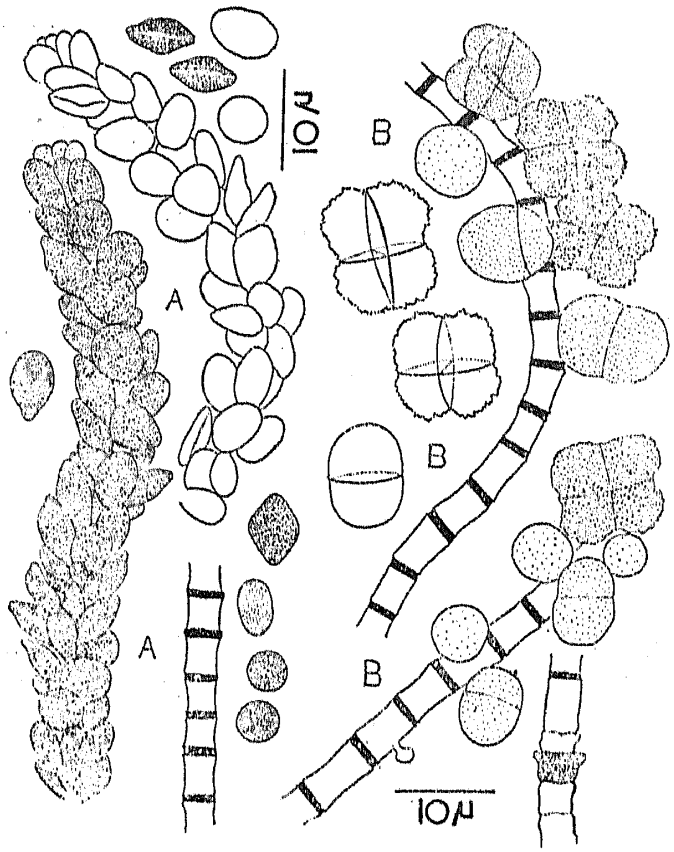

FIG. 1. A, *Arthrinium saccharicola* : conidiophores and conidia from Herb. M.U.B,L. No. 718; B, *Dictyoarthrinium quadratum* : conidiophores and conidia from Herb. M.U.B.L. No. 453.

verrucose cells 3–5 μ broad, 2–4 μ long; stalks 1–3-celled. Conidia when mature dark brown, thick-walled, verrucose, cruciately septate with four cells, somewhat squarish in outline and constricted at the septa, 11–13 μ in diameter, flattened, 8–10 μ thick, attached to the conidiophore apically or laterally; apical conidia sessile, borne singly at the apex of the conidiophore, in other respects similar to the lateral conidia; lateral conidia many, arising from cells of the conidiophore in single whorls and borne on short stalks, hyaline and spherical when young, echinulate and brown when mature.

Five collections have been made of which four are from the Travancore-Cochin State, South India: on dead leaves of *Cocos nucifera* L., Ernakulam (Travancore-Cochin State), 7–9–1951, coll. C. V. Subramanian (Herb. M.U.B.L. Nos. 453; 506); on dead leaf-sheath of *Musa paradisiaca* L., Ernakulam, 6–9–1951, coll. C. V. Subramanian (Herb. M.U.B.L. No. 464); on dead stem of (*Ixora* sp. ?) Rubiaceæ, Ernakulam, 7–9–1951, coll. C. V. Subramanian (Herb. M.U.B.L. No. 475); on dead grass culms (broom-

stick), University Botany Laboratory Garden, Madras, 20-12-1951, coll. C. V. Subramanian (Herb. M.U.B.L. No. 662).

10. *Podoconis theæ* (Bernard) Boedijn, in *Bull. Jard. bot. Buitenz.*, Ser. III, 1933, **13**, 133, ic.

Syn. *Helminthosporium theæ* Bernard. Saccardo, *Syll. Fung.*, 1913, **22**, 1390.

Mycelium pale brown to dark brown, branched, septate, 2–4 μ broad. Conidiophores brown, unbranched, 50–120 × 4–7 μ, up to 7-septate, the apical cell slightly swollen and narrowing to a tip 2–3 μ wide on which a single conidium is borne. Conidia acrogenous, borne singly at the tip of the conidiophore, 2–4- (mostly 3-) septate, somewhat obclavate, with a long narrowing apical cell and a short, narrow, appendage-like base, 50 × 9 (36–66 × 7–11) μ; the basal cell of the conidium brown in colour, and the broadest, the higher cells becoming progressively paler and narrower; the apical cell subhyaline, 14–26 × 2–3 μ. The conidiophores may proliferate through the scar of a fallen conidium and produce further conidia.

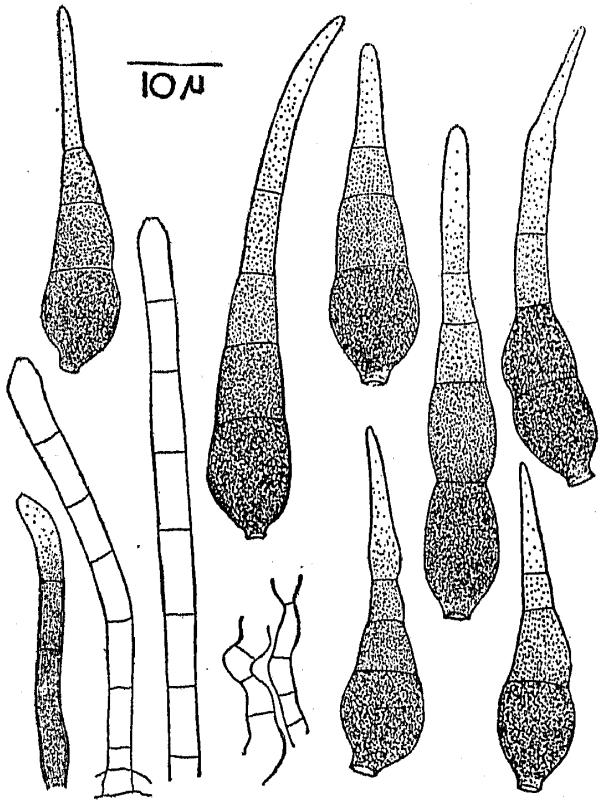

FIG. 2. *Podoconis theæ* : hyphæ, conidiophores and conidia from Herb. M.U.B.L. No. 539.

Only one collection has been examined: on dead leaf rachis of *Phœnix sylvestris* Roxb., Christian College Campus, Tambaram, near Madras (Chingleput District), 30-9-1951, coll. C. V. Subramanian (Herb. M.U.B.L. No. 539).

11. *Lacellina graminicola* (Berk. and Br.) Petch, in *Ann. roy. bot. Gdn., Peradeniya*, 1924, **9**, 171.

Syn. *Mesobotrys graminicola* (Berk. and Br.) Sacc. in *Syll. Fung.*, 1886, **4**, 325.

Colonies black, gregarious, velvetty due to the setæ, separate or coalescing, up to 2·5 mm. long. Conidiophores intermixed with setæ. Setæ simple, subulate, up to 940 μ long, 8–11 μ in diameter at the base, tapering upwards, black, becoming brown above and sometimes subhyaline to hyaline at the apex, with an obtuse apex, septate (up to 25 septa seen), the septa being distinctly visible only in the lighter coloured parts. Conidiophores erect or bent, straight or tortuous, simple, subhyaline to pale brown, septate, minutely verrucose throughout, up to 80 μ long, 3–5 μ broad.

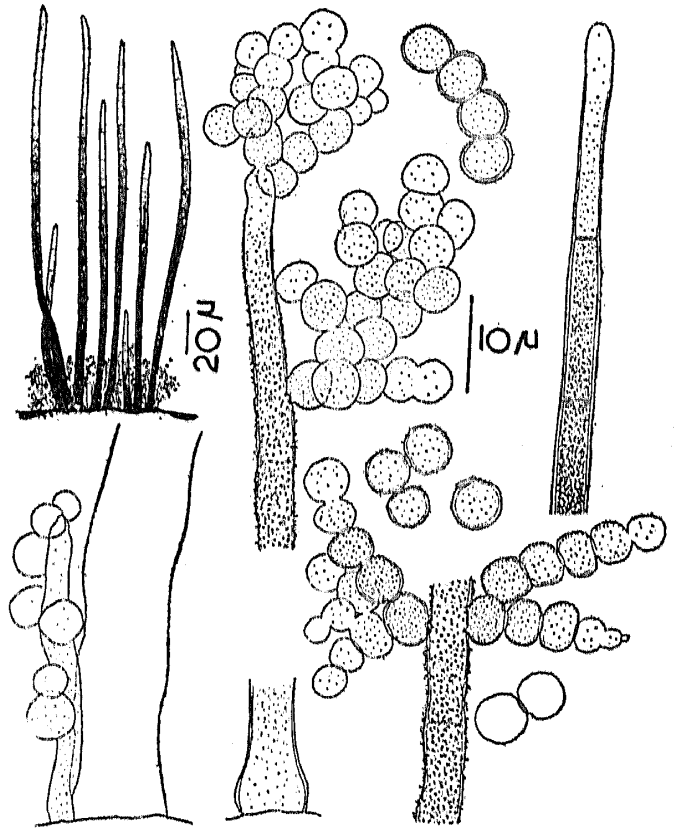

FIG. 3. *Lacellina graminicola* : setæ, conidiophores and conidia from Herb. M.U.B.L. No. 722.

Conidia acropleurogenous, one-celled, globose or oval, yellowish brown to dark brown, 4–7 μ in diameter (mean 5·6 μ), produced acropetally in branched or unbranched chains up to 56 μ long.

Two collections have been made: on dead stem of bamboo, Thanthipandal, Kambakkam (Chingleput District), 3–2–1952, coll. C. V. Subramanian (Herb. M.U.B.L. No. 722); on dead stem, Thanthipandal, Kambakkam, 3–2–1952, coll. C. V. Subramanian (Herb. M.U.B.L. No. 724).

12. *Napicladium cratævæ* Syd.

The type species of the genus *Napicladium* Thuem., *viz.*, *N. sorauerí* Thuem. (*Hedwigia*, 1875, **14**, 4), has been shown to be synonymous with *Fusicladium dendriticum* (Wallr.) Fuckel by Winter (*Hedwigia*, 1875, **14**, 35–36). A new genus is therefore being proposed to accommodate Sydow's fungus.

Macræa Subramanian gen. nov.

Fungi imperfecti, phragmosporæ. Colonies effuse, brownish to black. Conidiophores simple, non-septate, erect or bent, straight or tortuous, subhyaline to brown, densely crowded. Conidia acrogenous, produced singly at the tip of the conidiophore, not in chains, napiform or obclavate, transversely 1-many-septate, broader at the base, tapering towards the tip, brownish towards the base, progressively paler towards the tip.

Pertinet ad Fungos imperfectos, atque ad Phragmosporas. Coloniæ effusæ, brunneolæ ad nigras. Conidiophori simplices, haud septati, erecti vel curvati, recti vel tortuosi, subhyalini ad brunneos, dense aggregati. Conidia acrogena, singula apici cuiusque conidiophori insidentia, haud catenulata, napiformia vel obclavata, transverse semel ad pluries septata, latiora ad basim, gradatim decrescentia ad apicem, brunneola ad basim, progressive pallidiora ad apicem.

Species typica: *Macræa cratævæ* (Syd.) Subramanian comb. nov.

Syn. *Napicladium cratævæ* Syd. in *Ann. mycol.*, Berl., 1913, **11**, 329. Saccardo, *Syll. Fung.*, 1931, **25**, 836.

Colonies rarely circular, more often irregular in shape, up to 5 mm. long, sometimes coalescing, somewhat velvety. Conidiophores simple, unbranched, non-septate, erect or bent, straight or tortuous, subhyaline to yellowish in colour, densely crowded, suddenly narrowed and somewhat conical towards the tip, 24–36 × 5·6–8·8 μ. Conidia acrogenous, produced singly at the tip of the conidiophore, not in chains, narrowly obclavate,

1–3-septate, the lower two cells brown in colour, the two apical cells paler in colour (almost subhyaline) and narrowing to an obtuse apex, 22–50 × 6·4–8·0 μ.

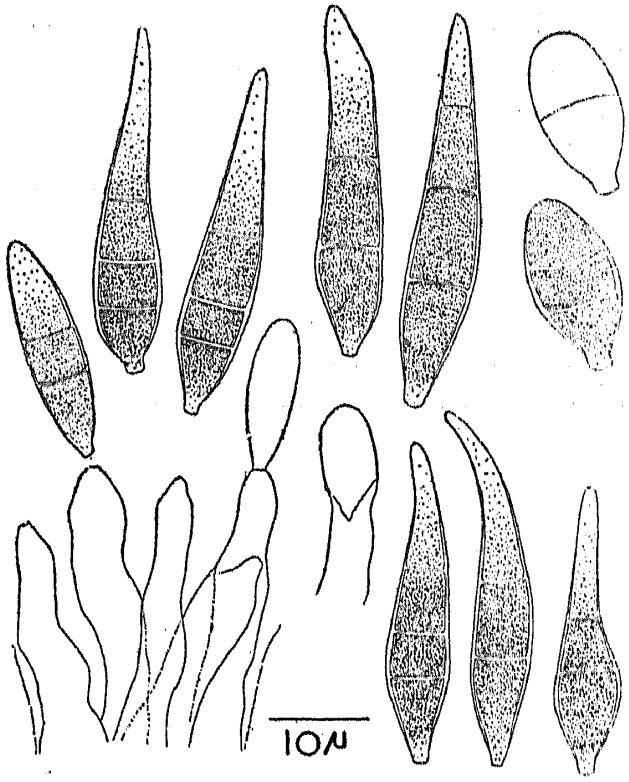

FIG. 4. *Macræa cratævæ*: conidiophores and conidia from type specimen *ex* Herb. Crypt. Ind. Orient. No. 2418.

The above description is based on a study of the type specimen of *Napicladium cratævæ* Syd.: on living leaves of *Crataeva religiosa* Forst., Government Farm, Coimbatore, Madras State, 5–2–1912, coll. W. McRae (No. 9) *ex* Herb. Crypt. Ind. Orient, No. 2418.

Through the courtesy of the Head of the Division of Mycology, Indian Agricultural Research Institute, New Delhi, I was able to examine part of a collection made by A. Khan " on living leaves of *Crataeva religiosa* Forst., from Karnal (E. Punjab), India, 13–10–1937 " and determined by him as *Napicladium cratævæ* Syd. This collection is in very good condition and showed an abundance of conidia. The colonies are darker in colour and larger than in the case of McRae's collection, the conidia are much longer and a majority of them are 4–6-septate. Further, the colonies are mostly circular in outline unlike McRae's fungus which has irregular spots. The fungus collected by A. Khan is therefore described here as a new species of the genus *Macræa*.

Macræa punjabensis Subramanian sp. nov.

Amphigenous, mostly hypophyllous. Colonies large, circular, rarely irregular, separate or coalescing, up to 1·5 cm. in diameter, brownish to deep black in colour, velvety. Conidiophores simple, unbranched, non-septate, erect or bent, straight or tortuous, yellowish to pale brown, densely crowded, suddenly narrowed and somewhat conical towards the tip, 24–40×6·4–7·2 μ. Conidia acrogenous, produced singly at the tip of the conidiophore, not in chains, napiform or obclavate, 1–6-, mostly 3–6-septate, the lower cells deep brown in colour, paler above, and with attenuate but obtuse apex, 27–64×6·4–7·2 μ.

Habitat.—On leaves of (?) *Cratæva religiosa* Forst., Karnal (E. Punjab), India, 13–10–1937, coll. A. Khan, *ex* Herb. Crypt. Ind. Orient. No. 12411 (Herb. M.U.B.L. No. 782). An examination of Khan's collection indicates that his determination of the host is probably incorrect.

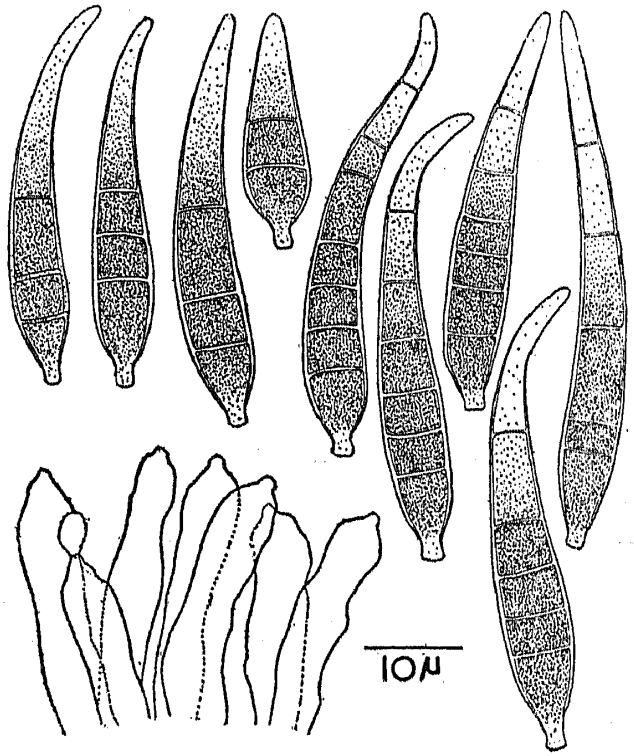

FIG. 5. *Macræa punjabensis* : conidiophores and conidia from type specimen *ex* Herb. Crypt. Ind. Orient. No. 12411.

Amphigena, ut plurimum hypophylla. Coloniæ magnæ, circulares, raro irregulares vel coalescentes, usque ad 1·5 cm. diam., brunneolæ ad profunde nigras colore, velutinæ. Conidiophori simplices, non-ramosi, non-septati, erecti vel curvati, recti vel tortuosi, luteoli ad pallide brunneos,

dense aggregati, subito angustati atque aliquantum conici ad apicem 24–40×6·4–7·2 μ. Conidia acrogena, singula apici cuiusque conidiophori insidentia, haud catenulata, napiformia vel obclavata, 1–6-, ut plurimum 3–6-septata; cellule inferiores alte brunneæ colore, superiores vero pallidiores, apice attenuato sed obtuso; 27–64×6·4–7·2 μ.

Habitat super folia (?) *Cratævæ religiosæ* Forst., Karnal (E. Punjab), India, 13–10–1937, coll. A. Khan; typus positus in Herb. Crypt. Ind. Orient, New Delhi, Sub. No. 12411 (Herb. M.U.B.L. No. 782).

13. *Camptomeris cratævæ* Subramanian sp. nov.

Colonies mostly hypophyllous, brown, irregular, up to 7 mm. long. Hyphæ branched, septate, subhyaline, 2–4 μ broad. Conidiophores simple, unbranched, one-septate near the base, cylindrical, yellowish to pale brown, straight or bent, erect, 24–32×5·6–6·4 μ. Conidia acrogenous, produced singly at the tip of the conidiophore, oblong to oblong-clavate with a papillate base, 1·6–2·4 μ broad, hyaline to subhyaline, up to 3-septate, with somewhat thick epispore, 19–34×4·8–6·4 μ.

Habitat.—On living leaves of *Cratæva religiosa* Forst., Agri-Horticultural Society's Gardens, Teynampet, Madras, 9–1–1952, coll. C. V. Subramanian and K. Ramakrishnan (Herb. M.U.B.L. No. 703).

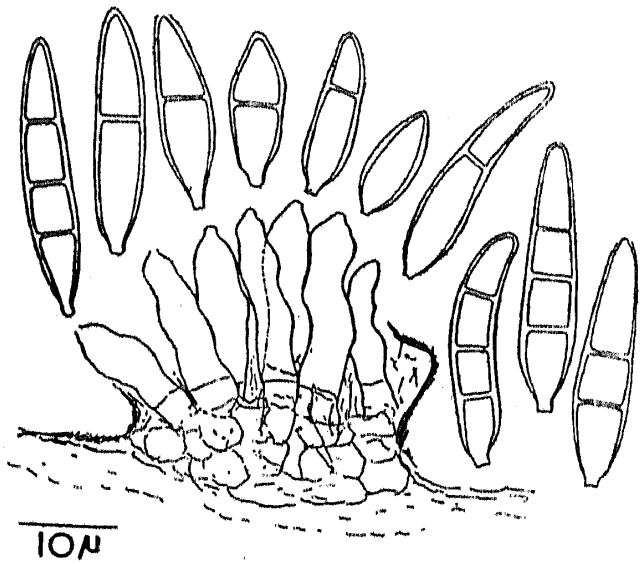

FIG. 6. *Camptomeris cratævæ* : conidiophores and conidia from type specimen *ex* Herb. M.U.B.L. No. 703.

Coloniæ ut plurimum hypophyllæ, brunneæ, irregulares, ad 7 mm. longæ. Hyphæ ramosæ, septatæ, subhyalinæ, 2–4 μ latæ. Conidiophori simplices, non-ramosi, semel septati prope basim, cylindrici, luteoli ad pallide brunneos,

recti vel curvati, erecti, 24–32×5·6–6·4 μ. Conidia acrogena, singula cuiusque conidiophori apici insidentia, oblonga vel oblonga-clavata, basi papillata, 1·6–2·4 μ lata, hyalina vel subhyalina, usque ter septata, episporio aliquantulum crasso, 19–32×4·8–6·4 μ.

Habitat in foliis viventibus *Cratævæ religiosæ* Forst.; typus lectus in hortis Agri-Hortic. Soc., Teynampet, Madras, die 9 januarii 1952 a C. V. Subramanian and K. Ramakrishnan, et positus in Herb. M.U.B.L. No. 703.

I thank Dr. R. S. Vasudeva, Head of the Division of Mycology, Indian Agricultural Research Institute, New Delhi, for lending me for study fragments from the type and other collections of *Napicladium cratævæ* Syd. in the *Herb. Crypt. Ind. Orient.* I am grateful to Professor H. Santapau of the St. Xavier's College, Bombay, for the Latin diagnoses.