ADDITIONS TO FUNGI OF MADRAS—VII

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(51) Synchytrium crotalariae Ramakrishnan, T. S. and K., sp. nov.

Gallae single or in groups, on leaves and stem, bright orange when young, cupulate after dehiscence, 1–2 mm. diam., amphigenous, more on the lower surface; resting spores not seen; summer sporangia forming large sori up to 500 μ in diam.; sporangia 26 × 24 μ (20–34 × 17–34), globose or angular, orange coloured, smooth, thin-walled.

Gallae in foliis et culmis, singularae vel aggregatae, aurantiacei colores in juventute, cupulatae, 1–2 mm. diam.; hypnospora ignota; sori usque 500 μ diam.; sporangiis numerosis, globosis vel angulatis, levis, 26 × 24 μ (20–34 × 17–34); contentu aurantiaco.

On living leaves and stems of Crotalaria semperflorens Vent. (Papilionaceae), Lovedale, Ootacamund, 17–1–1949, T. S. Ramakrishnan.,

fig. 1. Synchytrium crotalariae, (a) section of leaf with sori (diagrammatic), (b) sporangia × 250.

Numerous galls are seen on the leaves and young stems. When young they are bright orange coloured. On dehiscence they become cupulate. In each gall 2–5 chambers are visible. The sori are made up of numerous sporangia. Resting spores were not observed.

(52) Pseudopeziza indica Ramakrishnan, T. S. and K., sp. nov.

Spots amphigenous, brown; apothecia hypophyllous, innate, later erumpent, irregularly circular, sessile; asci clavate, hyaline, paraphysate,
paraphyses filiform, not branched, $85 \times 12\mu$ (72–112 × 8–16); ascospores 8, globose, hyaline, one-celled, $8 \cdot 4 \times 8\mu$ (6–12 × 6–12).

Maculæ amphigenæ, brunneæ; apothecia hypophylla, innata, dien erumpentia, irregulariter circularia, sessilia; asci clavati, hyalini $85 \times 12\mu$ (72–112 × 8–16), paraphysati, paraphyses filiformes, simplices; ascosporidia 8, globosa, hyalina, unicellata, $8 \cdot 4 \times 8\mu$ (6–12 × 6–12).

On living leaves of *Embelia ribes* Burm. (Myrsinæ), Anamalais, 30–1–1949, T. S. Ramakrishnan.

![Fig. 2. Pseudopeziza indica, (a) section through apothecium (semidiagrammatic), (b) asci and paraphyses × 270.](image)

The apothecia open out on the lower surface of the leaf. The edges of the apothecia are lacerated and incurved. Fresh apothecia are translucent and whitish but on drying they become black.

(53) *Physalospora anamalaiensis* Ramakrishnan, T. S. and K., sp. nov.

Spots epiphyllous, indefinite, slightly raised, reddish; perithecia punctiform, black, innate, crowded in the spot, globose, ostiolate, rather deep-seated, but not reaching up to the lower epidermis, wall composed of two or three layers of thin-walled cells; asci hyaline, fusiform or cylindrical with a small foot, paraphysate, paraphyses filiform, wall gelatinising in water, $110 \times 12\mu$ (82–129 × 10–17): ascospores 8, hyaline, elliptical to oblong, one-celled, wall gelatinising in water, $13 \times 10\mu$ (10–17 × 7–14).

Maculæ epiphyllæ, indefinitæ, rubrei colores; perithecia punctiformia, atra, innata, globosa, profunde immersa; asci hyalini, fusiformi vel cylindrici, brevipedicellati, paraphysati, paraphyses filiformes, murus ascii gelatinous in aquæ, $110 \times 12\mu$ (82–129 × 10–17); ascosporidia 8, hyalina, elliptica vel oblonga, unicellata, $13 \times 10\mu$ (10–17 × 7–14).

On living leaves of *Embelia ribes* Burm., Anamalais, 30–1–1949, T. S. Ramakrishnan,
Physalospora anamalaiensis, (a) section through perithecium × 45, (b) asci and paraphysis × 270, (c) Pycnidiospore × 540.

The infection spots are not well defined but appear as convex reddish patches on the upper surface studded with many black dots representing the location of the perithecia. A black clypeus-like development is seen at the mouth of the perithecium. On the lower surface of the leaf brown dots are visible corresponding to the position of the perithecia. The asci are straight or slightly curved. The ascospores exhibit a gelatinous covering when mounted in water.

Associated with this fungus are globose pycnidia in the tissues of the leaf. Inside these pycnidia are formed one-celled, dark brown elliptic pycnidiospores. Each spore has a hyaline equatorial band. The pycnidal locules open eiphyllously. The pycnidiospores measure 9·5 × 7 µ (7–10 × 5–8·5). They have broad stalks and appear to be formed endogenously. Though they occur together the relationship between these two has not been established.

Physalospora embeliae Yates, Phyllachora embeliae V. Hohn., and P. secunda V. Hohn., have been recorded on Embelia ribes and other species (Saccardo, 1926, 1928). The fungus under study differs from these in having much bigger asci and ascospores.

(54) Ascomycetella symploci Ramakrishnan, T. S., sp. nov.

Spots amphigenous, circular, brown; stromata crowded, isolated or confluent, subepidermal, erumpent, gelatinising; asci elliptical, or oblong, hyaline, inordinate, crowded, 66 × 33 µ (33–103 × 22–42); ascospores 8, oblong, muriform, many celled, hyaline, 29 × 11 µ (19–34 × 8–14).

Maculae amphigenea, orbicularis, brunneis; stromata gregaria, isolata vel confluenta, subepidermalia, erumpentia, gelatinosa; asci elliptici vel oblongi, hyalini, crebrimi, inordinati, 66 × 33 µ (33–103 × 22–42); ascosporidia 8, oblonga, muriforma, hyalina, pluricellata, 29 × 11 µ (19–34 × 8–14).

![Diagram](image)

**FIG. 4.** *Ascomycetella symploci*, (a) section through stroma (diagrammatic), (b) asci and paraphyses × 300.

The spots are visible on both sides of the leaf. On the upper surface the epidermis is ruptured with the development of a central depression and a number of radiating fissures. On the lower surface a brown crust is formed. The asci are in several layers. The cells between the asci present a filamentous appearance and soon gelatinise on contact with water. There is no foot for the stroma. Nor is there any differentiation into sterile and fertile regions. The ascospores are muriform. These characters indicate that the fungus should be classified under the Myriangiales in the genus *Ascomycetella* Ell.

(55) *Elsinoe mezoneuri* Ramakrishnan, T. S. and K., sp. nov.

Spots foliicolous, hypertrophied, bulged out towards the lower surface; stromata hypophyllous, dark violet, subepidermal, becoming erumpent, pseudoparenchymatous, covered by a dark layer of fungal cells, effuse; asci numerous, in two or three layers irregularly embedded in the stroma, broadly obovate, 21 × 16 μ (17–24 × 13–20); paraphyses absent; ascospores 4, hyaline, 1–3 septate, 13–15 × 4–7 μ.

Maculae in foliis; stromata hypophylla, fusco violacea, subepidermia, effusa; asci bis vel ter seriati, intus stromati infixi, hyalini, obovati, aparenphysati, 21 × 16 μ (17–24 × 13–20); ascosporidia 4, hyalina, primum uniseptata, postice 1–3 septata, fusiformia, 13–15 × 4–7 μ.

The infected portion of the leaf can be easily recognised by the development of concavo-convex hypertrophied areas up to 1 cm. in diameter bulging out on the lower surface. The convex portion is coloured dark violet, owing to the formation of the stromata. The upper concave surface is light green in colour. One or more such galls may develop on a leaf. Most of the mature asci have only 4 ascospores clumped together in the centre of the ascus. The ascospores are usually two-celled with a constriction at the septum, but in some cases 2–3 septa were noticed. The imperfect stage was not observed.

(56) Camarotella symploci Ramakrishnan, T. S. and K., sp. nov.

Spots nil; stromata minute, 0.2–0.5 mm. diam., black, shining, amphigenous, isolated, sometimes clustered, usually uniloculate, subcuticular clypeate; loculi compressed-globose; asci basal, cylindrical with a very short foot, hyaline, 101 × 13 μ (85–143 × 11–15), paraphysate, paraphyses filiform; ascospores 8, brown, four-celled, constricted at the septa, tapering towards the ends, uniseriate, or irregularly arranged, 17–19 × 4–5 μ.

Maculis nullis; stromata minuta, 0.2–0.5 mm. diam., nigra, micantia, amphigena, isolata vel gregaria, uniloculata, subcuticularia, clypeata; loculis subglobosis, compressis; asci cylindrici, brevipedicellati hyalini, paraphysati, paraphyses filiformes, 101 × 13 μ (85–143 × 11–15); ascosporida 8, brunnea in maturitate, 4 cellata, constrictata ad septa, utrinque attenuata, uniseriata vel irregulariter disposita, 17–19 × 4–5 μ.


Dermatodothis javanica Racib., Homostegia symploci Racib., Phyllachora symploci Pat., and Cocconia placenta (B. and Br.) Sacc. have been recorded on this host. Of these Homostegia alone has four-celled ascospores. But
in this the stroma is immersed in the mesophyll while in the present fungus it is subcuticular. The structure of the fungus agrees with that of *Camarotella* Theiss. and Syd. Theissen and Sydow (1915) who have created this genus mention that the spores are hyaline. But the type specimen on which they created this genus is stated to be somewhat young. In the fungus under study the young spores are hyaline and they become coloured as they mature. So in spite of the presence of colour in the ascospores we have included it under *Camarotella* as it agrees with this genus in all other morphological features. In *Phyllachora* which is stated to possess only hyaline ascospores by Theissen and Sydow (*loc. cit.*), Stevens (1927) has included a number of species with coloured spores also. We feel that too much importance should not be attached to the colour of the spore in making generic distinctions.

(57) *Catacauma elæocarpi* Ramakrishnan, T. S. and K.


This fungus was first recorded by us on *Elæocarpus munroii*, from Coonoor. The perfect stage on the present host is identical with the one observed on *E. munroii*. Associated with this are seen numerous stromata bearing pycnidia resembling those of the genus *Leptothyrium*. The formation of the stroma is similar to that of *C. elæocarpi*. The top of the stroma splits open and a definite ostiole is not seen. The conidiophores are arranged like a palisade. The conidia are one-celled, subhyaline or olivaceous, cylindric, straight or bent.
(58) *Plowrightia indica* Ramakrishnan, T. S. and K., sp. nov.

Spots amphigenous, circular, up to 0.5 cm. in diam., brown; stromata more often hypophyllous, sometimes amphigenous, subepidermal, erumpent, dark brown, arranged in circles, dothideoid; loculi immersed, ostiolate; ascii hyaline, clavate, straight or slightly curved, short stalked, ap paraphysate, 80 × 13 μ (64–94 × 12–15), wall gelatinising; ascospores 8, irregularly arranged, hyaline spindle-shaped, 1-septate, 37 × 4 μ (28–48 × 4).

Maculae amphigenae, orbiculares, usque 0.5 cm. diam., brunneae vel fusco brunnea; stromata prominenter hypophylla, interdum amphigena, subepidermalia, erumpentia, fusco-brunnea, circulariter disposita, dothideoida; loculis immersis, ostiolatis; ascii hyalini, clavati, recti vel leniter curvati, brevipedicellati, 80 × 13 μ (64–94 × 12–15), ap paraphysati, pariete gelatiinoso; ascosporidia 8, irregulariter disposita, fusiformia, uniseptata, 37 × 4 μ (28–48 × 4).

On living leaves of *Jambosa latia* Bl. (Myrtaceae), Anamalais, 30–1–1949, T. S. Ramakrishnan.

**Fig. 7. Plowrightia indica**, (a) leaf showing stromata, (b) section through stroma × 170, (c) ascii and ascospores × 270.

One or more spots may develop on a leaf. The stromata appear as closely arranged, pulvinate, dark bodies arranged in circles. They are subepidermal and burst through the epidermis. The major portion of the stroma projects outside the leaf.

*Dothidella eugeniae* (Thum.) Berl. and Vogl (Saccardo, 1891) and *Microcyclus labens* Sacc. and Syd. (Saccardo, 1905) have been recorded on *Eugenia* spp. But the fungus under study is entirely different from these.
(59) *Phyllachora sikkimense* Ramakrishnan, T. S. and K., sp. nov.

Infection spots amphigenous, small, 1–3 mm. diam.; stromata black, irregular, amphigenous, shining, pluriloculate, clypei above and below; locules somewhat flattened; asci cylindric, short stalked, 113 x 10 μ (102–127 x 8–13); paraphyses filiform, numerous; ascospores 8, uniseriate, fusiform, hyaline, one-celled, tapering towards both ends, 24 x 6 μ (21–30 x 4–6·5).

Maculæ amphigenæ, parvae, 1–3 mm. diam.; stromata nigra, irregularia, amphigenæ, micantia, pluriloculata, clypei infra et supra; loculi compressi; asci hyalini, brevipedicellati, 113 x 10 μ (102–127 x 8–13); paraphyses filiformes; ascosporidia 8, uniseriata, fusiformia, hyalina, unilocellata, utrinque attenuata, 24 x 6 μ (21–30 x 4–6·5).

On living leaves of *Canarium sikkimense* King. (Burseraceæ), Anamalais, 30–1–1949, T. S. Ramakrishnan.

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(60) *Sphaerodothis borassi* Ramakrishnan, T. S. and K., sp. nov.

Spots amphigenous, elliptic, up to 1 cm. in length, and 0.6 cm. in breadth, isolated or confluent, brown; stromata amphigenous, isolated or confluent, unilocular, many in a spot; loculi deep seated, compressed; asci hyaline, clavate, straight or flexuous, 93 x 20 μ (66–126 x 15–30); ascospores 8, one-celled, irregularly arranged, reddish brown, fusoid, sometimes curved, wall minutely reticulate, 30 x 11 μ (21–39 x 6–15).

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**Fig. 8. Phyllachora sikkimense**, (a) stroma with locules (diagrammatic), (b) Asci and paraphyses × 400.

*Phyllachora canarii* P. Henn has been recorded on *Canarium luzonicum* from the Philippines (Saccardo, 1913; Theissen and Sydow, 1915). The present fungus differs from this in having much larger asci and ascospores.
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Maculis amphigenis, ellipticis, usque 1 cm. longis et 0·6 cm. latis, isolatis vel confluentibus, brunneis; stromatibus nigris, amphigenis, isolatis vel confluentibus, unilocularibus, numerosis; loculis compressis, profunde immersis; ascii hyalini, clavati, recti vel flexuosi, 93 × 20 µ (66–126 × 15–30); ascosporidia 8, unicellata, irregulariter disposita, fusioidea, interdum curvata, rubro-brunnea, 30 × 11 µ (21–39 × 6–15), episporio minute reticulato.


Numerous spots are formed on the leaves. In each spot varying numbers of black stromata are present. The spores are prominently coloured and when viewed under the oil immersion lens present a finely reticulated epispore.

(61) Bubakia indica Ramakrishnan, T. S. and K., sp. nov.

Pycnia on young leaves, gregarious, minute, amphigenous, subcuticular, without ostiolar paraphyses, reddish brown; æcia not seen; uredia rare, mixed with telia, subepidermal, hypophyllous; urediospores globose to obovate, with short broad stalks, echinulate, subhyaline, 27 × 18 µ (20–34 × 14–24); telia subepidermal, numerous, hypophyllous, crustaceous; teliospores sessile, one-celled, 4–5 layered, not catenulate, polygonal, thin-walled, subhyaline, slightly thickened at the apex, germinating immediately 26 × 18 µ (17–37 × 10–24); basidium stout, recurved, four-celled, basidiospore globose, hyaline.

Pycnia amphigena, minuta, gregaria, subcuticularia, rubrobrunnea, aparaphysata; æcia ignota; uredia rara, telis immixta, subepidermalia, hypophylla; urediosporis globosis vel obovatis, brevi vel lati pedicellatis, echinulatis, subhyalinis, 27 × 18 µ (20–34 × 10–24); telia subepidermia, numerosa, hypophylla, crustacea; teliosporis sessilibus, unilocularibus, 4–5 stratosis, non-catenulatis, polygonis, subhyalinis, membranis tenuis 26 × 18 µ (17–37 × 10–24), apice leniter incrassatis, statim germinantibus; basidiis 4 cellatis, crassis, recurvatis, sporidiis globosis, hyalinis,

The pycnia are formed in groups on yellowish infection spots on young leaves and twigs. The uredia and telia are observed on older leaves hypophyllously with corresponding discolouration on the upper surface. Paraphyses or peridia are absent. The telia may sometimes develop on old uredia. The teliospores are not catenulate, but are found closely wedged in between one another. The spores easily separate when the telia are crushed. The spores in the uppermost layer germinate in situ giving a whitish powdery appearance to the telia.

*Schræteriaster glochidii* Syd. and *Phakopsora formosana* H. and P. Syd. have been recorded on *Glochidion zeylanicum* and *G. fortunei* respectively from Formosa (Saccardo, 1925). *Bubakia glochidii* (Syd.) Diet. has been described on *Glochidion psidioides* and *Glochidion* Sp. from the Philippines (Arthur and Cummins, 1936). The rust under study possesses subcuticular pycnia. The urediospores have very short stalks almost appearing sessile. The uredia and telia are subepidermal. These indicate that the rust is a *Bubakia* (Mundkur, 1943). The descriptions of the sori of the former rusts do not agree with those of the one under study.

(62) *Phakopsora kirganeliae* Ramakrishnan, T. S. and K., sp. nov.

Rust spots amphigenous, reddish brown, circular; pycnia, æcia and uredia not seen; telia hypophyllous, minute, subepidermal, erumpent; teliospores one-celled, rectangular or globose, sessile, thin-walled, subhyaline, smooth, many layered, germinating in situ, 17 × 9 μ (12-24 × 6-12); basidia four-celled, hyaline, curved, basidiospores hyaline, globose.

Maculæ amphigenæ orbiculares, rubrei brunnei colores; pycnia æcia et uredia ignota; telia hypophylla, minuta, subepidermalia erumpentia; teliosporis unicellatis, rectangularibus vel globosis, sessilibus, 3-4 stratosis in situ statim germinantibus, 17 × 9 μ (12-24 × 6-12), pariete levi, tenui; basidia 4 cellata, hyalina, curvata, sporidiis hyalinis, globosis.

**Fig. 11. Phakopsora kirganelle**, telia × 250.

The rust spots are prominent. On the lower surface of the spot the telia are closely arranged and when the spores germinate appear as white, crowded powdery sori. The teliospores rarely appear in vertical rows, but are more often irregularly wedged in between one another.

*Phakopsora phyllanti* Diet. has been recorded on *Phyllanthus distichus* (Saccardo, 1912; Butler and Bisby, 1931). The rust under study differs from this in the method of formation of the sori and other characters.

(63) *Uromyces piavhyensis* P. Henn.


Uredia and telia are present. The characteristic shape and papilla of the teliospores are useful in identifying the species.

(64) *Cylindrosporium dichanthii* Ramakrishnan, T. S. and K., sp. nov.

Spots amphigenous, elongated, $1 \times 0.5 \text{ cm.}$, salmon pink in colour; acervuli mostly hypophyllous, subepidermal, crowded, orange coloured, hemispherical with a flattened top, conidiophores short, subhyaline; conidia acicular, curved, continuous, hyaline, $32 \times 1.8 \mu$ $(25-43 \times 0.9-4)$.

Maculæ amphigenæ elongatae, $1 \times 0.5 \text{ cm.}$, salmoncolores; acervuli prominenter hypophyllis, crebremis, subepidermalibus, luteo colores, hemisphericis, apice truncatis; conidiophoris brevis, subhyalinis; conidiis acicularis, curvatis, continuis, hyalinis, $32 \times 1.8 \mu$ $(25-43 \times 0.9-4)$.

On living leaves of *Dichanthium annulatum* Stapf. (Gramineæ) Coimbatore, 1-3-1949, T. S. Ramakrishnan.

The acervuli are crowded and invariably developed under the lower epidermis which is raised and comes off easily in the later stages exposing
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Fig. 12. Cylindrosporum dichanthii, (a) section showing acervuli, (b) conidia ×170. The bright orange coloured acervuli. Each acervulus has a plectenchymatous base made up of small fungal cells. From the upper surface of this plectenchyma numerous slender spores are produced which remain together in a mass. The mass is flattened or slightly concave at the top.

(65) Septogloeum feroniae Ramakrishnan, T. S. and K., sp. nov.

Spots hypophyllous, minute, isolated, confluent, brown, slightly depressed; acervuli black, in the centre of the spot, subepidermal, erumpent; conidia straight or flexuous, cylindric to obclavate, 1-4 septate, subhyaline to light olivaceous, conidia 33 × 4 μ (24-45 × 3-6); conidiophores short.

Maculis hypophyllis, minutis, brunneis, isolatis vel confluentis, leniter depressis; acervulis atris, hypophyllis, subepidermalibus, erumpentibus; conidiis cylindricis vel obclavatis, rectis vel flexuosis, 1-4 septatis, subhyalinis vel dilute olivaceis, 33 × 4 μ (24-45 × 3-6); conidiophoris brevis.


Fig. 13. Septogloeum feroniae, acervulus × 170.

The spots are very small. One or more acervuli are seen in the centre of each spot.

(66) Diplodia longipedicellata Ramakrishnan, T. S. and K., sp. nov.

Spots indefinite, amphigenous, pale green; pycnidia epiphyllous, deep seated, very irregular in shape, grouped in the spot, up to 15 in each group, ostiolate; pycnidiospores two-celled, upper cell bigger, lower cell smaller, elliptic, obovate or pyriform, dark olive brown, 13 × 10 μ (10-14 × 7-12),
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stalked, stalks hyaline, up to 50 \( \mu \) in length, pushed out through the ostiole in long black columns (sporehorns).

Maculis indistinctis, amphigenis, pallide virides; pycnidii amphigenis, profunde immersi, irregularibus, gregarii in maculis, ostiolati; conidiis initio hyalini postice fusco-olivaceo-brunneis, 2-cellatis, cellulis inequalis, elliptics, obovatis vel pyriformibus, 13 \( \times \) 10 \( \mu \) (10-14 \( \times \) 7-12), in massis nigris et filiformibus, pedicellatis, pedicellis hyalinis, usque 50 \( \mu \) longis.


Fig. 14. Diplodia longipedicellata, (a) portion of leaf with spore horns (b) pycnidia, (c) pycnidiospores \( \times \) 570.

Pale green thickened spots are present on the leaves. On both sides of the spots black hair like columns of spores are observed issuing from the ostioles. The spores are peculiar in that a majority of them have unequal cells, the upper cell being larger and the lower much smaller. The stalks are persistent and the columns are formed by the interlacing of the stalks. The pycnidia are deep seated, irregular in shape and may be isolated or confluent.

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