

ASCOMYCETES FROM SOUTH INDIA—I

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IN this series of papers it is proposed to describe new species of Ascomycetes as well as to record old species which are collected for the first time from South India (Madras, Mysore, Travancore-Cochin and Coorg). In the present paper four new species of Ascomycetes are described.

1. *Chaetomium rufum* sp. nov. (Fig. 1, A-E).

Perithecia bright purplish red, minute, without scirrh or rhizoids, $110 \times 92 \mu$; lateral hairs sparse, septate, slightly curved or once coiled at the apex; terminal hairs numerous, gracefully arched from base to apex, coiled at the apex in one to three spirals, plainly but distantly septate, slightly broadened at base, about 6.5μ in diameter in the middle, incrustated throughout; asci clavate, hyaline, $32-45 \times 8-13 \mu$; ascospores irregularly biseriatae in the ascus, lozenge-shaped, but oval in face view, pale olivaceous brown in colour, 9×6 ($8-10 \times 5-8 \mu$), released into the perithecium by the deliquescence of the ascus wall.

Growing on wet straw, University Botany Laboratory Campus, Madras, 28-2-1953, coll. K. Ramakrishnan [Herb. M.U.B.L. No. 866 (Type)].

Perithecia micanter purpureo-rubra, minuta, absque cirrhis vel rhizoideis, $110 \times 92 \mu$; pili laterales sparsi, septati, tenuiter curvati vel semel spiraliter curvati ad apicem; pili terminales plurimi, perpulchre arcuati ex basi ad apicem, spiraliter curvati ad apicem in unam vel tres spiras, simpliciter sed distanter septati, tenuiter dilatanti ad basim, ca. 6.5μ diam. ad medium; per totam longitudinem incrustati; asci clavati, hyalini, $32-45 \times 8-13 \mu$; ascospores irregulariter biseriatae in asco, rhomboideae, sed ovatae in aspectu faciali, pallide olivaceo brunneae, 9×6 ($8-10 \times 5-8 \mu$); cito solutae in perithecium post deliquescentium parietalis ascalis.

Typus lectus in stramento madido, in Campo University Botany Laboratory, Madras, a K. Ramakrishnan, die 28 februarii 1953, et positus in herbario M.U.B.L. sub numero 866.

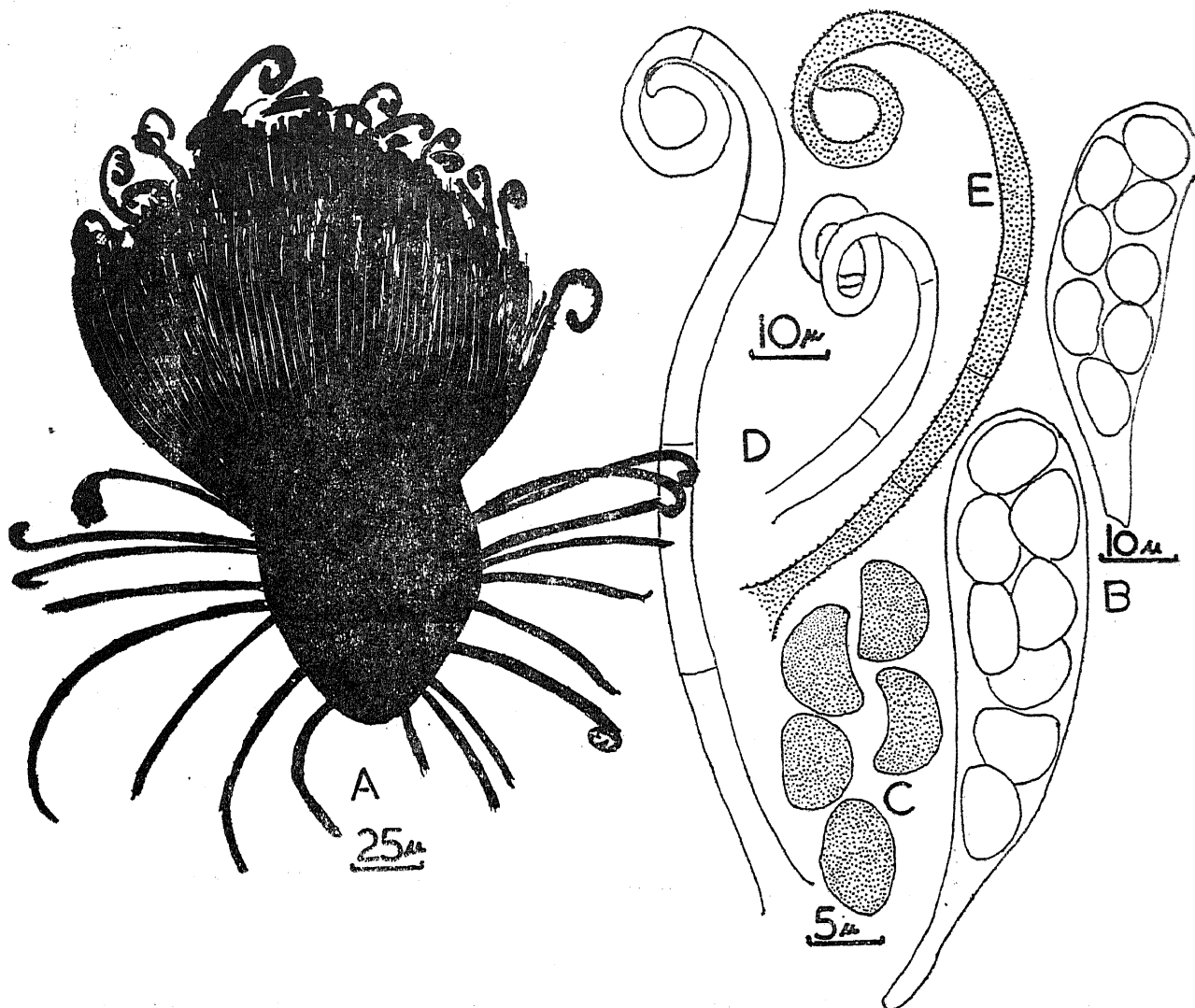


FIG. 1. *Chaetomium rufum*, A. Perithecium, B. Asci, C. Ascospores, D. Terminal hairs, E. One terminal hair showing the incrustation.

As far as the author is aware the only species of *Chaetomium* described so far with lozenge-shaped ascospores is *C. trilaterale* Chivers (Chivers, 1915, p. 175). This species, however, has lemon yellow perithecia which are slightly smaller than those of the present fungus. The terminal hairs are minutely roughened unlike those of the present fungus which are conspicuously incrustated.

2. *Polyclypeolum salvadoræ* sp. nov. (Fig. 2, A-F)

Foliicolous; spots none, scutella amphigenous, superficial, black, minute, isolated or confluent with one another in lines; lower wall of scutella indistinct; upper wall black, made up of dark brown cells which appear

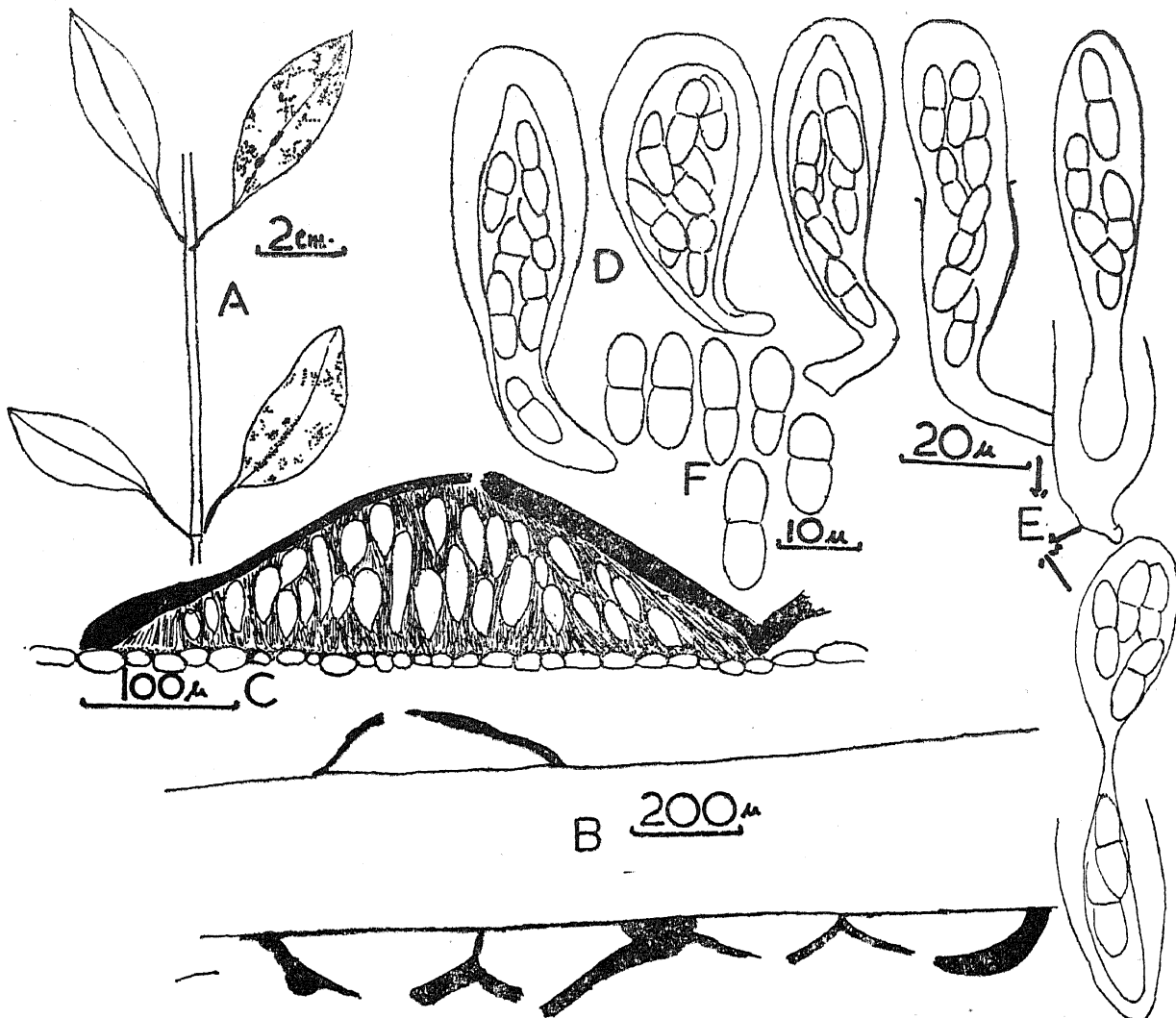


FIG. 2. *Polyclipeolum salvadoræ*, A. A twig of *Salvadora persica* showing two of the infected leaves, B. Cross section of leaf showing the amphigenous scutella (diagrammatic), C. Section through one scutellum (diagrammatic), D. Asci, E. Asci, showing the process of dehiscence, F. Ascospores.

radial at the margins, elevated hemispherically over the locule, without an ostiole; loculi hemispherical; hymenium of two to three irregular layers, with asci separated by areas of sterile stroma; asci hyaline, stout, broadly club-shaped with an attenuate base and rounded apex, bitunicate, inner wall very thick especially at the apex, outer wall very thin and membranous; asci $48-67 \times 19-26 \mu$; ascospores hyaline, two-celled, constricted at the septum, elliptical, $14.4-20.8 \times 4.8-8.6 \mu$.

On living leaves of *Salvadora persica* Linn., Ennore (Chinglepet District, Madras State), 29-3-1953, coll. T. S. Sadasivan [Herb. M.U.B.L. No. 885 (Type)].

Foliicola; maculæ nullæ; scutella amphigena, superficialis nigra, minute, solitaria vel confluens cum aliis in lineas; inferior paries scutellæ indistinctus, superior vero niger, compositus cellulis fusce brunneis, quæ ad margines videntur radiales, hemispherice elevatæ supra loculam, absque ostiolo; loculi hemispherici; hymenium constans duplici vel triplici serie irregulari, ascis separatis inter se per areas stromatis sterilis; asci hyalini, robusti, late clavati, basi attenuata, atque apice rotundato, bitunicati; inferior paries crassissimus prasertim ad apicem; exterior vero paries tenuissimus atque membranaceus; asci $48-67 \times 19-26 \mu$; ascosporæ hyalinæ, bicellulatæ, constrictæ ad septum, ellipticæ, $14.4-20.8 \times 4.8-8.6 \mu$.

Typus lectus in foliis viventibus *Salvadoræ persicæ* Linn. in loco Ennore (Chinglepet District, Madras State) die 29 March 1953 a T. S. Sadasivan et positus in Herb. M.U.B.L. sub numero 885.

It has not been possible to observe the actual dehiscence of an ascus. However, observations made on several dehisced asci suggest that the dehiscence of the asci is as in *Myiocopron smilacis* (De Not.) Sacc. and *Ellisiodothis inquinans* (E. and E.) Theiss as described by Luttrell (1944 and 1948 respectively). The outer wall of the ascus which is very thin bursts and then the inner wall elongates using up the very thick wall material at the apex and the sides (Fig. 2 E). The release of the ascospores was not observed.

There seems to be some doubt about the definition of the genus *Polyclypeolum*. This genus was described by Theissen (1914, and Saccardo, 1926, p. 527) for a fungus with many-layered hymenia of asci. The ascomata were described as aparaphysate and astomous. Hansford (1945), however, described a species of the fungus-*P. brideliæ* Hansford from Uganda in which he mentioned numerous paraphyses. I have followed the diagnosis of Theissen in assigning my fungus to the genus *Polyclypeolum*.

3. *Phyllachora kambakkamensis* sp. nov. (Fig. 3, A-C)

Foliicolous; spots amphigenous, irregular in outline, yellowish with a tinge of red; stromata visible on both sides of the leaf, scattered or in irregular groups, raised slightly over the surface of the leaf, black, shining, minute, 0.25-0.5 mm. in diam., roughly circular, occupying the entire mesophyll of the leaf; loculi one in each stroma, $140-160 \mu$ in diam.; asci hyaline, 8-spored, clavate with a slight foot at base, $55-67 \times 9.6-12.8 \mu$; ascospores hyaline, oval, uniseriate in the ascus, $12 \times 5.6 \mu$ ($9.6-12.8 \times 4.8-6.4 \mu$); paraphyses numerous, hyaline, simple.

On living leaves of *Ochna* sp., Thanthipandal (Kambakkam, Chinglepet District, Madras State), 3-2-1952, Coll. C. V. Subramanian and K. Ramakrishnan [Herb. M.U.B.L. No. 758 (Type)].

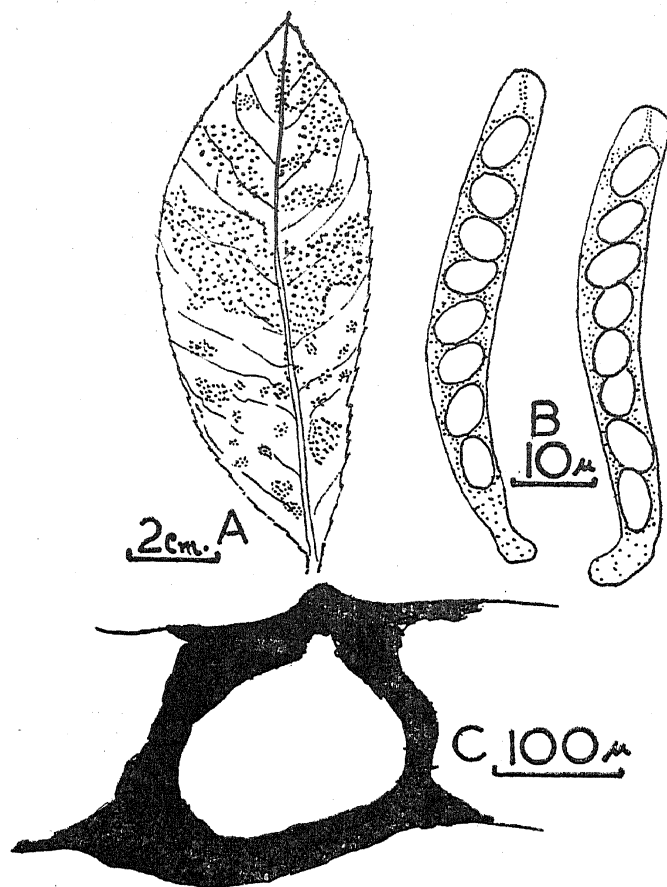


FIG. 3. *Phyllachora kambakkamensis*, A. A leaf of *Ochna* sp. showing the stromata B. Asci, C. Section through one stroma showing one loculus (diagrammatic).

Foliicola; maculae amphigenae, irregulares, luteolae sed rubriuscule tinctae; stromata visibilia in utroque laterae foliorum, dispersa vel irregulariter aggregata, tenuiter elevata super foliorum superficiem, nigra nitentia, minuta, 0.25–0.5 mm. diam.; plusminusve circularia, totum mesophyllum foliorum occupantia; loculi singuli in singulis stromatibus, 140–160 μ diam.; asci hyalini octospori, clavati, ornati tenui pediculo ad basim, 56–67 \times 9.6–12.8 μ ; ascospores hyalinae, ovatae, uniseriatae in asco, 12 \times 5.6 μ (9.6–12.8 \times 4.8–6.4 μ); paraphyses plurimae, hyalinae, simplices.

Typus lectus in foliis viventibus *Ochna* sp. in loco Thanthipandal (Kambakkam, Chinglepet District, Madras State) a C. V. Subramanian et K. Ramakrishnan, die 3 februarii 1952, et positus in Herb. M.U.B.L. sub numero 758.

Phyllachora ochnae Pat. and Har. has been described from the Philippines (Saccardo, 1926, p. 606). This fungus produces amphigenous stromata which

are circularly arranged. The asci are $60 \times 12 \mu$ and the ascospores $24 \times 5 \mu$. It would be seen that the present fungus differs from *P. ochneæ* in the very much smaller size of the ascospores and the slightly larger asci.

4. *Phyllachora tetraspora* sp. nov. (Fig. 4, A-D)

Foliicolous; spots none, stromata visible on both sides of the leaf, either scattered, in groups of two or three or arranged in circles around a

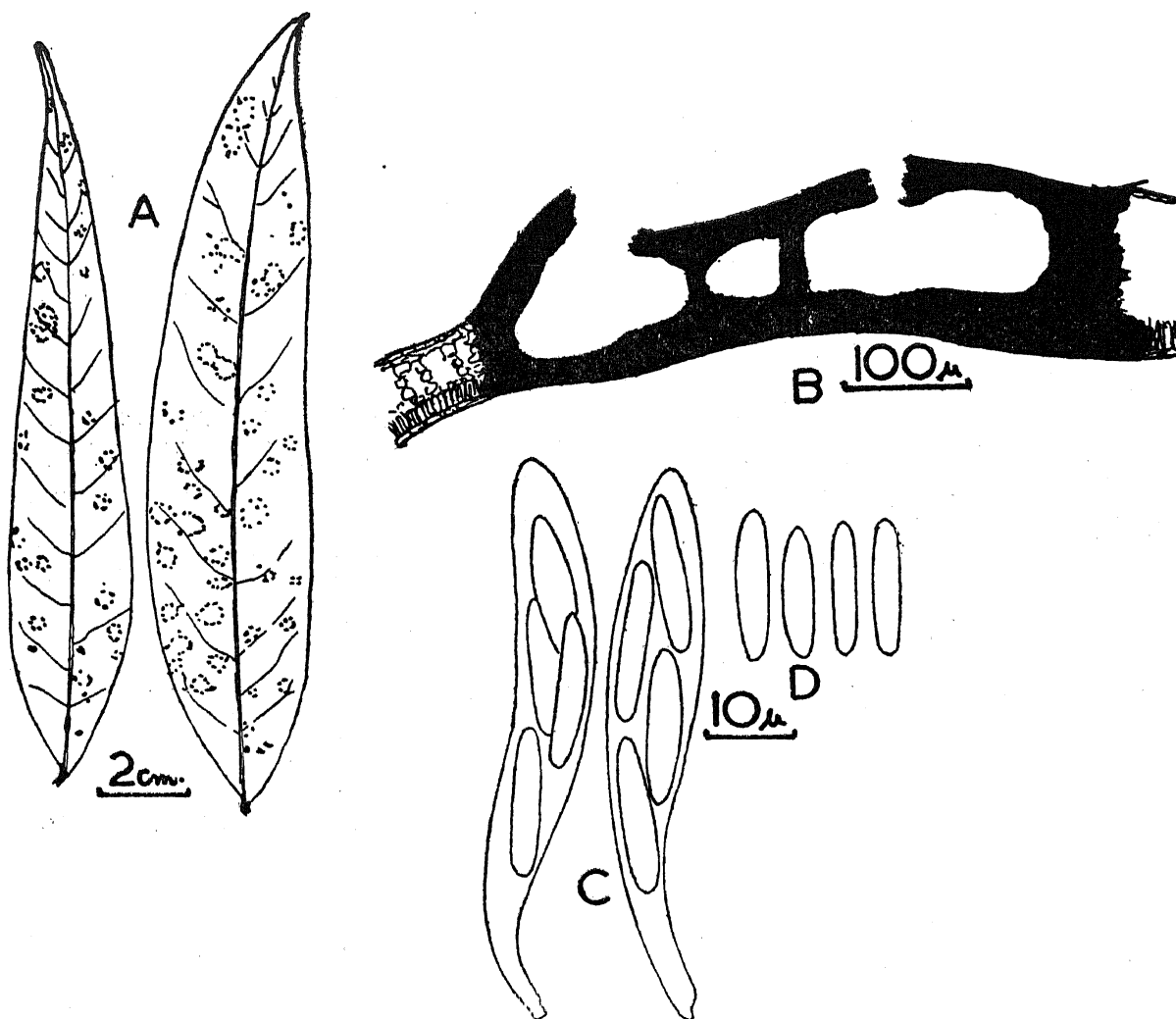


FIG. 4. *Phyllachora tetraspora*, A. Two leaves of *Polyalthia longifolia* showing the distribution of the stromata, B. Section through one stroma showing the loculi (diagrammatic), C. Asci, D. Ascospores.

central bare area, black, shining, circular, oval, elliptical or irregular in outline, 1–2 mm. in diam., slightly raised over the surface of the leaf, occupying the entire mesophyll of the leaf; loculi 1–3 in a stroma; asci fusiform to club-shaped, hyaline, 4 spored, $81\text{--}88 \times 11.2 \mu$; ascospores hyaline, long-elliptical

or oblong, sometimes slightly asymmetrical, arranged irregularly in two rows inside the ascus; $19-27 \times 4.8 \mu$; paraphyses profuse, simple, hyaline.

On living leaves of *Polyalthia longifolia* Hk.f. and Th., Government Gardens, Trivandrum (T. C. State), 18-10-1952, coll. K. Ramakrishnan, [Herb. M.U.B.L. No. 882 (Type)].

Foliicola; maculae nullae; stromata visibilia in utroque latere foliorum, dispersa, vel aggregata bina vel terna, vel disposita in circulos circum aream centralem nudum, nigra, nitentia, circularia, ovalia, elliptica vel irregularia, 1-2 mm. diam., tenuiter elevata super folii paginam, implentia totam densitatem mesophylli; loculi 1-3 in singulis stromatibus; asci fusiformes vel clavati, hyalini, 4-spori, $81-88 \times 11.2 \mu$; ascosporae hyalinae, longe ellipticae vel oblongae, nonnumquam tenuiter asymmetricae, dispositae irregulariter in duplici serie in asco; $19-27 \times 4.8 \mu$; paraphyses profusae, simplices, hyalinae.

Typus lectus in foliis viventibus *Polyalthiae longifoliae* Hk. f. and Th., Government Gardens, in loco Trivandrum (T.C. State) a K. Ramakrishnan, die 18 octobris 1952, et positus in Herb. M.U.B.L. sub numero 882.

Phyllachora maquilingensis Syd. has been described on *Polyalthia* sp. from Mount Maquiling in the Philippines (Saccardo, 1926, p. 566). This fungus has epiphyllous, black irregularly disposed stromata 250μ in diam. The asci are cylindrical, 8 spored, $80 \times 10-14 \mu$ and the ascospores are hyaline, ellipsoid and $11-14 \times 6-7 \mu$. My fungus differs from *P. maquilingensis* in having very much larger stromata which are amphigenous, four spored asci and very much larger ascospores.

I am grateful to Prof. T. S. Sadasivan for the material of *Polyclypeolum salvadorae* which he very kindly placed at my disposal and for his critical reading of the manuscript. I also thank Prof. H. Santapau, S.J., of the St. Xavier's College, Bombay, for very kindly rendering the diagnoses into Latin.

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