

Notes on Some Indian Cercosporae, III.

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With plate VI & VII.

Since the publication of the previous parts (I and II)*) on the Indian Cercosporae, further collections made in different parts of India have been studied. Many of these which have been new records or species new to Science have been presented in this paper. Illustrations of the sori and conidia have been made to indicate the structure. The writers wish to acknowledge their deep gratitude to Dr. Franz Petrak for kindly providing the latin diagnosis of the new species. *Cercospora cleomes* E. & H. in Journ. Mycol. 6: 34, 1890.

Leaf spots circular, greyish-white, 2 to 3 mm. in diameter, surrounded by light brownish border. Fruiting bodies amphigenous. Stroma of few cells. Conidiophores sub-hyaline, to olivaceous-brown, emerging through stomata, divergent, unbranched, 1-6-septate, measuring $21-71 \Rightarrow 4-5 \mu$. Conidia hyaline, obclavate to acicular, broader towards the base and narrowing towards apex, 1-16 septate, measuring $50-100 \Rightarrow 2.8-4.2 \mu$.

Hab. On leaves of *Gynandropsis pentaphylla* DC., Patna, Bihar, leg. M. J. Thirumalachar, 3-12-1952. (Figs. 1 & 2). This species has previously been reported on species of *Cleome*, which is closely related to *Gynandropsis*.

Cercospora kirganelliae sp. nov.

Infection spots minute, irregular in outline, 2 to 3 mm. in diameter, reddish-brown with greyish-white centre and surrounded by a pale yellow zone. Stroma well developed, dark-brown, $35-50 \mu$; in diameter, compactly grouped in substomal space. Conidiophores in fascicles, emerging through stoma, pale olivaceous-brown, unbranched, unseptate, $14-35 \Rightarrow 2.8-4.2 \mu$, rounded at apex. Conidia hyaline, obclavate or cylindrical, slightly curved, obconically truncate at base, acute at tip, 1-8 septate, measuring $22-37 \Rightarrow 2.8-4.2 \mu$.

Hab. on leaves of *Kirganellia reticulata* Baill., Hebbal, Bangalore, leg. H. C. Govindu, 11-1-1953. (Figs. 3 and 4).

Maculae minutae, irregulares, 2-3 mm. diam., rubro-brunneae, in centro griseo-albae et zona pallide lutea cinctae. Hypostroma bene evolutum, fusco-brunneum, $35-50 \mu$ diam., sub stomatibus innatum. Conidiophora

*) Part I in Mycologia XL, 352-362 (1948), Part II in Sydowia, VII, 45-49 (1953).

fasciculata pallide olivaceo-brunnea, simplicia, continua, antice, obtusa, 14—35 \Rightarrow 2.8—4.2 μ . Conidia hyalina, obconica, postice truncata, antice acuta, 1—8-septata, 22—37 \Rightarrow 2.8—4.2 μ .

Kirganellia reticulata is a shrubby plant growing in dry waste lands and is closely related to *Phyllanthus*. The species under study differs from the *Cercospora* species described on *Phyllanthus*.

***Cercospora andrographidis* sp. nov.**

Infection spots chiefly circular, 2 to 5 mm. in diameter, greyish-white in colour and surrounded by a broad zone of pinkish-brown margin, Fruiting bodies chiefly epiphyllous, stroma inconspicuous, composed of few cells. Conidiophores emerging out of stoma, divergent, unbranched light-brown, 1—6-septate, geniculate, 50—167 \Rightarrow 3—5 μ . Conidia hyaline, straight to slightly curved, acicular, 1—16-septate, obconically truncate at base and acute at apex, 50—150 \Rightarrow 3—4 μ .

Hab. on leaves of *Andrographis* sp. Patna, Bihar, leg. M. J. Thirumalachar 20—1—1951. (Figs. 5 and 6).

Maculae plerumque circulares, 2—5 mm. diam., griseo-albidae, zona lata, roseo-brunnea marginata. Caespituli plerumque epiphylli; hypostromate indistincto, e cellulis paucis composito. Conidiophora e stomatibus, emergentia, divergentia, simplicia, pallide brunnea, 1—6-septata, geniculata, 50—167 \Rightarrow 3—5 μ . Conidia hyalina, recta vel tenuiter curvata, acicularia, 1—16-septata, postice truncata, antice acuta, 50—150 \Rightarrow 3—4 μ .

***Cercospora hydroleae* sp. nov.**

Leaf spots diffuse, circular, white at centre and surrounded by a dark-brown border, stroma inconspicuous or none, composed of few cells. Conidiophores fasciculate, light-brown, unbranched, 1—3-septate, geniculate, 50—150 \Rightarrow 2.8—4.2 μ . Conidia hyaline, acicular, slightly curved, broader and obtruncate at base, pointed and acute at tip, 1—16-septate, measuring 21.5—114 \Rightarrow 2.8—4.2 μ .

Hab. on leaves of *Hydrolea zeylanica* Vahl. Patna, Bihar, leg. H. C. Govindu, 9—12—1952. (Figs. 7 & 8).

Maculae dispersae, circulares, albidae, fusco-brunneo-marginatae; hypostromate inconspicuo vel nullo, e cellulis paucis composito. Conidiophora fasciculata, pallide brunnea, simplicia, 1—3-septata, geniculata, 50—150 \Rightarrow 2.8—4.2 μ . Conidia hyalina, acicularia tenuiter curvata, postice crassiora et truncata, antice acuta, 1—16-septata, 21.5—114 \Rightarrow 2.8—4.2 μ .

***Cercospora breyniae-rhamnoides* sp. nov.**

Leaf spots dark brown, angular to oval, 3 to 5 mm. in diameter. Stroma well developed, substomal, composed of dark brown cells, compactly grouped, 30 to 50 μ in diameter. Conidiophores divergent, densely grouped, unbranched and unseptate, pale yellowish-brown, 29—36 \Rightarrow 3—4 μ . Conidia pale olivaceous, obclavate to cylindrical, 1 to 6 septate, obtruncate at base, acute at tip, 22—50 \Rightarrow 3—4 μ .

Hab. On leaves of *Breynia rhamnoides* Muell., Nandi Hills, Mysore, 5—12—1948, leg. M. J. Thirumalachar. (Figs. 9 & 10).

Maculae fusco-brunneae, angulosae vel ovatae, 3—5 mm. diam. Hypostromata bene evoluta, sub stromatibus innata, 35—50 μ diam., e cellulis fusco-brunneis composita. Conidiophora divergentia, dense aggregata, simplicia, continua, pallide luteo-brunnea, 29—36 μ \approx 3—4 μ . Conidia pallide olivacea, obclavata vel cylindracea, 1—6-septata, postice truncata, antice acuta, 22—50 μ \approx 3—4 μ .

Cercospora althaeina Sacc. *Michelia*, 1: 264, 1879.

Hab. On leaves of *Kydia* sp., Hardinge Park, Patna, Bihar, 9—12—1952, leg. M. J. Thirumalachar. (Figs. 11 & 12).

Cercospora clerodendri Miyake. in *Bot. Mag. Tokyo* 27: 53, 1913.

Hab. On leaves of *Clerodendron siphonanthus*, Nandi Hills, Mysore, November, 1951, leg. H. C. Govind u. (Figs. 13 & 14).

Cercospora species.

Leaf spots circular to polygonal, epiphyllous, dark-brown, 3—5 mm. in diameter, dropping off from the leaf and leaving a shot hole. Stroma well developed, substomal, dark brown, 20—50 μ in diameter. Conidiophore arising out of stroma as dense fascicles, unbranched and unseptate, rounded at tip, olivaceous brown, 17—33 μ \approx 3—4 μ . Conidia straight or slightly curved, obconical to cylindric, 1—12 septate, pale-olivaceous 24—64 μ \approx 3—4 μ obtruncate at base, tapering towards the tip.

Hab. on leaves of *Terminalia* ? sp. Bannerghatta, Bangalore, 10—2—1952, leg. H. C. Govind u. (Figs. 15 & 16).

Cercospora tremae (Stev. & Solh.) Chupp. in *Bothalia* 4: 881—893, 1948.

On leaves of *Trema orientalis*, Patna, Bihar, 9—11—1952, leg. M. J. Thirumalachar. (Figs. 17 & 18).

***Cercospora atylosiae* sp. nov.**

Spots circular to polygonal, brown to black, diffuse, 3—5 mm. in diameter coalescent with each other. Fruiting bodies epiphyllous. Stroma well developed, dark brown, composed of compactly grouped cells, 33—83 μ in diameter. Conidiophores arising in dense fascicles, emerging through stoma, unbranched, mostly unseptate, yellowish-brown, 22—36 μ \approx 2—3 μ . Conidia hyaline acicular, straight to slightly curved, 1—10 septate, broader towards base and acute at tip, 29—86 μ \approx 2—3 μ .

Hab. On leaves of *Atylosia scarabaeoides* Benth. Hebbal, Bangalore, 24—8—1949, leg. M. J. Thirumalachar. (Figs. 21 & 22).

Maculae circulares vel angulosae, brunneae vel nigrae, 3—5 mm. diam., saepe plus minusve confluentes. Caespituli epiphylli. Hypostroma bene evolutum, fusco-brunneum, pseudoparenchymaticum, 33—83 μ diam. Coni-

diophora dense fasciculata, simplicia, plerumque continua, luteo-brunnea, 22—36 \Rightarrow 2—3 μ ; Conidia hyalina, acicularia, recta vel paulum curvata, 1—10-septata, e basi apicem versus attenuata et acuminata, 29—86 \Rightarrow 2—3 μ .

Cercospora cyperi-rotundi sp. nov.

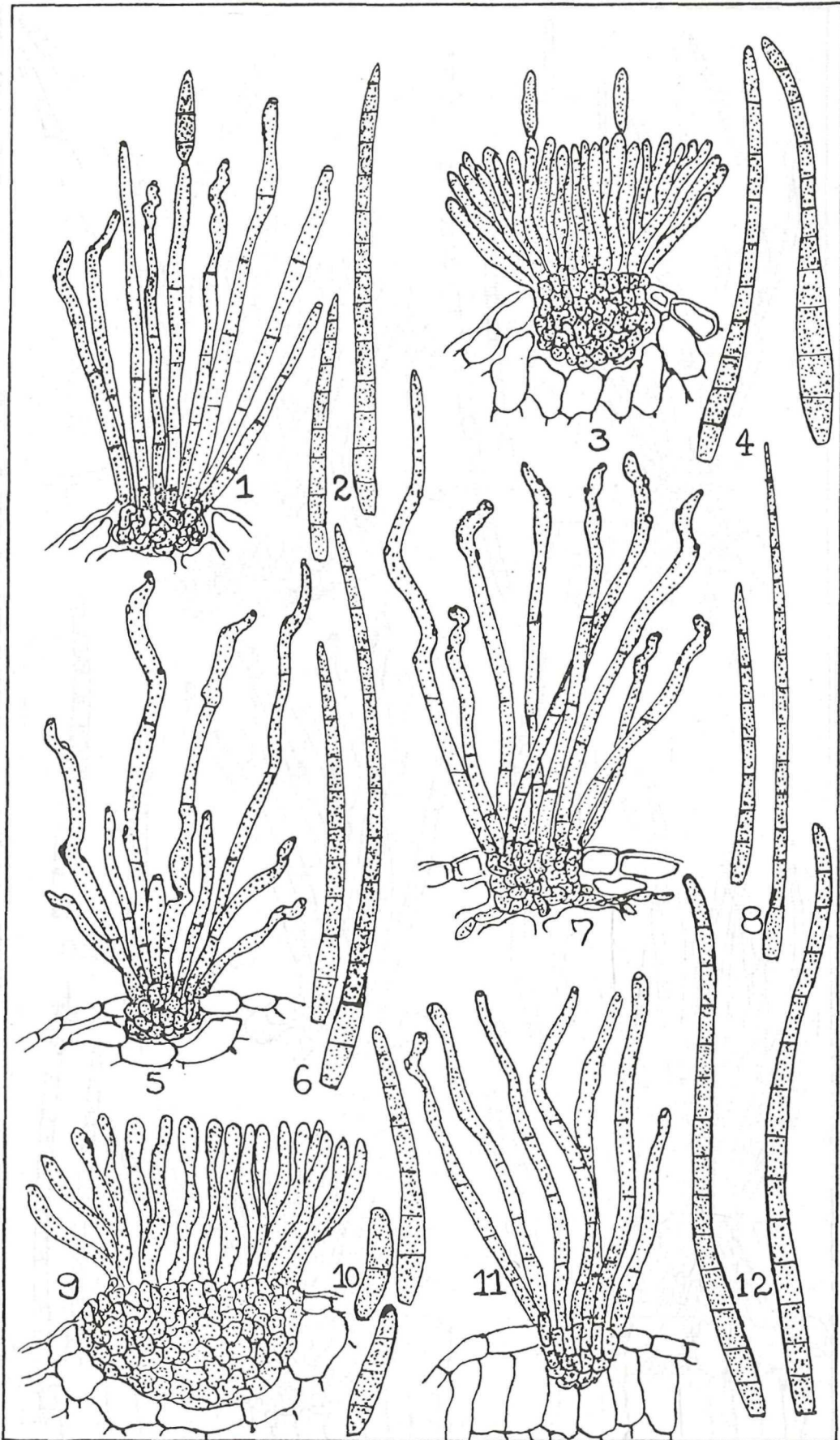
Infection on leaves as long brown striae, linear, often coalescent with each other and forming stripes. Fruiting chiefly epiphyllous, stroma poorly developed or absent, composed of few cells in substomal space. conidiophores pale-yellowish-brown, divergent, unbranched, 1—3 septate at base, 33—83 \Rightarrow 4—6 μ . Conidia straight or slightly curved, 1—12 septate, obclavate to acicular, hyaline, obtruncate at base and tapering towards apex, 33—150 \Rightarrow 4—6 μ .

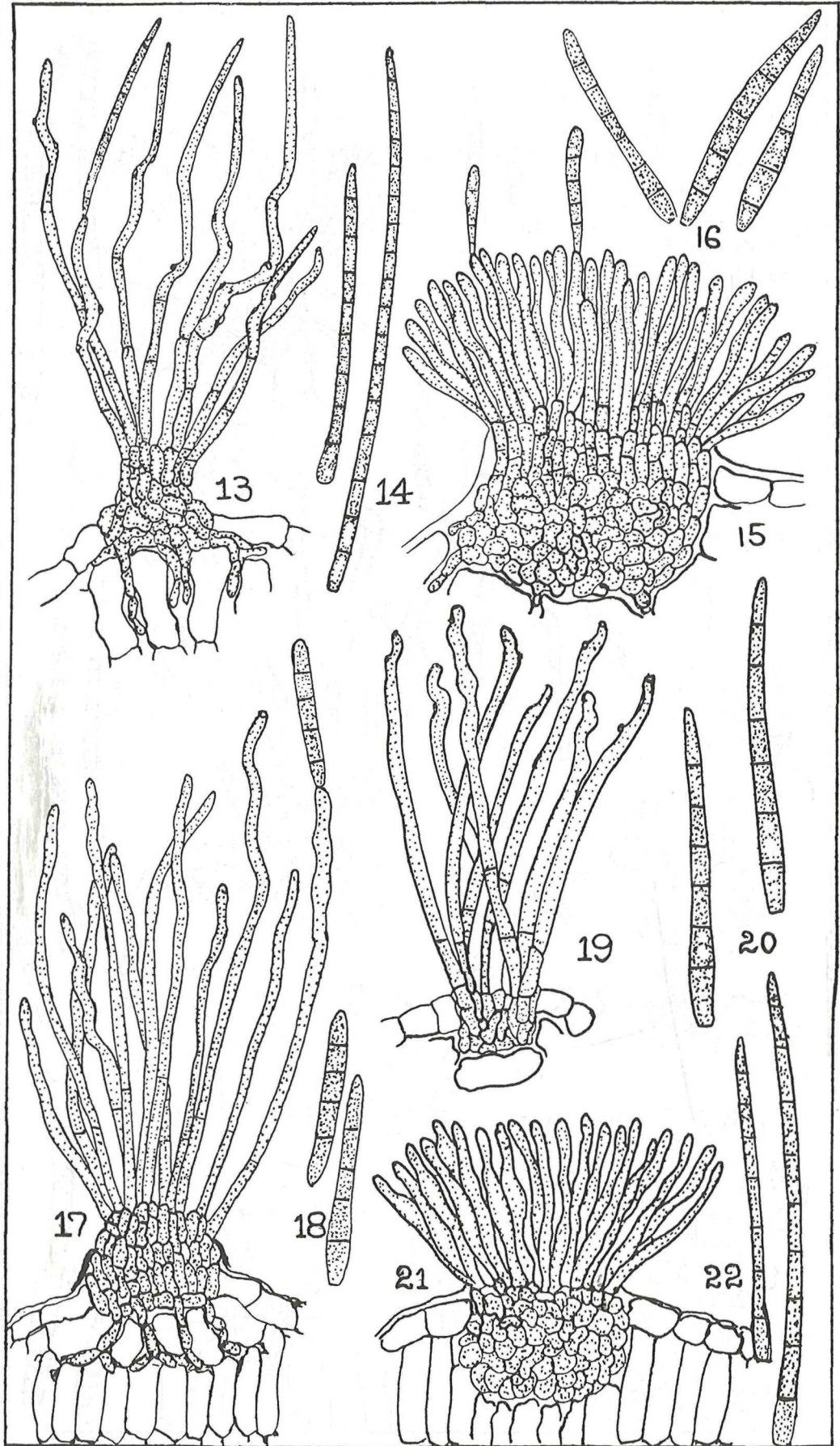
Hab. on leaves of *Cyperus rotundus* L. Patna, Bihar, leg. M. J. Thirumalachar 3—12—1952. (Figs. 19 & 20).

Maculae elongatae, striiformes, brunneae, saepe confluentes, tunc plus minusve latiores. Caespituli plerumque epiphylli; hypostroma nullum vel raro evolutum, tunc e cellulis nonnullis compositum. Conidiophora pallide luteo-brunnea, divergentia, simplicia, inferne 1—3-septata, 33—83 \Rightarrow 4—6 μ . Conidia recta vel paulum curvata, 1—12-septata, obclavata vel acicularia, hyalina, postice truncata, antice acuminata, 33—150 \Rightarrow 4—6 μ .

Explanation of plate VI and VII. (All drawn for the magnification of $\times 750$)

Figs. 1 and 2. *Cercospora cleomes*. — Figs. 3 and 4. *C. kirganelliae*. — Figs. 5 and 6. *C. andrographidis*. — Figs. 7 and 8. *C. hydroleae*. — Figs. 9 and 10. *C. breyniae-rhamnoidis*. — Figs. 11 and 12. *C. althaeina*. — Figs. 13 and 14. *C. clerodendri*. — Figs. 15 and 16. *Cercospora* species on *Terminalia*? — Figs. 17 and 18. *C. tremae*. — Figs. 19 and 20. *C. cyperi-rotundi*. — Figs. 21 and 22. *C. atylosiae*.





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