

## Some Follicolous *Cercospora* Species from Balaghat (M.F.)

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It is intended to describe in this paper some *Cercospora* species causing leaf spots at Balaghat (M. P.). These fungi are either new species or new records for the State or new host records.

1. *Cercospora flemingiae* Singh sp. nov. on the living leaves of *Flemingia bracteata* Wt., Forest School, Balaghat, September 1969, Leg. S. M. Singh.

### Symptoms of the disease

The disease starts on the underside of the leaf, as small greyish or light olive green spots which are irregular in outline. The spots then spread all over the lower surface and coalesce forming a thin epiphyllous crust of the fungus. The upper surface of the leaf becomes reddish brown in color.

### The causal organism

Fruiting hypophyllous, stromata dark brown, subglobose, upto 50  $\mu$  in diameter; conidiophores in loose fascicles, light brown, multi-septate, long, filamentous, branched, geniculate, with attachment scar at the rounded or conic tip, 40.5—750  $\times$  4—6.5  $\mu$ ; average 450  $\times$  5  $\mu$ ; conidia subhyaline to pale olivaceous, obclavata-cylindrical, straight to slightly bent, 0—10 septate, base truncate with scar of attachment, tip obtuse or subacute, 33.5—93.5  $\times$  4—7  $\mu$ ; average 83.5  $\times$  6  $\mu$  (Fig. 1).

Maculae dispersae, irregulares, subtus griseae vel pallide olivaceae, supra ubro-brunneae; hypostromata hypophylla, obscure brunnea, usque 50  $\mu$  diam.; conidiophora laxe fasciculata pallide brunnea, multiseptata filiformia, ramulosa geniculata, antice rotundata vel conica, 40.5—750  $\times$  4.6—5  $\mu$ , plerumque 450  $\times$  5  $\mu$ ; conidia subhyalina vel pallide olivaceae, obclavata-cylindrica recta vel leniter curvula, 0—10 septata, ad basim truncata, obtusa vel subacuta, 33.5—93.5  $\times$  4—7  $\mu$ , plerumque 83.5  $\times$  6  $\mu$ .

So far only *Cercospora melaena* Sydow was reported from Houtbos, Transvaal on *Flemingia congesta* (Roxb. (1924) but Chupp (1954) has identified *Cercospora* has been described from *Flemingia*.

Mr. Deighton of C. M. I. Kew thinks that this is an undescribed species, so it is being described here as a new species.

***Cercospora flemingiae* Singh sp. nov.**

Stromata atro-fusca, subglobosa, usque ad 50  $\mu$ ; conidiophora laxe fasciculata, levis brunnea, multiseptata, simplica, vel ramosa, geniculata, cicutricibus ad apicem monstrantibus punctum unionis, 40.5—750  $\times$  4—6.5  $\mu$ , mediet 450  $\times$  5  $\mu$ ; conidia subhyalina, vel pallide olivacea, obclavato-cylindrata, recta vel leniter curvata, 0—10 septata, ad basin truncata, ad apicem obtusa vel subacuta, 33.5—93.5  $\times$  4—7  $\mu$ ; mediet 83.5  $\times$  6  $\mu$ .

In folis viventibus *Flemingia bracteata* Wt. ad Balaghat, India, mense Septembri 1969, Leg. S. M. Singh.

The type specimen has been deposited in the Herbarium of the I. M. I. Kew, No. 148086.

2. *Cercospora melanochaeta* Ell. & Ev. in *Proc. Acad. Nat. Sci. Phila.* **46**; 380. 1894.

On the living leaves of *Celastrus paniculatus* Willd. Gangul para, Balaghat, Dec. 1970. Leg. S. M. Singh.

Symptoms of the disease

The disease starts from any part of lamina, usually on the upper surface. Spots are ash grey, irregular, with dark brown margins. Spots often coalesce increasing the diseased surface.

The causal organism

Fruiting epiphyllous, stromata dark brown, upto 60  $\mu$  in diameter; conidiophores in fascicles, simple, septate, geniculate, pale olivaceous, 15—33.5  $\times$  4.5—5  $\mu$ ; average 30  $\times$  4.5  $\mu$ ; conidia pale olivaceous, obclavocylindrical, 0—10 septate, straight or deeply curved, 45—100  $\times$  5—7.8  $\mu$ ; average 75  $\times$  6.5  $\mu$ .

*Cercospora melanochaeta* was originally described from Louisville, Kansas on *Celastrus scandens* by Ell. & Ev. (1884). In India it has been recorded on the leaves of *Gymnosporia montana* Benth., from Hyderabad by Rao (1962).

This is the new record for the state and *Celastrus paniculatus* Willd. is the new host record of the fungus.

The specimen has been deposited in the Herb. I. M. I. Kew. No. 153813.

3. *Cercospora canescens* Ell. & Mart. in *Amer Nat.* **16**; 1003, 1882; Saccardo, *Syll. Fung.* **4**: 435, 1886; Chupp. p. 228, 1953. On the living leaves of *Pterocarpus marsupium* Roxb., Forest School, Balaghat. May 1970, Leg. S. M. Singh.

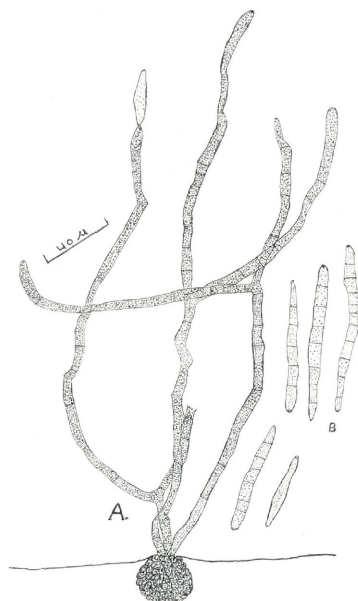


Fig. 1. *Cercospora flemingii* Singh sp. nov. — A. Conidiophores, B. Conidia.

### Symptoms of disease

The disease starts as ash grey pin head sized spots, which are at first circular later on irregular often coalescing forming big spots. Numerous black stromata are seen scattered on the lower surface of the leaf.

### The causal organism

Stromata dark brown to black, globose to subglobose, upto 67  $\mu$  in diameter; conidiophores in fascicles, pale olivaceous to light brown, septate, erect, straight or curved, unbranched, geniculate, with the scar of attachment, tip subconic 33—235  $\times$  5—6  $\mu$ ; conidia hyaline, obclavato-cylindrical, 5—9 septate, 70—120  $\times$  3.5—6  $\mu$ ; average 100  $\times$  5  $\mu$ .

*Cercospora canescens* was originally described from N. America on *Phaseolus* sp. by Ell. & Mart. (1882).

In India it has been recorded on the leaves of *Vigna catjang* Endl. from Bangalore and Mysore, by Thirumalachar & Chupp (1948). It has also been recorded from Jabalpur on *Phaseolus vulgaris* by Agarwal and Hasija (1964).

*Pterocarpus marsupium* Roxb. is a new host record for the fungus. The specimen has been deposited in the Herb. I. M. I. Kew, No. 150906.

4. *Cercospora Physalides* Ellis in Amer. Nat. 16; 810, 1882; Saccardo. Syll. Fung. 4; 450, 1886; Chupp p. 547, 1953; On the living leaves of *Physalis minima* Linn. Chakkar Road, Balaghat, Sept. 1970. Leg. S. M. Singh.

#### Symptoms of the disease

The disease starts from any part of the leaf usually on the upper surface. The spots are grey, irregular in outline a brownish margin.

#### The causal organism

Fruiting amphigenous, stromata dark brown, upto 50  $\mu$  in diameter; conidiophores in fascicles, simple, septate, geniculate, with scar of attachment, pale olivaceous, measuring 15—67  $\times$  3.5  $\mu$ , average 35  $\times$  4.5  $\mu$ ; conidia hyaline, obclavate-cylindrical, straight or curved, 1—8 septate, base subconic, apex acute, measuring 30—80  $\times$  3.5—5  $\mu$ ; average 60  $\times$  4.5  $\mu$ .

*Cercospora physalides* was originally described from Kentucky on *Physalis lanceolata* var. *laevigata* by Ellis (1882).

In India it has been recorded on the leaves of *Physalis minima* L. from Punjab, by Mundkur & Ahmad (1946).

This is a new record for the state.

The specimen has been deposited in the Herb. I. M. I. Kew, No. 153812.

5. *Cercospora bidentis* Tharp. in Mycologia 9: 108, 1917; Saccardo Syll. Fung. 25; 871, 1931; Chupp, p. 123, 1953.

On the living leaves of *Tithonia* sp., Forest School, Balaghat, October 1970, Leg. S. M. Singh.

#### Symptoms of the disease

The disease starts from any part of the leaf usually on the upper surface. The spots are grey, circular to irregular with a brownish margin.

#### The causal organism

Conidiophores simple, septate, olivaceous, apex truncate showing scar of attachment, measuring 60—160  $\times$  4.5—6.5  $\mu$ , average 100  $\times$  6  $\mu$ ; conidia hyaline, acicular, 0—14 septate, straight or curved, base trun-

cate, with scar of attachment, measuring  $75-145 \times 3.5 \mu$  average  $100 \times 3.5 \mu$ .

*Cercospora bidentis* was originally described from Palestine, Texas on *Bidens nashii* by Tharp (1917).

In India it has been recorded on the leaves of *Bidens pilosa* from Thirumalachar & Govindu (1956) and on the leaves of *Bidens bipinnata* L., from Hyderabad by Salam & Rao (1957).

This is a new record for the state and *Tithonia* sp. is the new host record for the fungus.

The specimen has been deposited in the Herb. I. M. I. Kew, No. 153809.

6. *Cercospora clerodendrii* Miyake in Bat. Mag. Tokyo. 27 (315): 53, 1913; Chupp. P. 589, 1853; Saccardo, Syll. Fung. 25; 893, 1913.

On the living leaves of *Clerodendron* sp. Chakkar Road, Balaghat, Sept. 1970. Leg. S. M. Singh.

#### Symptoms of the disease

Spots have brownish central region with irregular out line on the upper surface of the leaf.

#### The causal organism

Fruiting epiphyllous, stromata light brown upto  $50 \mu$  in diameter; conidiophores in fascicles, simple, septate, broad below narrow above, geniculate, with scar of attachment, pale olivaceous,  $21-50 \times 3.5-4.5 \mu$ ; average  $30 \times 3.5 \mu$ ; conidia pale olivaceous, obclavato-cylindrical, straight or curved, 0-3 septate, base subconic with scar, apex subacute,  $18-60 \times 3.5-6 \mu$ ; average  $30 \times 5 \mu$ .

*Cercospora clerodendrii* was originally described from Chinsi, Hunan, China, on *Clerodendron* sp. by Miyake (1913).

In India it has been recorded on the leaves of *Clerodendron* sp. from Mysore by Thirumalachar & Govindu (1953).

This is a new record for the state.

The specimen has been deposited in the Herb. I. M. I. Kew, No. 153811.

7. *Cercospora waltheriae* Thirumalachar and Chupp, in Mycologia 40: 361, 1948; in Sydowia Govindu & Thirumalachar, 19: 225, 1955. On the living leaves of *Waltheria indica* L., Chakkar Road, Balaghat, October 1969, Leg. S. M. Singh.

#### Symptoms of the disease

The disease first appears as brownish spots circular to angular sometimes coalescing into large spots. On maturity becomes grayish in

the centre surrounded by brown margin. In the centre the stromata appear as minute black dots.

#### The causal organism

Stromata dark brown to olivaceous, globose, upto  $100\ \mu$  in diameter; conidiophores in dense fascicles, light brown to pale olivaceous brown, simple, rect, straight or curved, rarely septate, rarely geniculate, with rounded tips,  $10-33 \times 2.5-3.5\ \mu$ ; average  $20 \times 3.5\ \mu$ ; conidia subhyaline to olivaceous, abclavato-cylindrical, septate, straight to curved, base obconically truncate, tip subacute to blunt,  $33-120 \times 2-4.5\ \mu$ ; average  $66 \times 3\ \mu$ .

*Cercospora watheriae* was originally described from Bangalore, India, on *Waltheria indica* L., by Thirumalachar & Chupp 1948. It has also been recorded by Govindu & Thirumalachar (1955). This is a new record for the state.

The specimen has been deposited in the Herb. I. M. I. Kew, No. 148084 a.

8. *Cercospora volkameriae* Speg. in Rev. del. museo. de La Plata 15: 47, 1908 in Saccardo, Syll. Fung. 22: 1424, 1913; in Chupp. p. 667, 1953. On the living leaves of *Clerodendron siphonatus* Br. Chakkar Road, Balaghat, July 1969, Leg. S. M. Singh.

#### Symptoms of the disease

Disease starts as light brown, pin head sized spots, which are at first circular but later irregular in outline, then confluent forming large spots. On maturity the spots become dirty grey in colour.

#### The causal organism

Stromata dark brown, subglobose, upto  $85\ \mu$  in diameter; conidiophores erect or hardly flexuous, olivaceous, geniculate, septate or unseptate,  $20-180 \times 3.3-5\ \mu$ ; average  $70 \times 5\ \mu$ ; conidia hyaline, flexuous, thick below and tapering above, many septate, obclavate, apex subacute, base truncate,  $40-200 \times 3.5-5\ \mu$ ; average  $200 \times 4.5\ \mu$ .

*Cercospora volkameriae* was originally described from Brazil, on *Volkameria fragrans* Vent. by Speg (1908).

In India it has been recorded on the leaves of *Clerodendron* Sp. by Govindu and Thirumalachar (1954).

This is a new record for the State and *Clerodendron siphonatus* Br. is a new host record of the fungus.

The specimen has been deposited in the Herb. I. M. I. Kew, No. 148088.

### Summary:

The present paper described eight foliicolous *Cercosporae* from Balaghat. It includes *Cercospora flemingii* Singh sp. nov. on leaves of *Flemingia bracteata* the one new species. *Pterocarpus marsupium* for *Cercospora canescens*, *Celastrus paniculatus* for *Cercospora melanochaete*, *Tithonia* sp. for *Cercospora bidentis* and *Clerodendron siphonatus* for *Cercospora volkameriae* are four new host record from India. *Cercospora melanochaeta* on *Celastrus paniculatus*, *Cercospora bidentis* on *Tithonia* sp., *Cercospora Clerodendrii* on *Clerodendron* sp., *Cercospora waltheriae* on *Waltheria indica* and *Cercospora volkameriae* on *Clerodendron siphonatus* are three new fungus record for the State.

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