

Notes on Some Indian Cercosporae — XII

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Further collections of *Cercospora* species from different places in India have been studied in detail and some of the species which are either new records for India or so far unknown to science, are presented in this paper *).

1. *Cercospora puttemansii* P. Henn. Hedwigia 41: 117, 1902. — Fig. 1.

Hab. On leaves of *Nyctanthes arbor-tristis* Linn., (cultivated), Chennamanakere near Narasimharaja Colony, Bangalore, 9. 6. 1964 and 19. 12. 1964 leg. H. C. Govindu, MYSP Herb. 694 and 759 (fig. 1); on leaves of *Nyctanthes arbor-tristis*, near Kolowara, Thirthahalli, Mysore State, 14. 2. 1963, leg. H. C. Govindu, MYSP Herb. 971.

The type of this species was described by P. Hennings from Brazil, S. America. In India, only a species of *Cercospora* was described (Rept. Agric. Res. Inst. & Coll. Pusa, 23: 143, 1932) without assigning it to any species. The present report of *C. puttemansii* is a new distribution for the fungus.

2. *Cercospora chrysanthemi* Heald & Wolf. Mycologia 3: 15, 1911.

Hab. On leaves of *Chrysanthemum indicum* Linn., Mylandahalli, Melur Taluk, Kolar District, Mysore State, 24. 9. 1963, leg. S. S. Gowda, MYSP Herb. 685 (fig. 2).

This species was reported earlier from Mysore in 1954 (Sydowia 8: 222—223) on *Centrantherum anthelminticum* (Willd.) Kt. This is a new host record for the fungus.

3. *Cercospora herpestica* Petrak & Ciferri Ann. Mycol. 30: 317, 1932.

Hab. On leaves of *Bacopa monnieri* (Linn.) Pennel (*Herpestis monniera* Benth.), Asundi Road near Davanagere, Mysore State, 23. 11. 1964 leg. T. R. Nagraj, MYSP Herb. 772 (fig. 3).

This species has not been previously reported from India. The type was first described in 1932 on *Herpestis stricta* Schrad. The present report is not only a new distribution for the fungus but also a new host record.

*) Types of new species deposited in Herb. Crypt. Ind. Orient New Delhi, Herb. C. M. T., Kew, England, and National Fungus Collections, Beltsville, Maryland, U.S.A.

4. *Cercospora traversiana* Sacc. Ann. Mycol. 2: 18, 1904.
 Hab. On leaves of *Trigonella foenum-graecum* Linn., Sirampura, Bangalore, 7. 11. 1963, leg. K. S. Setty, MYSP Herb. No. 693 (fig. 4).
 This species has not been previously reported from Mysore.

5. *Cercospora hebbalensis* Govindu, Thirum. & Nag Raj sp. nov.
 Leaf spots circular to polygonal, 2—5 mm. in diam., grayish white and distinct in the center, surrounded by a pink border. The spots later enlarge to much larger patches 50—80 mm. in diam. or even larger with or without dark brown concentric rings on the upper surface, brown to dark gray below. At a much later stage, the infected tissue drops off leaving a shot-hole. Fruiting mostly epiphyllous; stromata dark brown to olivaceous brown; sub-globose, 15—60 μ in diam.; fascicles dense and compact, sometimes protruding above the epidermis; conidiophores medium to olivaceous brown, few-septate, unbranched, subgeniculate especially near the tip. irregular in width, rounded at the tip, 15.5—55.0 $\times$ 2.5—5.0 μ . Conidia subhyaline to almost hyaline, acicular, really obclavate, straight or curved, 1—16-septate; septa indistinct, subtruncate at the base, tip sub-acute, 15.5—90.0 $\times$ 3.5—4.0 μ .

Hab. On leaves of *Bryophyllum pinnatum* (Lamk.) Oken., Agricultural Research Institute, Hebbal, Bangalore 14. 2. 1964, leg. H. C. Govindu, MYSP Herb. 703 (fig. 5); Hebbal, Bangalore, 8. 4. 1966, leg. K. A. Lucy, MYSP Herb. 838.

Maculae circulares vel angulosae, 2—5 mm. diam., in centro griseo-albae, roseo-marginatae, postea accrescentes et 50—80 mm. diam., in epiphyllis saepe annulis concentricis praeditae in hypophyllo brunneae vel canescentes, caespituli plerumque epiphylli; hypostromate atro-brunneo vel olivaceo, subgloboso, 15—60 μ diam.; conidiophora dense fasciculata, brunnea vel olivacea, septis paucis praedita, non ramosa, quoad latitudinem variabilia, antice subgeniculata, in apice obtusa, 15.5—55.0 $\times$ 2.5—5.0 μ ; conidia subhyalina, acicularia, raro obclavata, recta vel arcuata, basi subtruncata sursum attenuata et subacuminata 15.5—90.0 $\times$ 3.5—4.0 μ .

Bryophyllum pinnatum is a common rockery plant often grown in Horticultural and Private gardens.

6. *Cercospora solanacea* Sacc. & Berlesc. Atti. del. R. Inst. ven. di. Sci. Lett.ed. Arti. 6 (3): 721, 1885.

Herb. On leaves of *Solanum nigrum* Linn., Hebbal, Bangalore, 20. 1. 1952, leg. H. C. Govindu, MYSP Herb. 51 (fig. 6).

This has not been previously reported from Mysore.

7. *Cercospora cassiae-montanae* Govindu & Thirum. Sydowia 8: 224, 1954.

Hab. On leaves of *Cassia montana* Heyne, at the top of Thirukulakundram mountain, Tamil Nadu, 31. 12. 1964, leg. H. C. Govindu, MYSP 761.

The type was described in 1954 and the present report is a new distribution for the fungus.

8. *Cercospora hardwarensis* Narasimhan. Sydowia 8: 227—28, 1954.

Hab. On leaves of *Tephrosia purpurea* Pers., Sreerangapatna, about 10 miles from Mysore, Mysore State, 13. 9. 1952, leg. H. C. Govindu, MYSP Herb. 42; Patna, Bihar, 3. 12. 1952, leg. H. C. Govindu, MYSP Herb. 43; road-side on Bangalore-Madras high-way near Chittoor (Andhra Pradesh), 21. 12. 1964, leg. H. C. Govindu, MYSP Herb. 760, Bangalore, 28. 11. 1964, leg. H. C. Govindu, MYSP Herb. 825.

This species has not been previously recorded from Mysore State.

9. *Cercospora pistiae* Nag Raj, Govindu & Thirumalachar Sp. nov.

Leaf spots circular to irregular, upto 9 mm. in diam., yellowish with a lighter central part, spots occasionally coalescing, later infected tissue drops off leaving a frayed shot-hole. Fruiting amphigenous, mostly epiphyllous; stroma lacking, conidiophores in lax fascicles of five to ten, light brown to olivaceous brown, tips often subhyaline, unbranched, septate, subgeniculate especially near the tip, $60.0\text{--}190.0 \times 3.0\text{--}6.0 \mu$, conidia hyaline to faintly subhyaline, obclavate or acicular, straight or curved, subtruncate at base and subacute at the tip, $3\text{--}11\text{-septate}$, $50.0\text{--}150.0 \times 3.5\text{--}5.0 \mu$.

Hab. On leaves of *Pistia stratiotes* Linn., Ernakulam, Kerala State, 11. 12. 1964, leg. T. R. Nag Raj, MYSP Herb. 803 (fig. 7).

Maculae orbiculares vel irregulares, usque ad 9 mm. diam., interdum coalescentes, flavidae, in centro dilutae; caespituli amphigeni, plerumque epiphylli, hopostromata nulla; conidiophora quinque vel decem in fasciculos laxos, pallide-brunnea vel olivacea, praesertim antice subhyalina et subgeniculata, simplicia, septata, $60.0\text{--}190.0 \times 3.0\text{--}6.0 \mu$, conidia hyalina vel subhyalina, obclavata vel acicularia, recta vel arcuata, basi subtruncata, in apice acutiuscula, $3\text{--}11\text{-septata}$, $50.0\text{--}150.0 \times 3.5\text{--}5.0 \mu$.

10. *Cercospora ammaniae* Tharp. Mycologia 9: 107, 1917.

Hab. On leaves of *Rotala densiflora* Koehne. (*Ammania pentandra* Roxb.) Taliparamba, Kerala State, 11. 10. 1964, leg. T. R. Nag Raj, MYSP Herb. 802 (fig. 8).

This species has been known only from Austin, Texas the type locality. The species referred to here closely resembles the type except for differences in the length of the conidiophore $25\text{--}70 \mu$ as against $50\text{--}175 \mu$ in our material, further, slight branching of the conidiophores has been reported from the type specimen, a feature not seen in our material.

This report is not only a new host record but also a new distribution for the fungus.

11. *Cercospora strigae* Nag Raj, Govindu & Thirum. Sp. nov.

Inciting leaf sports and blight of stems. Leaf spots circular to irregular and variable in size, occurring at the tip or margin of the leaf blade, often involving more than half of the leaf blade, gray to pale brown in colour, covered by grayish, effuse growth of the fungus. Fruting amphigenous, stromata brown to dark brown, subepidermal, irregular; Conidiophores in lax fascicles, projecting well above the epidermis, brown to dark brown, multi-septate, unbranched, geniculate

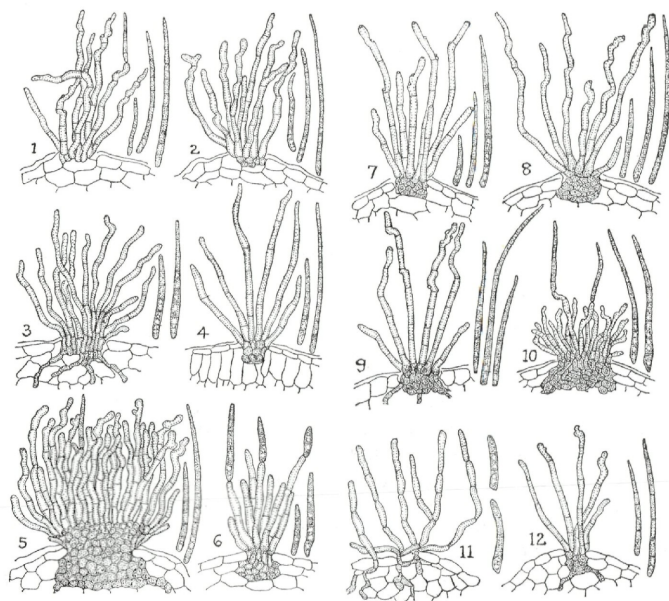


Fig. 1. *Cercospora puttemansii*. — Fig. 2. *C. chrysanthemi*. — Fig. 3. *C. herpestica*. — Fig. 4. *C. traversiana*. — Fig. 5. *C. hebbalensis*. — Fig. 6. *C. solanacea*. — Fig. 7. *C. pistiae*. — Fig. 8. *C. ammaniae*. — Fig. 9. *C. strigae*. — Fig. 10. *C. eupatorii*. — Fig. 11. *C. solani-hirti*. — Fig. 12. *C. stachytarphetae*.

especially towards the tip, rounded at the apex, swollen at the base, $40.0-490.0 \times 3.5-4.5 \mu$. Conidia hyaline, acicular, straight or slightly curved, 3-15-septate, attenuated, subtruncate at the base, acute at the tip, $35.0-350.0 \times 1.5-4.0 \mu$.

Hab. On leaves and branches of *Striga lutea* Linn., Hanumanmatti, Mysore State, 2. 11. 1964, leg. T. R. Nag Raj, MYSP Herb. 885 (fig. 9).

Maculae foliicolae et caulicolae circulares vel irregulares, magnitudine variae, griseae vel pallide brunneae; caespituli amphigeni; Hypostromate brunneo vel atrobrunneo, subepidermali irregulari; conidiophora laxe fasciculata, brunnea vel atrobrunnea multiseptata, non ramosa, praesertim antice geniculata, cylindracea, apice rotundata, ad basim inflata, $40.0-490.0 \times 3.5-4.5 \mu$; conidia hyalina, acicularia, recta vel leviter arcuata, 3-15-septata, basi subtruncata, apice acuta, $35.0-380.0 \times 1.5-4.0 \mu$.

Striga lutea occurs as a semi-root parasite on the millet, *Sorghum vulgare*, and causes considerable damage in certain areas of Mysore.

12. *Cercospora eupatorii* Peck. N. Y. State Mus. Nat. Hist. Ann. Rept. 33: 19, 1880.

Hab. On leaves of *Eupatorium odoratum* Linn., Ernakulam, Kerala, 18. 10. 1968, leg. H. C. Govindu, MYSP Herb. 1200 (fig. 10).

The species referred to here closely resembles the type specimen collected from Long Island, U.S.A. but for slight differences. While in the type the conidiophores are sometimes branched and not geniculate, they are branched and subgeniculate at the tip in our collection.

Eupatorium odoratum is very rapidly spreading as a weed along road-sides and forest plantations. The present report is not only a new host record but also a new distribution for the fungus.

13. *Cercospora solani-hirti* Baker & Dale, C. M. I. Mycol. Papers 33: 105, 1951.

Hab. On leaves of *Solanum ferox*, Linn., Agumbe, Shimoga dist., Mysore State, 8. 4. 1963, leg. S. C. Basappa, MYSP Herb. 662 (fig. 11).

The type of this species was originally reported from Trinidad on *Solanum hirtum* Vahl. The present report is not only a new host record but also a new distribution for the fungus.

14. *Cercospora stachytarphetae* Ellis & Everhart, Missouri Bot. Gard. Ann. Rept. 9: 120, 1898.

Hab. On leaves of *Stachytarpheta indica* Vahl., Sagar, Mysore State, 21. 1. 1963, leg. H. C. Govindu and S. C. Basappa, MYSP Herb. 591 (fig. 12).

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