

## Studies on some *Septoria* species from India-III.

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In continuation of our previous studies on some species of *Septoria* from India (Sukapure & Thirumalachar, 1964, 1966) further collections of *Septoria* were made on various hosts from different parts of Maharashtra State. An account of five new species is presented in this paper. The type materials are deposited in Herb. Crypt. Ind. Orient; New Delhi, India; National Fungus Collections, Plant Industry Station, Beltsville, Maryland, U.S.A.; and Herb. C. M. I., Kew, Surrey, England.

### I. Leaf spot of *Gardenia gummifera* L.

*Gardenia gummifera* is a shrub about 6 ft. high, belonging to the family Rubiaceae. A leaf spot disease has been collected which causes considerable blighting of the leaves. Microscopic examination revealed that the fungus inciting leaf spot was a species of *Septoria*. No *Septoria* species has been reported on this host genus so far. The fungus is presented as an undescribed species of *Septoria*.

### *Septoria gardeniae* Patil, Sukapure & Thirum. sp. nov.

Infection spots foliicolous, circular to oval, varying in size, 1—5 mm. in diameter, sharply demarcated by brown margin which is prominent on upper surface, with tan to almost white centre in which several pycnidia are visible as black dots; spots separate or coalesce. Pycnidia 60—90 × 50—70 μ, chiefly epiphyllous, scattered or gregarious, opening by slightly protruding papilliform ostiole; globose to subglobose, pycnidial wall consists of outer cells two to three layers thick (about 3 μ) and inner two or three layers giving rise to narrowly bulbous pycnidio-phores. Pycnidiospores 20—40 × 2—3 μ, hyaline, obtuse filiform, straight or less often moderately curved, often 2—3 septate, slightly vacuolated, narrowed towards obtuse ends and pointed to blunt at apex.

Maculae orbiculares vel ellipticae, solitariae vel plus minusve aggregatae et confluentes, quoad magnitudinem variabiles, 1—5 mm diam., linea marginali brunnea in epiphyllis distincte prominula bene limitatae, in centro alutaceae vel plerumque albae; pycnidia plerumque in epiphyllis evoluta, dispersa vel plus minusve gregaria, globosa vel subglobosa, ostiolo papilliformi, perforato praedita, 60—90 × 50—70 μ; pariete membranaceo, pseudoparenchymatico, 4—6-stratoso; conidia filiformia, recta vel plus minusve curvula, plerumque 2—3-septata, vacuolis

minutissimis praedita, hyalina 2—3-septata, utrinque attenuata sed obtusa,  $20-40 \times 2-3 \mu$ .

Habitat: On the leaves of *Gardenia gummifera* L. (Nagpur, Maharashtra, 2nd October 1962. H. F. M. 1711 (Type), leg. B. V. Patil.

## II. A new *Septoria* on *Heteropogon contortus* (L.) Beauv.

On *Heteropogon contortus* or Spear grass, a *Septoria* species inciting linear streaks was collected near Nagpur. Comparative studies indicated that the fungus is undescribed.

### *Septoria heteropogonicola* Patil, Sukapure & Thirum. sp. nov.

Infection spots foliicolous, lesions on the leaves linear, 1—5 mm. Spots light brown at first later becoming brownish and finally turning white in centre and brown at periphery with numerous pycnidia interspersed in the centre. Pycnidia  $100-160 \times 50-125 \mu$ , epiphyllous, prominent, at first subepidermal, later erumpent, brown in colour and globose to subglobose. Ostiole small or obscure, outer pycnidial wall composed of closely interwinged cells 4—10  $\mu$  thick. Pycnidiospores  $40-100 \times 1.5-2.5 \mu$ , typical of the species, leaving the pycnidium at maturity. They are hyaline, filiform, straight, or less often strongly curved, faintly septate, somewhat pointed at the apex and rounded at base.

Maculae lineares, 1—5 mm longae, primum brunneae, postea obscurae, tandem in centro albae, brunneo-marginatae; pycnidia gregaria, in epiphylo evoluta, prominula, subepidermalia, postea erumpentia, brunnea, globosa vel subglobosa, ostiolo minuto praedita,  $100-160 \times 50-125 \mu$ ; pariete membranaceo e cellulis 4—10  $\mu$  diam., metientibus composito; conidia filiformia, recta vel saepe valde curvata, indistincte septata, in apice acuminata, ad basin obtusa, hyalina,  $40-100 \times 1.5-2.5 \mu$ .

Habitat: on the leaves of *Heteropogon contortus* (Linn.) Beauv. H F M 1712 (Type). Khadan, Nagpur, 15th August 1963, leg. B. V. Patil.

## III. An undescribed species of *Septoria* on *Themeda laxa* (Anderss.) A. Camus.

A *Septoria* disease of *Themeda laxa* has been noticed in several places in Pachmari, and the description of the fungus is given below.

### *Septoria themedae* Patil, Sukapure & Thirum. sp. nov.

Infection foliicolous but sometimes leaf sheaths are also affected, lesions linear brown or gray, 3—10 mm. long, often confluent. Pycnidia

120—200 × 100—150  $\mu$ . not prominent, sparse, scattered, very few per spot, subserially arranged in black thin stroma. They are golden brown ellipsoid and often flattend at top. Ostiole opens widely at maturity. Pycnidial wall composed of tightly crushed oblong to polyhedral cells. Pycnidiophores obscure or absent. Pycnidiospores 30—80 × 1.5—2.5  $\mu$ , filiform, exuded in thick masses, straight or often strongly curved and then whip like, They are hyaline, 3—6 septate, tapering to a relatively sharp apex and a more gradually blunted or truncated base.

Maculae in foliis vel etiam in eorum vaginis evolutae, lineares, brunneae vel griseae, 3—10  $\mu$  longae, saepe confluentes; pycnidia laxissime dispersa in stromate tenui, atro subseriatim ordinata, aureo-brunnea, ostiolo in maturitate late aperto praedita, ellipsoidea, superne plus minusve applanata, 120—200 × 100—150  $\mu$ ; pariete pseudoparenchymatico, e cellulis oblongis, compressis vel polyedricis composito; conidiophora indistincta vel nulla; conidia filiformia, recta vel saepe valde curvata, tunc plus minusve vermicularia, hyalina, 3—6-septata, in apice subacuminata, ad basin obtusa vel truncata, 30—80 × 1.5—2.5  $\mu$ .

Habitat: on leaves and sheaths of *Themeda laxa* (Anderss.) A. Camus. H F M 1713 (Type); Pachmari, Maharashtra; 30th Sept. 1963, leg. B. V. Patil.

#### IV. *Septoria* leaf spot of *Indigofera pulchella* Roxb.

*Indigofera pulchella* is an erect shrub 4—6 ft. high belonging to the Leguminosae. Spotting of leaves due to an undescribed species of *Septoria* was collected in several places near Nasik.

#### *Septoria indigoferae-pulchellae* Patil, Sukapure & Thirum. sp. nov.

Infection spots foliicolous, round, oval or irregular, varying in size from 0.5—3.0 mm. in diameter, pale brown to dark, scattered over the whole leaf surface, mostly isolated, rarely coalescent. Pycnidia 100—160 × 80—120  $\mu$ , inconspicuous, hardly visible macroscopically, few, widely scattered, chiefly epiphyllous, at first subepidermal then erumpent, Pycnidial ostiole composed of rectangular cells which finally collapsed to a corky paranchymatic structure. Pycnidium is depressed, globose, chocolate to black in colour. Pycnidiophores indistinct. Pycnidiospores 30—60 × 2.0—3.0  $\mu$ , oozing out from the pycnidium in large cirrhi which retains their identity for sometimes in water. They are hyaline, to subhyaline, strongly two to four septate, narrowly cylindrical, straight or sometimes curved, somewhat pointed at apex and rounded at base but definitely blunter than the apex.

Maculae orbiculares, ellipticae vel irregulares, 0.5—3 mm diam., pallide brunneae vel obscurae, per totam folii superficiem dispersae, plerumque solitariae, raro plus minusve confluentes; pycnidia, nudo oculo aegre conspicua, late et laxe dispersa, ostiolo distincte pseudo-



parenchymatic, e cellulis rectangularibus postea collapsis composito praedita, obscure brunnea vel atra; conidiophora indistincta; conidia angustissime cylindracea, recta vel parum curvula, distincte 2—4-septata, in apice subacuminata, ad basin rotundata et obtusa,  $30-60 \times 2-3 \mu$ , in cirrhis sat diu in aqua persistentibus protrudentia.

Habitat: on leaves of *Indigofera pulchella* Roxb. H F M 1714 (Type). Nasik, Maharashtra; 10th Dec. 1961, leg. B. V. Patil.

#### V. A new *Septoria* on *Hamiltonia suaveolens* R.

*Hamiltonia suaveolens* R. is a small shrub belonging to Rubiaceae. A leaf spot disease incited by a *Septoria* species has been noticed in several places near Nasik. No *Septoria* is reported on this host genus so far. The fungus is presented as an undescribed species of *Septoria*.

#### *Septoria hamiltoniae* Patil, Sukapure & Thirum. sp. nov.

Infection foliicolous, spots small, circular 1 to 2 mm. in diameter usually single but in case of heavy infection becoming coalescent, spots dark brown to chocolate in colour, slightly raised, appearing like a tar-spots. Pycnidia  $50-86 \mu$ , inconspicuous, hardly visible macroscopically, few, scattered, epiphyllous, moderately erupent, creosote-brown to black in colour, spherical or flattened at ostiolar end; ostiole small, obscure appearing late or absent; pycnidial wall thick, about  $10 \mu$ ; pycnidiospores hyaline, straight or rarely slightly curved, cylindrical, narrowed towards both ends, 1—2 septate, measuring  $12-20 \times 1.5-2.0 \mu$ .

Maculae minutae, orbiculares, 1—2 mm tantum diam., plerumque singulares, interdum etiam numerosae, tunc plus minusve confluentes, obscure brunneae, parum prominulae; pycnidia nudo oculo vix conspicua, pauca, epiphylla, dispersa, vix erumpentia, rufo-brunnea vel atra, ostiolo minuto, lato, indistincto praedita, globosa, vel plus minusve depressa,  $50-86 \mu$  diam.; pariete usque ad  $10 \mu$  crasso; conidia angustissime cylindracea, recta, raro parum curvula, hyalina, utrinque attenuata 1—2-septata,  $12-20 \times 1.5-2 \mu$ .

Habitat: on leaves of *Hamiltonia suaveolens* R. H F M 1714 (Type). Nasik, Maharashtra; 14th Nov. 1961, leg. B. V. Patil.

In conclusion we wish to record our deep gratitude to Prof. Dr. Franz Petrak for kindly giving the Latin diagnosis to the new species.

#### Literature cited.

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