Additions to *Phaeoramularia* species

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ABSTRACT: This paper includes 3 new species of hyphomycetous genus *Phaeoramularia* Munt. Viz., *P. dicanthii-annulatae*, *P. erigeronis* and *P. rosigena* collected on living leaves of *Dicanthium annulatum*, *Erigeron asteroides* and *Spiraea bella* respectively. They are compared with allied taxa, particularly those occurring on same host genus or on the host family.

Keywords: Hyphomycete, Foliicolous, *Phaeoramularia*, new species

Some foliicolous fungi were collected from North Eastern U.P. the examination revealed three undescribed species of hyphomycete genus *Phaeoramularia* Muntanola (1960).

MATERIALS AND METHODS

Leaf samples showing distinct symptoms were collected in separate polythene bags. These were brought to the laboratory for herbarium preparation. Suitable mounts were examined and camera-lucida drawings prepared so as to show the most diagnostic characters.

RESULTS AND DISCUSSION

*Phaeoramularia dicanthii-annulatae*
Chaudhary, Singh & Singh sp. nov. (Fig.1).

Maculae amphigenae, atrobrunneae, parvae. Caespituli hypophylli, effusi, brunnei. Mycelium internum. Stromata bene evoluta, sub-epidermalia, pseudoparenchymatosa, pallide olivacea, 21X 23 μm diam. Conidiophora in fasciculo (c.10) stromatibus oriunda, macronematosa, recta vel flexuosa laevia, 1-5 transverse septata, non ramos, geniculata, pallide olivacea, 15-54 X 3-4 mm. Cellulae conidiogenae integratae, terminales, holoblastica, acrogenosa vel acropleurogenosa, solitaria vel catenata, in catenis simplicibus vel ramosis formata, recta vel curvata, laevia, 2-7 transverse septata, cylindrica, apicem subacuta

*Fig.1. Phaeoramularia dicanthii-annulatae* sp. nov. a) Stromata, b) Conidiophores, c) Conidia, d) Leaf spots. Bars : a-c= 20 mm; d=20 mm
vel obtuse, basim oblavata vel obconicotruncata, pallide olivacea, hilo conspicuo et incrassata, 13-68 X 2-5 mm.

Leaf spots amphigenous, dark brown, small. Caespituli hypophyllous, effuse, brown. Mycelium internal, Stromata well developed, sub-epidermal pseudoparenchymatous, pale olivaceous, 21X23 mm diam. Conidiophores arising in fascicle (upto 10 in a fascicle) from stromata, macronematous, straight to flexuous, smooth-walled, 1-5 transversely septate, unbranched, geniculate, light olivaceous, 15-45 X 3-4 mm. Conidiogenous cell integrated, terminal polyblastic, sympodial, cicatized bearing conspicuously thickened conidial scars. Conidia holoblastic, acrogenous to acropleurogenous, solitary to catenate in simple to branched chains, straight to curved, smooth-walled, 2-7 transversely septate, cylindrical, apex sub acute to obtuse, base obclavate to obconicotruncate, light olivaceous, hilum conspicuously thickened, 13-68 X 2-5 mm.


Out of three species of *Phaeoramularia* earlier reported on Poaceae, the novel species is different in having cylindrical conidia bearing obconicotruncate base as against somewhat acicular to obclavato-cylindric with obconic or rounded base in *P. fusimaculens* (Atk.) Liu & Guo (1982). However, elliptical to fusoid conidia having mostly single celled in *P. graminicola* Mukerji et al., (1983) and obclavato-cylindrical with somewhat obclavate base in *P. kelleramaniana* Marasas & Bredell (1974) have recorded in *P. dicanthii-annulatae* stromata are appreciably larger than in *P. fusimaculens* and *P. graminicola*.

*Phaeoramularia erigeronis* Chaudhary, Singh & Singh sp. nov. (Fig.2).

Maculae amphigenae, circulares vel ovoideae, brunneae, 1-4 mm latae. Caespituli hypophylli, effusi, griseobrunnei. Mycelium internum. Stromata parva, substomatalia, laxe formata, pseudoparenchymatosa, pallide olivacea, 16X19 mm diam. Conidiophora in fasciculo (3-5) stromatibus oriunda, macronematosa, recta vel interdum flexuosa, laevis, 2-5 transverse septa, ramose, geniculata, olivacea, 30-82 X 3-5 μm. Cellulae conidiogenae integrate, terminae, polyblasticae, sympodiales, cicatricatae, cicatrices conidiales conspicuae et incrassatae. Conidia holoblastic, acrogenosa vel acropleurogenosa, solitaria vel catenata, in catenis, simplicibus vel raro ramosis formata, recta vel curvata, laevia, 1-15 transverse septata cylindrica, apicem subacuta vel subobtusa, basim obclavata, pallide olivacea, hilo conspicuo et incrassata, 18-104X3-4.5 μm.

Leaf spots amphigenous, circular to ovoidal, brown. Caespituli hypophyllous, effuse, grayish brown. Mycelium internal. Stromata feebly developed, substomatal, loosely arranged, pseudoparenchymatous, pale olivaceous, 16X19 μm diam. Conidiophores arising in fascicle (3-5 in fascicle) from stromata, macronematous, straight to somewhat flexuous, smooth-walled, 2-5 transversely septate, branched, geniculate, terminal, polyblastic, sympodial bearing conspicuously thickened conidial scars. Conidia holoblastic, acrogenous to acropleurogenous.

**Fig.2. Phaeoramularia erigeronis** sp. nov. a) Stroma, b) Conidiophores, c) Conidia, d) Leaf spots. Bars : a-c= 20 mm; d=20 mm.
solitary to catenate in simple to rarely branched chains, straight to curved, smooth-walled, 1-15 transversely septate, cylindrical, apex subacute to subobtuse, base obclavate, light olivaceous, hilum conspicuously thickened, 18-104 X 3-4.5 µm.


Out of six species of *Phaeoramularia* reported on Asteraceae the new is different from *P. tithoniae* (Bak. & Dale) Deighton (Ellis, 1976), *P. adenostemmatis* Verma & Kamal (Budathoki et al., 1989) *P. adenostematae* Kamal et al., (1990) and *P. nepalensis* Singh & Chaudhary (Singh et al., 1995) in having longer conidia and different shape. However, conidia are smaller an slender than in *P. plucheae* (Petr. & Cif.) Deighton (Ellis, 1976) and *P. helianthi* Liu & Guo (1982). The conidiophores are significantly longer and slender in *P. plucheae* (110X3-4.5 µm), *P. tithoniae* (100X3.4 µm) and *P. helianthi* (15-105 X 2.5-4.4 µm) while smaller in *P. adenostemmatis* (34.5-78.5 X 2.4-5 µm) and *P. nepalensis* (14-48 X 3-5 µm). Although, dimensions of conidiophores in new species are some what overlapping with those of *P. adenostematae* (41.4-91 X 2.6-5.2 µm), difference was in well developed fasciculate conidiophores; upto 10 conidiophores being present per fascicle.

*Phaeoramularia rosigena* Chaudhary, Singh & Singh sp. nov. (Fig. 3).

Maculae amphigenae, circulares vel irregulares, rubro brunneae, 3-5 mm latae. Caespituli hypophylli, effuse, pallide tounnei. Mycelium internum. Stromata bene evoluta, substomatalia, pseudoparenchymatous, olivacea, 28-44 µm diam. Conidiophora in fasciculo stromatibus oriunda, macronematous, recta vel interdum flexuosa, laevia, 3-5 transverse septata, non ramosa, geniculata, olivaceobrunnea, 36-54 X 3.5-4.5 µm. Cellulae conidiogenae integratae, terminales, polyblasticae, sympodiales, cicatricatae, cicatrices conidiales conspicuo et incrassatae. Conidia holoblastica, acrogenous to acropleurogenous, solitary to catenate, in simple to branched chains, straight to curved, smooth-walled, 1-5 transversely septate, cylindrical, apex subobtuse vel obtusa interdum truncata, ad basim leniter obclavata, pallide olivacea, hilo conspicuo et incrassata, 10-75 X 4-5 µm.

Leaf spots amphigenous, circular to irregular, reddish brown, 3-5 mm wide. Caespituli hypopyllous, effuse, light brown. Mycelium internum. Stromata well developed, substomatal, pseudoparenchymatous, olivaceous, 28 X 44 µm diam. Conidiophores arising in fascicle from stromata, macronematous, straight to somewhat flexuous, smooth-walled, 3-5 transversely septate, unbranched, geniculate, olivaceous brown, 36-54 X 3.5-4.5 µm Conidiogenous cells integrated, terminal, polyblastic, sympodial, cicatrized bearing conspicuously thickened conidial scars. Conidia holoblastic, acrogenous to acropleurogenous, solitary to catenate, in simple to branched chains, straight to curved, smooth-walled, 1-5 transversely septate, cylindrical, apex subobtuse to obtuse, sometimes truncate, base slightly obclavate, light olivaceous, hilum conspicuously thickened, 10-75 X 4-5 µm.

**Fig.3. Phaeoramularia rosigena** sp. nov.  
 a) Stroma, b) Conidiophores, c) Conidia, d) Leaf spots , Bars : a-c= 20 mm; d=20 mm

Of the three earlier reported species of *Phaeoramularia* on Rosaceae viz., *P. pruni* Guo & Liu (Guo, 1987), *P. pyricola* Singh & Chaudhary (1995) and *P. pyrigena* Singh & Chaudhary (1996) the present species is different in having slightly obclavate base of conidia as against obconically truncate in *P. pruni*, slightly attenuated or rounded in *P. pyricola* and *P. pyrigena*. Although, the conidiophore dimensions are somewhat overlapping, the novel taxon is different in certain other features i.e. number of geniculation, septation and width of conidiophores.

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REFERENCES


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