NEWADDITIONS OF *PSEUDOCERCOSPORA* FROM INDIA

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ABSTRACT

Two dematiaceous leaf inhabiting fungi viz.***Pseudocercosporakillingiae***(Ellis & Everhart) Yen Gilles Cahiers and ***Pseudocercosporaleguminum***(Chupp& Linder) Dighton have been collected and illustrated.While working on demadiaceoushyphomycetes from West Bengal, two specimens of *Pseudocercospora* had been collected which on critical examination found that these are the first time report from India.

Key words: New report,foliicoloushyphomycetes,morphotaxonomy.West Bengal.

INTRODUCTION

The genus *Pseudocercospora*, one of the largest members of *Cercospora*-like fingi raised much interest among the taxonomists dealing with this type of fungi. Despite being imperfect in forms they are the most versatile organism in nature. To deal with this genus, unthicken conidial scars and nature of denticulation and proliferation of conidiogenous cell (which is evident from the generic character), have been primarily taken into consideration.Deighton[1],[2],[3] has transferred several species (about 500) of *Cercospora* to the genus *Pseudocercospora* on the basis of the characters cited above.

According to Deighton, the genus *Cercoseptoria* is very similar to some species of *Pseudocercospora*. The only distinguishing character *Cercoseptoria* is the presence of truly acicular conidia. *Mycosphaerella* (perfect stage), has been described for several species of *Pseudocercospora*.An anamorphic version of the genus *Mycosphaerella*, *Pseudocercospora*, is a large cosmopolitan,species are plant pathogens causing with leaf and fruit spots as well as blights on a wide range of planthosts.

The widely distributed genus has been estimated to contain over 1100 species, concentrated predominantly in tropical regions.*Pseudocercospora* was circumscribed by Italian-Argentinian Botanist Carlos Luigi Spegazzini[4].The taxonomic position of the genus *Pseudocercospora* is almost accepted as being a member of the form family Mycosphaerellaceae under order Capnodiales of the form ClasssDothideomycetes.

A good number of researchers from all over the world have made valuable contribution on the genus *Pseudocercospora*.A few of them are:Braun.U[5],[Braun *et al*[6], Braun *et al*[7],Meeboon*et al* [8],Maxweel*et al*[9],Kobayashi[10],Mintex and Stalpers[11],Han *et al*[12],Guo*et al*[13],Ellis[14],Ellis [15],Crous and Mourichon[16],Crous et al[17],Crous*et al*[18],and (Roland *et al*[19].

Researchers from India too have worked on this group of fungi. Special mention may be made of some as Bhat[20],Bilgrami*et al*[21],Jamaluddin*et al*[22],Kamal[23], Patil*et a*l[24],andHaldar [25],[26],[27].

While working on dematiaceoushyphomycetes from West Bengal the author had identified two species of *Pseudocercospora*viz., *Pseudocercosporakillingiae* and *Pseudocercosporaleguminum.*

Review of literatureBilgrami*et a* [24],Jamaluddin*et al* [25]reveals that *Pseudocercosporakillingiae* and *Pseudocercosporaleguminum* not yet been reported from India.Hence these are the first time report from the occurrence of these fungi from India.

MATERIALS AND METHODS

The infected leaves of different ages were detached intact from the host plants and they were kept in the polythene bags, closing the mouth by rubber ring. The infected leaves having distinct symptoms were collected and dried to make herbarium specimens,a part of whichwas depositedin the herbarium of Presidency University(PUK,erstwhile Presidency College),Kolkata. Depending on the size of the leaf and the nature of infection the entire or a portion of the infectedhost tissue along with the adjoining healthytissue was detached carefully with a sharp scalpel.It was then mounted on a glass slide in a drop or two of lacto phenol and covered with a cover glassand warmed on a flame so as to make the host tissue transparent Stained preparationswere also made with lacto phenol accompanied with a drop of cotton blue to study the details of the transparent parts of the fungal specimens.Morphotaxonomicstudy of the associated fungi were done through the low and highmagnification of the compound microscope. The measurement of the different structures were also taken and camera lucida drawings were made with the aid of standard camera lucida attachment.

RESULTS AND DISCUSSION

Pseudocercosporakillingiae(Ellis & Everhart) Yen Gilles Cahiers, *Mabokae***8**(2): 81, 1970.

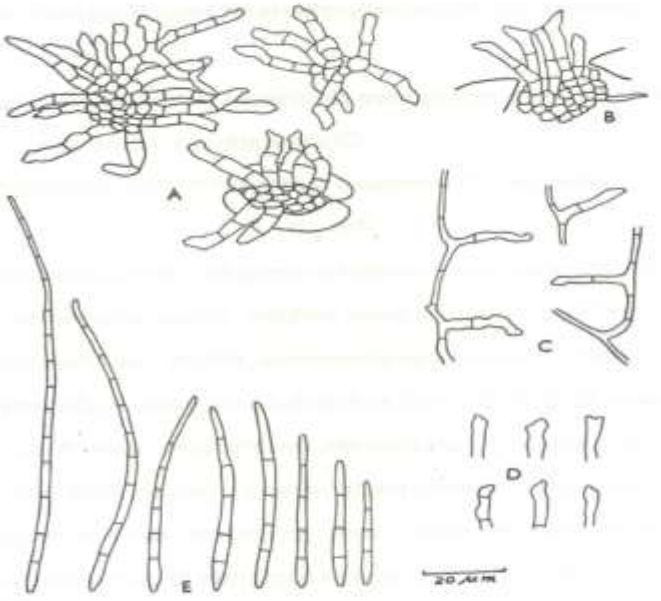

Fig.1 *Pseudocercospora killingiae.*
A. Conidiophore fascicles,
B. Section through the stroma,
C. External mycelial hyphae bearing conidiophores,
D. Conidiophores,
E. Conidia.

Fig. 1

Leaf spots indistinct, very poorly developed, reddish discolouration on the dorsal surface, sometimes almost covering the major portion of the leaves, older leaves more affected; caespitulihypophyllous, punctiform, black, unevenly distributed over the reddish area, vein limited; primary myceliuminternal, hyphae pale olivaceous, 1.5-2 µ wide; secondary mycelium superficial, emerging through stomata, light olivaceous brown, thin walled, septate, branched, 1.5-2.5 µ wide, producing conidiophores both laterally and terminally; stroma sub stromatic, pale olivaceous, 25-35 µ wide and 16.5-29.5 µ high; conidiophoresstromatic, emerging through stomata, usually fascicles of 2-13, divergent, light olivaceous brown, usually simple, sometimes branched, septate (upto 3), smooth, thick walled, width not uniform, straight to bent, sinuous, dilated, denticle broad and conical, scar lying flat against side wall of the conidiophores, base swollen, apex obtuse to rounded, 13.0-33.0 ×

3.3-5.0 µ; *conidia* obclavate to obclavatecylindric, olivaceoius brown, smooth, straight to curved, indistinctly,pleuriseptate (3-15), base tapers to hilum, apex rounded, 30- 140.0 × 3-4.2 µ.

Specimen studied: On the living leaves of *Excoecariaagallocha*L., (fam. Euphorbiaceae), Bakkhali, North 24 Parganas, West Bengal, India, IMI 297804, 23 February, 1985.

Literature shows that this species has not yet been reported from India. Hence it is reported for the first time from India.

Pseudocercosporaleguminum(Chupp& Linder) Dighton, *Mycol. Pap*.**140 :**55(1976).

Synonym:*Cercosporaleguminum*Chupp& Linder, *Mycologia***29** : 30, 1937.

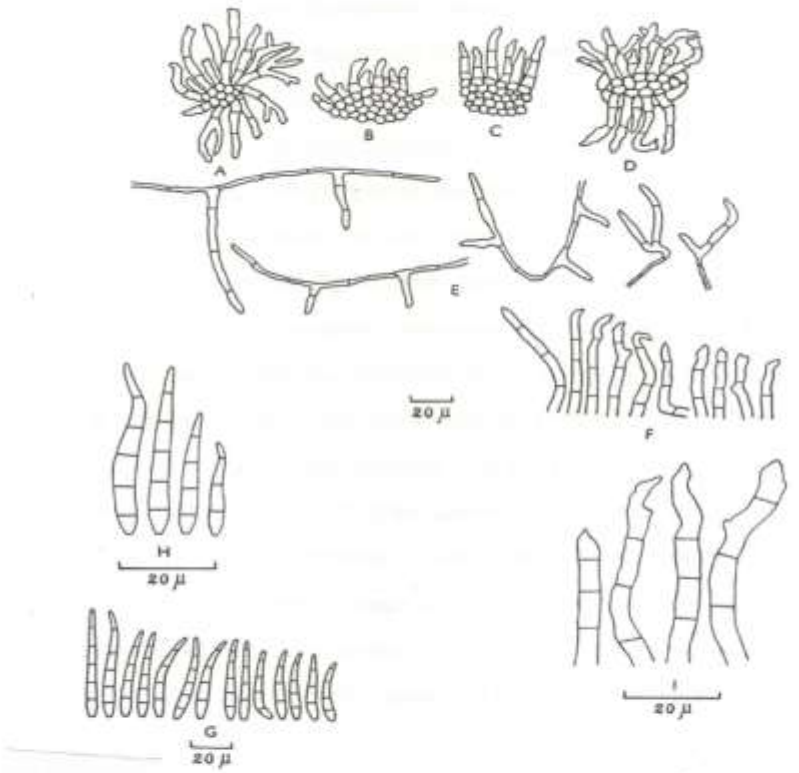

Fig.2 *Pseudocercospora leguminum.*
A-D. Conidiophore fascicles,
B. External mycelial hyphae bearing conidiophores,
G. & I. Conidiophores,
G-H. Conidia.

Fig.2

Leaf spotsamphigenous, distinct on both the corresponding surfaces, older leaves more affected, scattered, effuse, usually circular, rarely angular, greyish brown centre, surrounded by dark margin, sometimes coalescent, 1-2 mm diam., caespituliamphigenous, chiefly epiphyllous, evenly distributed over the spots, punctiform; stroma well developed, dark brown to blackish, consisting of thick walled blackish brown, compactly arranged isodiametric hyphal cells; conidiophoresarising from the base of the stroma or through the stomata, straight to flexuous, light to mid brown, slightly paler towards the tip, smooth, thick walled, usually simple, rarely branched, distinctly multiseptate (2-12 septa); secondary mycelioumexternal, sometimes sub geniculate simple, denticulate, denticles sub conic, conidial scars conspicuous, at the point of denticle or at the tip of the conidiophores, 61.59-210 ×4.2-4.59 µ; *conidia*obclavate, pale olivaceous, usually straight, rarely curved, distinctly multiseptate (2-5 septa), smooth and thick walled, obtuse to sub obtuse, 40.59-58.8 × 2.1-2.79 µ.

Specimen studied: On the living leaves of *Clitoriaternatea*L., (fam. Fabaceae), Mallikpur, South 24 Parganas, West Bengal, India, TFRI S13, 30 January, 1998.

literature reveals that this fungus has not yet been reported from India. Hence it is reported for the first time from India.

The fungi***Pseudocercosporakillingiae***and ***Pseudocercosporaleguminum***abundant in nature during the month of January to February of the year forming striking symptoms like irregular to regular, sometimes concentric ringswith brown to dark brown margin,blotch to shooty in nature.Spots become sometimes necrotic leaving hole in the leaves.

CONCLUSION

Thepresent study reveals the fact that ***Pseudocercosporakillingiae***and ***Pseudocercosporaleguminum*** primarily grows on the leaf blades as well as petioles,stems inflorescence and fruits.The characteristics of the symptoms depends on the nature of leaves as well as parasites.The effects may vary from plant to plantand even on same plant.The species of the *Pseudocercospora*grow vigorously on leaves throughout the yearbut virulent in winter to early summer.

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