2023, Vol. 63 : 36-39
ISSN-0972-7434

Original Article

Madhya Bharti Journal of Science

Pseudocercospora fistulae a New Species Recorded from Central India

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(Received on 14/10/2022; Accepted on 10/11/2022)

Abstract

The fungus *Pseudocercospora fistulae*sp. nov., on living leaves of *Cassia fistula* L.(Fabaceae), Dry deciduous forest of Chhatarpur, Madhya Pradesh, India, is described, illustrated and discussed. It is morphologically similar to Cercosporoide fungi, but quite different in some characteristic features. Most of the Cercosporoide fungi cause leaf spot and are plant pathogenic with special Phyto-pathological relevance. Holotype and nomenclatural details were deposited in ARI Pune.

Key words:- Fungi, Foliicolous hyphomycete, Morphotaxonomy, Living leaves.

Introduction

Cercospora was established by Fresenius in 1863 (Braun, 1995). According to Crous and Braun (2003), the number of species of Cercosporoid fungi exceeds 5500. In recent years, the genus was divided into several genera based on new criteria, such as conidiomatal structure, mycelium, conidiophores, conidiogenous cells, conidial pigmentation, and scar, as proposed by Braun, Crous, Deighton and Sutton(Crous and Braun, 2003). Hunter *et al*. (2006) described a new *Pseudocercospora* from *Eucalyptus* leaves. This is a new collection of Cercosporoid fungi from central India. The species of *Cercospora* is increasing year by year. Many species of *Cercospora* have been described so far by several workers. Cercosporoid fungi are known from all regions of the world, but they are especially abundant and diverse in tropical and subtropical areas of the world.

Material and Methods

Fungal samples with distinct symptoms on living leaves were collected during field survey from Chhatarpur forest (Badamalehra) Feb. 2014, MP, India. Slides were prepared in lacto-phenol and cotton blue mixture from the scrapping taken from infected leaf area, prepared slides were observed under compound microscope and Leica light microscope (100x and 400x). Stromata, conidiophores and conidial stages were observed. After morphological observations Camera Lucida drawings were made using different eye piece and objective combination (100x and 400x). Measurement of 25 conidiophores, and more than 40 conidia was made. The holotype is deposited in the Ajerkar Mycological Herbarium (AMH), Agharkar Research Institute (ARI), Pune, India, as type material and isotype also deposited in the Mycological Herbarium of the Department of Botany, Dr. Harisingh Gour Central University Sagar, MP, India.

Taxonomy

***Pseudocercospora fistulae*: Kushwaha*et* & Soni *sp. nov*. (Figs. 1-2)**

Type: On living leaves of *Cassia fistula* L. (Fabaceae) Chhatarpur Forest, M.P., India, Feb. 2014, leg. P. Kushwaha, (holotype - AMH-9787, isotype S.U. Herb No. Bot. RK-182)

Etymology: Latin, *fistulae* refers to the name of host species.

***Pseudocercospora fistulae** sp. nov*. (fig. 1-2)

Leaf spots amphigenous mostly circular rarely irregular in patches, seems angular consisting mostly 3-6 concentric ring, whitish brown, fine dots raise from leaves surface. Colony amphiphyllous, represented by very fine dots in center and successively large towards outer side, light brown. Mycelium internal, branched, emerged to erumpent. Stromata poorly to well developed, 92-51µm diam. Conidiophores densely caespitose, macronematous, mononematous, unbranched, mid olivaceous, erect, smooth, cylindrical, septate, 1-4 septa 15-41x3-4µm. Conidiogenous cells integrated, terminal. Conidia simple, solitary, straight to slightly curved, smooth, hyaline, septate, 2-6 septa, cylindric to sub-cylindric, subacute apex, subtruncate base, hilla unthickened, 13-49.5x3.3-5µm.

Discussion

No ***Pseudocercospora*** species has been reported on same host in India. ***Pseudocercospora taichungensis* Goh & Hsieh, 1986 Taiwan,** was reported on same host from Taiwan. Author compared both the sp. criteria based on symptomatology and morphologically. The novel species *P. fistulae* differs from *P. taichungensis* in most of the characters of taxonomic value (such as symptomatology, size of stromata, conidiophres and conidia). Therefore the proposed species deserves its disposal as a new taxon of species rank.

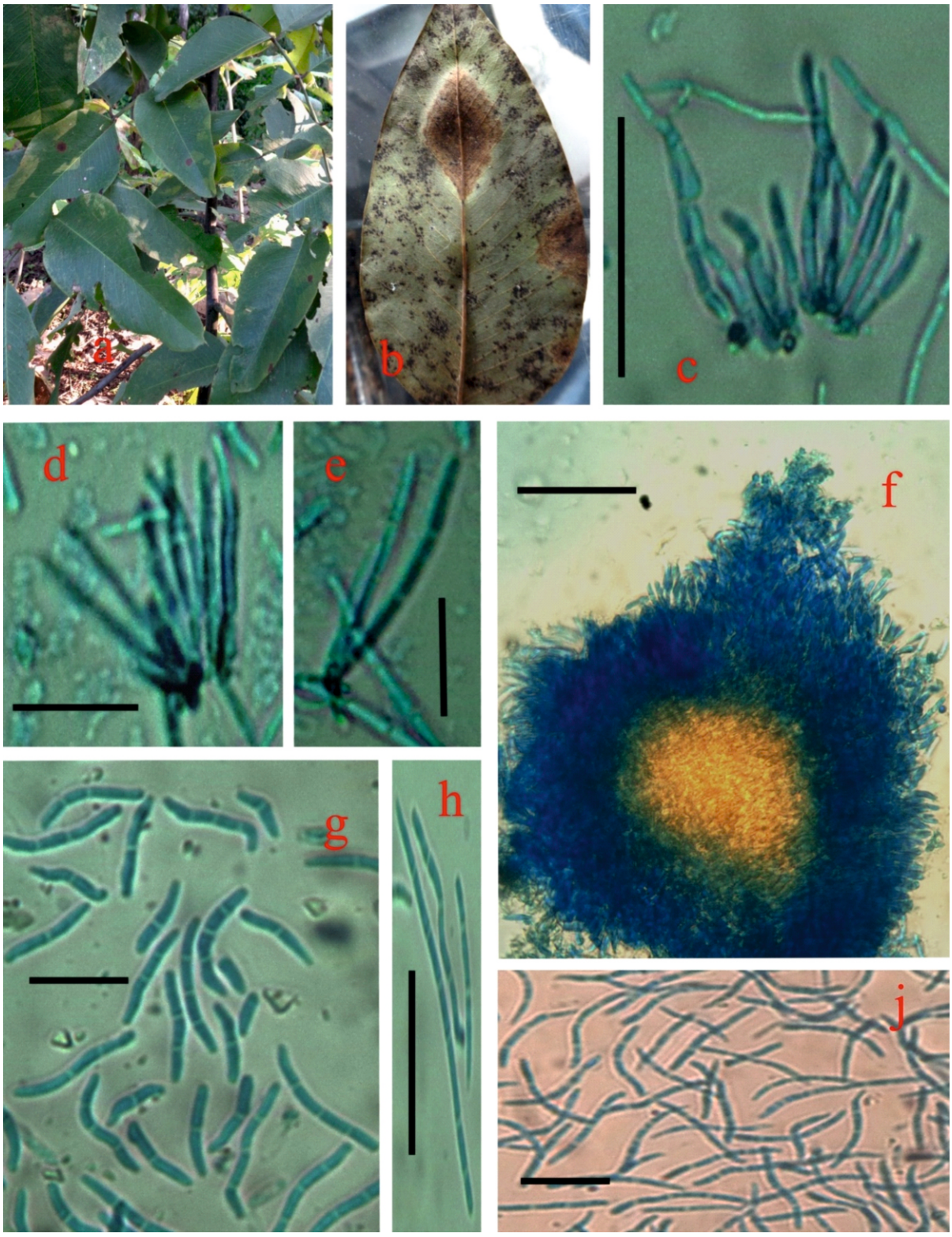


Fig 1: Microphotograph of *Pseudocercospora fistulae* (holotype-AMH 1234), a. Plant showing symptoms, b. Single leaf showing infection, c-e. Conidiophores with stromata, f. undifferentiated conidia with conidiophores, g-j. Type of conidia, Scale bars c & f = 50

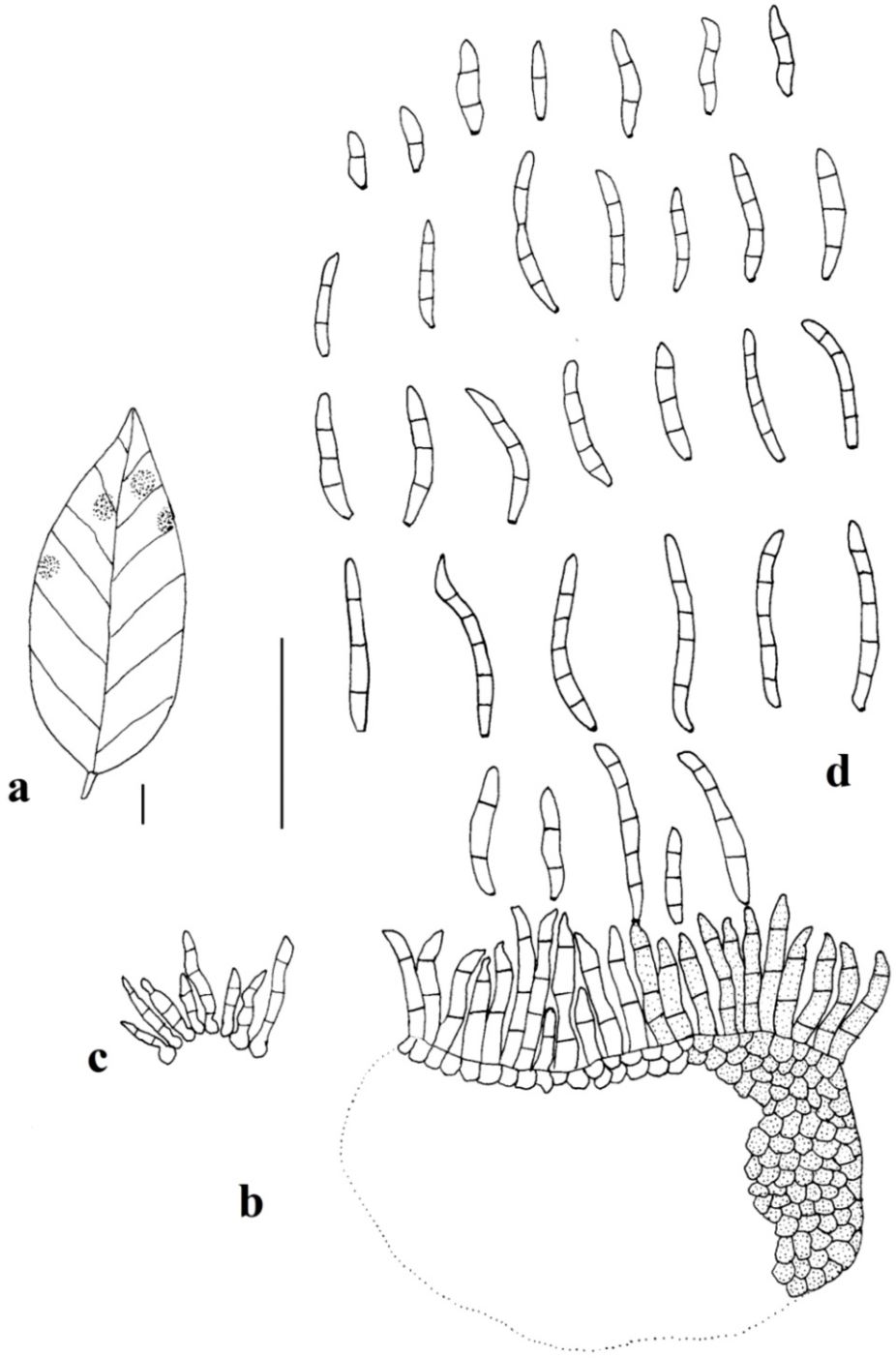


Fig. 2: *Pseudocercospora fistulae* (AMH- 9787 holotype), a. infected host leaf, b. conidiophores with stromata, c. conidiophores, d. different types of conidia. Scale bars – a= 10mm. b-d = 50µm.

Table -1: Comparative study of *Pseudocecospora fistulae*to allied sp.

Character	***Pseudocercospora taichungensis* Goh & Hsieh, 1986 Taiwan**	***Pseudocercospora fistulae*** sp. nov.
symptoms	Leaf spots suborbicular to irregular, grayish brown with dark margin, paler on the lower surface.	Leaf spots amphigenous, circular rarely irregular in patch , seems to angular consisting mostly 3-6 concentric ring, whitish brown, fine dots raise from leaves surface
Stromata	Well developed, erumpent, sub globose to elongate. olivaceous to dark brown, 30-100µm wide.	Poorly developed, sub globose, olivaceous brown. 51-92µm. diam.
Conidiophores	Dense to very numerous in fascicle, in mass darkly coloured, singly pale olivaceous to pale olivaceous brown, indistinctly 0-2 septa, slightly constricted at the septa, bluntly rounded at the apex, 10-25x1-3µm, conidial scar unthickened.	Conidiophores densely caespitose, macronematous, mononematous, unbranched, mid olivaceous, erect, smooth, cylindrical, septate, 1-4 septa, 15-41x3-4µm.
Conidia	Subhyaline to very pale, acicular to narrowly obclavate, olivaceous, 1-6 septate, blunt at tip, truncate or obconically truncate at the base	Conidia simple, solitary, straight to slightly curved, smooth, hyaline, septate, 2-6 septa, cylindric to sub cylindric, subacute apex, subtruncate base, hilla unthickened. 13-49.5x3.5-5µm.

Acknowledgement

Authors are thankful to the Head, Department of Botany, Dr. Harisingh Gour University, Sagar, M.P., India, for providing library and laboratory facilities. Authors also thank to the Curator of AMH, Pune, India, for accepting the holotype specimen and providing an accession number. This work was financially supported by UGC, New Delhi.

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