

## Two novel additions to *Corynespora* Gussow from India

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### SUMMARY

This paper deals with the descriptions, latin diagnosis and illustrations of two undescribed species of fungus genus *Corynespora* Gussow viz., *C. pongamicola* sp. nov. and *C. tomenticola* sp. nov. collected on living leaves of *Pongamia pinnata* (Fabaceae) and *Terminalia tomentosa* (Combretaceae), respectively from North Western Tarai Forest of U.P., India.

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**Key words :** Follicolous fungi, *Corynespora*, Species novel

During our survey of North Western Tarai Forests of U.P. a number of collections of living leaves exhibiting leaf spots and blights were encountered of these, upon critical examination and comparison of morphotaxonomic features with those of the allied forms, two taxa of species rank have found to be undescribed. These are described and illustrated novel species of genus *Corynespora* viz., *C. pongamicola* Singh and Mall sp. nov. and *C. tomenticola* Singh and Mall sp. nov. parasitizing on the living leaves of *Pongamia pinnata* (Fabaceae) and *Terminalia tomentosa* (Combretaceae), respectively are described and illustrated.

### MATERIALS AND METHODS

During collection trip infected leaf samples were taken in separate polythene bags from Katarnighat Wildlife Sanctuary of North Western Tarai forest of Uttar Pradesh. Suitable mounts of surface scrapping and free hand cut sections were prepared from infected portions of the leaf samples. Microscopic slides were prepared in cotton- blue lactophenol mixture. Slides were examined and camera lucida drawing were made. Morphotaxonomic determinations of taxa were done with the help of current literature and resident expertise available. Holotypes have been deposited in HCIO, IARI, New Delhi and Isotype retained in the departmental herbarium for further reference.

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### RESULTS AND DISCUSSION

The results obtained from the present investigation have been discussed in the following sub heads :

#### *Corynespora pongamicola* Singh and Mall sp. nov. (Fig. 1):

Maculae amphigenae, circulares vel irregulares, atrobrunneae ad spermae et infernae. Coloniae hypophyllae, discretae, atro-griseae. Mycelium internum. Stromata absentia. Conidiophora moronematosa, ex hyphis oriunda singulata, recta vel leniter curvata, simplicia, cylindricata, laevia, crassitunicata 1-3 septata 0-1 proliferationes cylindricus, cellululae baasali-inflati, atro-olivaceo lutea vel pallide olivaceo brunneae, 92-220 x 8-10  $\mu$ m. Cellululae conidiogenae integratae, terminales, monotreticae, cicatrix incrassatae vel non incrassatae. Conidia solitaria, sicca, arogena, simplicia, laevia, tenuitunicata, recta vel leniter curvata, obclavata, ellipsoidea, clavata, ad apicem subobtusata vel rotundata, ad basim truncata, 1-6 pseudoseptata, hila incrassata vel non-incrassata, pallide olivaceo lutea, 18-65.2 x 8-16.5  $\mu$ m.

In foliis vivis *Pongamia pinnata* Vent. (Fabaceae), Katarnighat Wildlife Sanctuary, Bahraich (U.P.) India, 13<sup>th</sup> Jan; 2007, leg; D.P. Singh, BRH-1,580, DPS-0,180 (Isotypus), HCIO - 47,899 (Holotypus).

Infection spots amphigenous, circular to irregular, dark brown on both the surfaces with dark margin, later becoming necrotic. Colonies hypophyllous, discrete dark grey. Mycelium internal. Stromata absent. Conidiophores macronematous, mononematous, arising singly from hyphae, straight to slightly curved, simple cylindrical, smooth, thick walled, 1-3 septate with 0-1 cylindrical proliferation, basal cell swollen, dark olivaceous yellow to light olivaceous brown 92-220 x 8-10  $\mu$ m

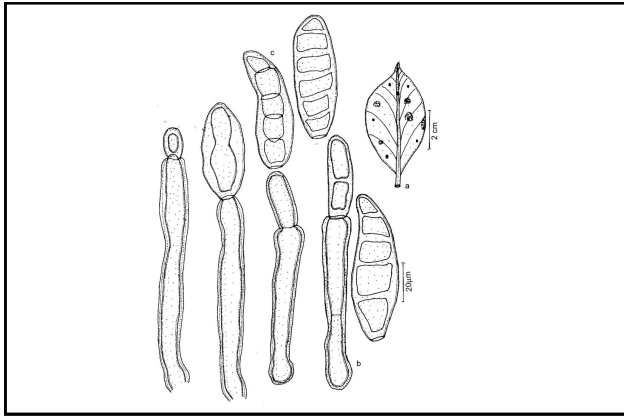


Fig. 1 : *Corynespora pongamicola* Singh and Mall sp. nov.

Conidiogenous cells integrated, terminal monotretic, scars thickened or unthickened. Conidia formed singly through a pore at the apex of conidiophore, dry, acrogenous, simple, smooth, thin walled, straight to slightly curved, obclavate, ellipsoidal, clavate or club-shaped, apex obtuse to rounded, base truncate, 1-6 pseudoseptate, hilum thickened or unthickened, light olivaceous yellow 18-65.2 x 8- 16.5 µm.

On living leaves of *Pongamia pinnata* Vent., (Fabaceae), Katarniaghat Wildlife Sanctuary, Bahraich (U.P.) India, 13th Jan; 2007, leg; D.P. Singh BRH- 1,580, DPS-0,180 (Isotype), HClO - 47,899 (Holotype).

Perusal of the literature shows that three species of *Corynespora* viz., *C. acaciae* (Swart, 1985), *C. alternarioides* and *C. queenslandica* (Sutton and Pascoe, 1988) have earlier been described on Fabaceae. From the comparative account, it is evident that *C. pongamicola* is different in length of conidiophores and dimensions of conidia. Moreover, shape of conidia in *C. pongamicola* is obclavate, obovoid or cylindrical while it is obclavate in *C. acaciae* and *C. queenslandica* and obpyriform in *C. alternarioides*. Comparison is given in Table 1.

Survey of literature indicates that there is no record of *Corynespora* species on this host. Therefore, it is described and illustrated as a new species to accommodate it.

***Corynespora tomenticola* Singh and Mall sp. nov. (Fig. 2):**

Maculae amphigenae, circularae vel subcircularae, 4-6 mm in diam; brunneae vel griseae ad inferae. Coloniae amphiphylae, effusae, griseae. Mycelium internum, tenui tunicatae, glabrae, ramosae, olivaceo vel brunnae. Stromata nulla notata. Conidiophora macronemata,

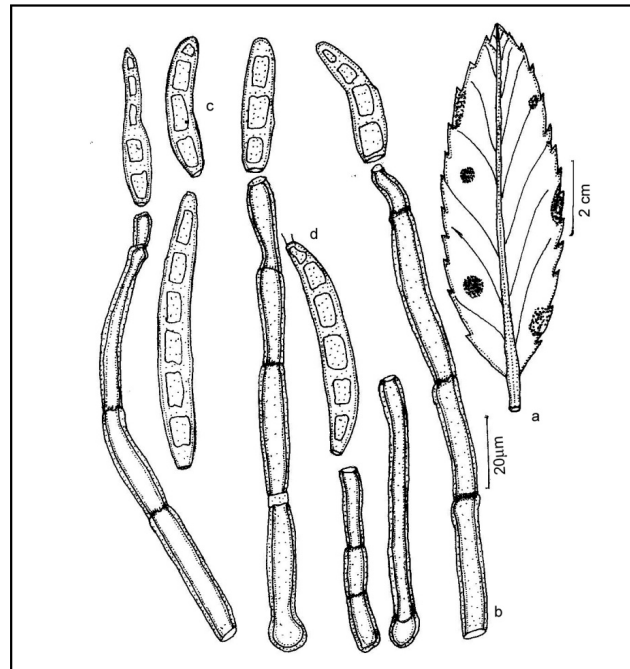


Fig. 2 : *Corynespora pongamicola* Singh and Mall sp. nov. (a) Infected leaf (b) Conidiophor (c) Conidia (d) Germinating conidium

Table 1 : Comparison of morphotaxonomic features of *Corynespora pongamicola* sp. nov. with *C. acaciae*, *C. alternarioides* and *C. queenslandica*

Species	Conidiophores	Conidia
<i>C. acaciae</i> Swart	Superficial, single erect unbranched, smooth, septate 10-37 x 5-7 µm	Solitary, 1-5 distoseptate, obclavate, dark brown, paler towards the apex smooth, 16-30 x 6-8 µm
<i>C. alternarioides</i> Sutton & Pascoe	Erect, 1-6 septate, Medium to dark, verruculose, straight, unbranched, cylindrical, 27-55 x 6.5-8 µm	Solitary medium brown, 6-8 distoseptate with longitudinal and oblique distoseptate, obpyriform, 32-42.5 x 11.5-13 µm
<i>C. queenslandica</i> Sutton and Pascoe	Erect 1-5 septate, medium to dark brown, straight, cylindrical to tapered the apex 42-65 x 5.5-7.5µm	Solitary, pale brown except the base which is thickened and dark, 6-9 distoseptate, obclavate truncate base, 72-114 x 8.5 - 9.5µm
<i>C. pongamicola</i> sp. nov.	0-1 proliferations, dark olivaceous yellow to light olivaceous brown, 92-220 x 8-10 µm	Solitary, straight to slightly curved obclavate or obovoid, light olivaceous yellow, 1-6 pseudoseptate, 18-65.2 x 8-16.5 µm

**Table 2 : Morphotaxonomic comparison of *Corynespora tomenticola* sp. nov. with *C. cassiicola* (Berk and Curt.) Wei (1950)**

<i>Corynespora</i> spp.	Conidiophores	Conidia
<i>C. cassiicola</i> (Berk and Curt.) Wei (1950)	Pale to mid brown septate with 1 successive cylindrical proliferation, 110-850 x 4-11 µm in diam	Obclavate to pale olivaceous brown, 4-20 pseudoseptate, hilum thickened 40-220 x 9-22 µm in diam
<i>C. tomenticola</i> sp. nov.	Macronematous, mononematous branched 2-4 transversely septate with proliferation brown to dark brown 120-260 x 6-8 µm in diam	Straight to slightly curved to cylindrical olivaceous to olivaceous brown 3-6 pseudoseptate and one euseptate hilum un thickened, 50-230 x 10.5-20.5 µm in diam

mononematosa, erect vel leniter procumbenta, recta vel flexuosa, ramosa, cylindrica, laevia, crassitunicata, 2-4 transversely septata et successive proliferation, brunnea vel atro-brunnea, 120-260 x 6-8 mm in diam. Cellulae conidiogenae integratae, terminales, monotreticae, cicatrices incrassatae. Conidia solitaria, sicca, simplicia, arogena, non- ramosa, tenuitunicata, laevia, recta vel leniter curvata vel cylindrica, 3-6 pseudoseptata 50-230 x 10.5-205 mm in diam, apice subobtusa vel rotundata, olivaceo vel olivaceo-brunnaea, hila incrassata. Germinatum conidium notatum.

In foliis vivis *Terminalia tomentosa* W. & A. (Combretaceae), Nishangara Forest Range, Bahraich, (U.P.) India, 20<sup>th</sup> Feb., 2007, leg; D.P. Singh, BRH-1,595, DPS-0,195 (Isotypus), HCIO - 47,902 (Holotypus).

Infection spots amphigenous, circular to subcircular, 4-6 mm in diam; brown to grayish on lower surface. Colonies amphiphylous, effuse, grayish. Mycelium internal, thin walled, smooth, branched, olivaceous to brown. Stromata absent. Conidiophores macronematous, mononematous, erect to slightly procumbent, straight to flexuous, branched, cylindrical, smooth, thick walled, 2-4 transversely septate with successive proliferations, brown to dark brown, 120-260 x 6-8 mm in diam. Conidiogenous cells integrated, terminal monotretic scars unthickened. Conidia arogenous, solitary, dry, simple, unbranched thin walled, smooth straight to slightly curved to cylindrical, 3-6 pseudoseptate 50-230 x 10.5 - 20.5 mm in diam; apex sub obtuse rounded olivaceous to olivaceous, brown hilum unthickened. Germinating conidium.

On living leaves of *Terminalia tomentosa* W. & A.

(Combretaceae), Nishangara Forest Range, Bahraich (U.P.) India, 20<sup>th</sup> Feb; 2007, leg; D.P. Singh, BRH-1,595, DPS-0,195 (Isotype), HCIO - 47,902 (Holotype).

There is no record of any species described of the genus *Corynespora* on Combretaceae except *C. cassiicola* (Wei, 1950) described earlier by Subram on the host species, in question. The present collection, therefore, is compared with the same to justify the novel identity (Table 2).

From above comparative account, it is clear that the conidiophores and conidia are much larger in *C. cassiicola* than those of the present collection. The conidiophores of *C. cassiicola* have 9 successive proliferations as against 2-4 in present collection. Conidia of *C. cassiicola* have 4-20 distoseptation with thickened hilum while 3-6 distoseptation and only euseptation with unthickened hilum are observed in *Corynespora tomenticola* sp. nov. Presence of germinating conidia is also peculiar in the present collection. Therefore, it merits recognition as a new species.

The review of literatures (Bilgrami *et al.*, 1979, 1981, 1991; Ellis, 1971, 1976; Jamaluddin *et al.*, 2004; Meenu *et al.*, 1997, Meenu and Kamal, 1998; Sarbhoy *et al.*, 1986, 1996; Singh and Mall, 2007a, 2007b, 2008) reveals that both new taxa have not been reported either from North Western Tarai Forests of U.P. or India.

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