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Research article

A NOVEL ADDITION OF FUNGAL TAXA FROM INDIAN SUB-CONTINENT

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ABSTACT: The mycological study of fungi with special reference of Mycotaxonomic investigation present communication deal with a new species of dematiaceous hyphomycetes *Camposporium goureae* infecting the leaves of *Bridelia retusa* Spreng. *(Euphorbiaceae)* from the forest flora of the Indian sub-continent. that have been described, illustrated and compared with allied taxa.

Key words: Mycotaxonomy, Hyphomycetes, *Camposporium.*

INTRODUCTION

Camposporium was introduced by Harkness [4] with the single species *C. antennatum* Harkn. The genus is characterised by dematiaceous, simple conidiophores that have terminal, integrated, denticulate conidiogenous cells. The conidia are typically cylindrical and elongate, multi-septate, rounded at both or either end, the apex is either simple or has one or more cylindrical appendages, the base typically has a persistent portion of the denticle attached. Conidia are generally smooth, and often the cells at each end are significantly paler in pigmentation than the central cells [5, 2, 6]. Species of *Camposporium* are separated mainly on conidial characters, especially size, septation, pigmentation patterns, and presence and type of apical appendage/so Although no recent review of *Camposporium* has been published, Hughes [5] accepted four species, Rao and Rao [8] treated three new species from India, and Ichinoe [6] treated six species from Japan, two being new to science. To facilitate in the identification of taxa in this genus, a dichotomous key and comparative synopsis of all currently accepted species is presented (Table 1).

MATERIALS AND METHODS

Survey of fungal specimens from selected forest area. Collection of the fungal infected plants, leaves and their parts, Study of symptomatology, Slide preparation (by scrap, mount and thin hand cut section) and microscopic investigation. Type material and other herbarium specimens have been examined in distilled water and lactic acid using an Olympus BX40 light microscope.

Material examined

On living leaves of *Bridelia retusa* Spreng. (Euphorbiaceae) March 2009, Department of Botany, Dr. H.S. Gour University, Sagar, Madhya Pradesh, India, leg. RS Thakur, S.U. Herb No. RS-BOT-51D Holotype, HCIO Isotype 51461.

Mycotaxonomic Study

Colonias epiphyllae, effusae, brunneae ad nitidusque, mycelium hypharum mergenda et partim superficiale, stroma praesens, setae et hyphopodia absentibus. Conidiophora macronemata, mononematous, erectae, rectae, raro ramosis, laevibus, lux brunneis usque brunneis, septa 1-3, 12.5-129.5x3.5-4 µm. Cellulas conidiogenas integrated terminales, polytretic, sympodial, cylindratis, subulatis, raro denticulate. [11, 12, 13].

Conidia solitaria, simplex ad subzigzag, raro tertius appendix praesens oriundum ex curvus parte, siccum, acropleurogenous, laevibus, simplicibus ad appendiculate, rarely ad septa constrictae, quandoque gnarled tumentes supra septa, (1-10, transversus et 0-1, longitudinalis), 4-6 µm crassis basalibus pars, lux brunneis vel pallide brunneis 25.5-60.5x2.5-4 µm. Appendiculae 0-2 +1, hyalinis, 1-5 transverse septa, cylindratis, fusiformes, recta vel curvata 50-169.5x4.5-5 µm moli una cum appendice attachiamenta de appendix subclavate ad simplex. Commaculare adpendices 42.5-104.5x3.5-4 µm.

In foliis vivis *Bridelia retusa* Spreng. (Euphorbiaceae) March 2009, Department of Botany, Dr. H.S. Gour University, Sagar, Madhya Pradesh, India, leg. RS Thakur, S.U. Herb No. RS-BOT-51D Holotypus, HCIO Isotypus 51461. Colonies epiphyllous, effuse, brown to glistening, mycelium of hyphae immersed and partly superficial. Stroma present, setae and hyphopodia absent. Conidiophores macronematous, mononematous, erect, straight, rarely branched, smooth, light brown to brown, septa 1-3, 12.5-129.5x3.5-4 µm. Conidiogenous cells integrated, terminal, polytretic, sympodial, cylindrical, subulate, rarely denticulate. Conidia solitary, simple to subzigzag, rarely third appendage present arising from curved part, dry, acropleurogenous, smooth, simple to appendiculate, rarely constricted at the septa, sometimes nodose swelling above septa, (1-10 transverse and 0-1 longitudinal), 4-6 µm thick at the basal part, light brown to pale brown 25.5-60.5x2.5-4 µm. Appendages 0-2+1, hyaline, 1-5 transverse septa, cylindrical, fusiform, straight to curved 50-169.5x4.5-5 µm size of single appendage, attachment of appendage subclavate to simple. Double appendages 42.5-104.5x3.5-4 µm.

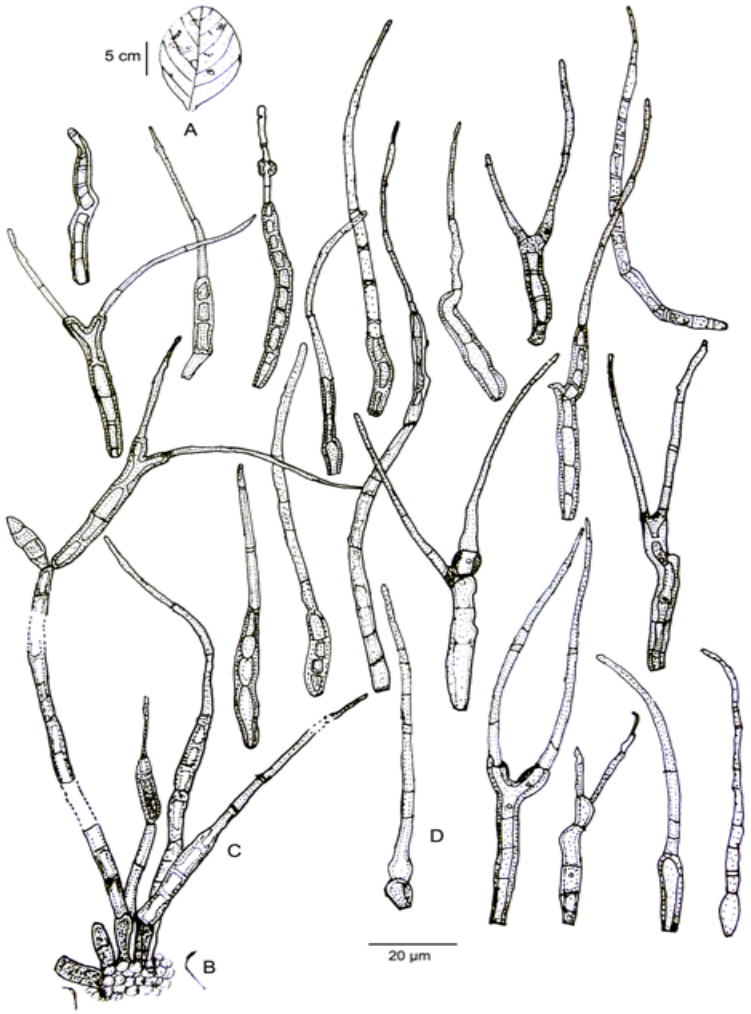

Figure 01: C*amposporium goureae* sp. nov.
A. Symptom, B. Stroma (X500), C. Conidiospores (X500), D. conidia (X500)

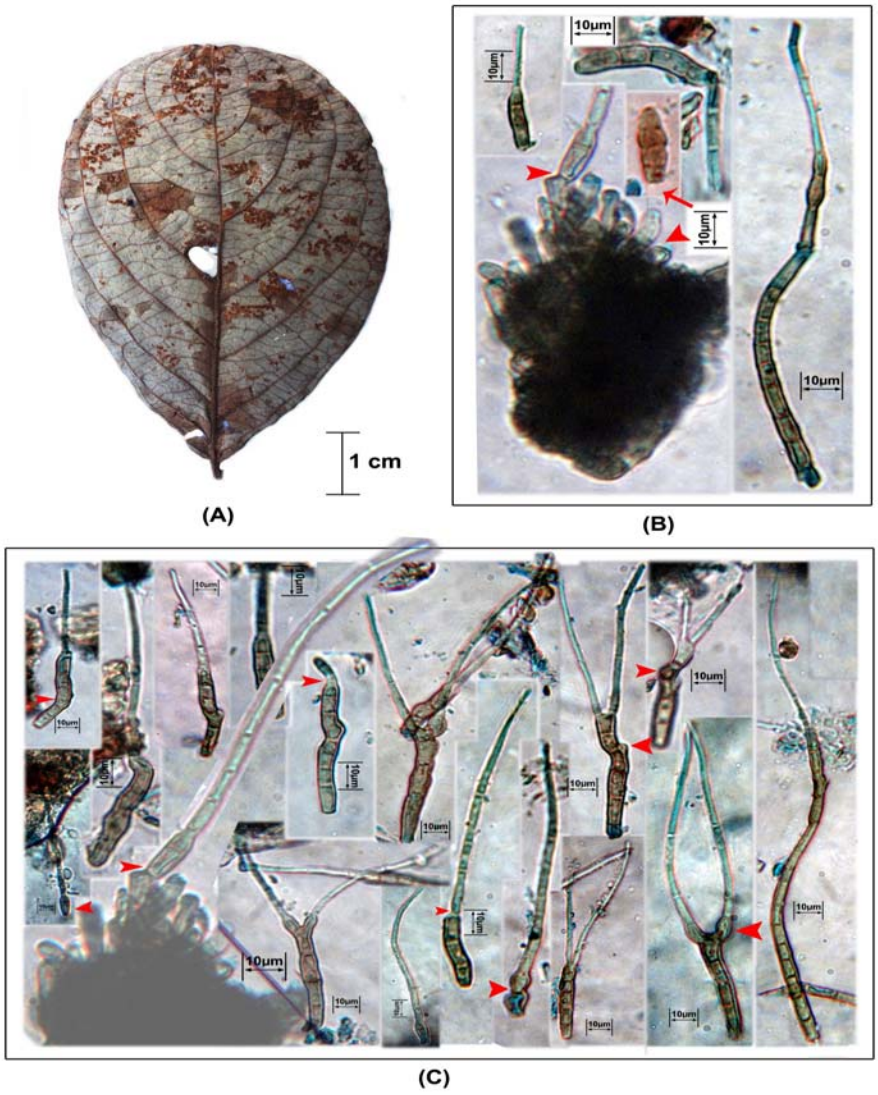

Plate 01: C*amposporium goureae* sp. nov. on
A. Symptom, B. Stroma (X500), C. Conidiophores and conidia (X500)

DISCUSSION

A large number of *Camposporium* species are reported from various host families (*C. antennatum, C. cambrense, C. fusisporum, C. hyalinum, C. hyderabadense, C. indicum, C. japonicum, C. laundonii, C. marylandicum, C. microsporum, C. ontariense, C. pellucidum* and *C. ramosu*), but none has been recorded on the host family in question (Euphorbiaceae). There we are compared with all nearest host familes revealed that *C. antennatum* Harkness [4], *C. cambrense* Hughes [5], *C. fusisporum* Whitton [10], *C. hyalinum* Abdullah [1], *C. hyderabadense* Rama Rao [8], *C. indicum* Rama Rao and [8], *C. japonicum* Ichinoe [6], *C. laundonii* Ellis (1976), *C. marylandicum* Shearer (1974), *C. microsporum* Rama Rao and Rao [8], *C. ontariense* Matsushima [7], *C. pellucidum* Hughes [5] and *C. ramosum* Whitton [10] the author's collection. It is clearly exhibited from the table that the author's species shows dissimilarities in most of the Mycotaxonomic characters (symptomatology, size of conidiophore, conidia, conidial structure, septation colour, and conidial appendages) with all the thirteen species. Therefore, the present taxon is all together distinct so much so to describe it as a new species. Just for the convenience and to show the distinct identity of the proposed species (*C. goureae*) it has been compaird with all preexisting species (Table 1). The name of the species name has been given in the Honour of Late Dr. Sir, shri Hari Singh Gour Ji founder of Dr. Hari Singh Gour central University, Sagar (M.P.).

RESULTS

Table 1: Comparative account of *Camposporium goureae* sp. nov. with allied taxa.

Species	Spots & Colonies	Conidiophores			Conidia			Appendage		
		Structure	Colour & Septation	Size (in µm)	Structure	Colour & Septation	Size (in µm)	Morphology	Septation	Length (in µm)
C. antennatum Harkness (1884).	-	-	Up to 12.	76-166 x 6 (32-166 x 5-6).	-	Pale-brown, paler end cells. 7-14 (4-14).	42-78 x 7.5-8.8 (42-90 x 6-10).	1-3 (simple).	Aseptate.	Up to 40.
C. cambrense Hughes (1951).	-	-	3-10.	22-84 x 6-7 (22-95 x 5-7).	-	Pale-brown, paler end cells, up to 15 (9-13).	62-115 x 8-10 (62-115 x 7.5-14.5).	1 (simple).	Septate.	32-126.
C. fusisporum Whitton McKenzie and Hyde (2003).	Colonies on natural substrate effuse, mycelium immersed and superficial.	Macronematousmononematous, irregularly cylindrical, strongly flexuous to twisted, erect.	Brown, 10-15.	100-145 x 6.5-10.	Wide at widest point, solitary, dry, fusoid, elongate.	Brown, paler end cells, 8-11.	86-115 x 13.5-19.	2-3 (simple).	Aseptate.	17-40.
C. hyalinum Abdullah (1980).	-	-	0-1.	10-40 x 4-6.	-	Hyaline, concolourous, 2-6.	20-75 x 3-5	1 (simple).	Aseptate.	16-55.
C. hyderabadense Rama Rao and Rao (1964).	-	-	1-3.	25.2-39.6 x 3.6-5.4.	-	Darkbrown, concolourous, 5-9.	32.4-54 x 3.6-7.2	1-4 (simple).	Aseptate.	Up to 43.2.
C. indicum Rama Rao *et.al.* (1964)	-	-	2-5.	28.5-50.4 x 3.6-7.2.	-	Dark-brown, paler end cell, 3-14.	21.6-72 x 3.6-7.2.	0	-	-
C. *japonicum* Ichinoe, (1971).	-	-	05.	375.5-77.5 x 5-6.5.	Wide at widest point.	Pale-brown, concolour-ous, 7-10.	42.5-70 x 5-7.5.	0-1(2-4 branched).	Aseptate.	Up to 36.
C. laundonii Ellis (1976).	Colonies effuse, dark blackish brown to black, mycelium partly superficial, partly immersed.	Straight or flexuous, pale brown, smooth, cylindrical.	0-2.	Up to 40 x 5-8.	Straight or slightly curved, cylindrical to fusiform, truncate at the base, smooth, thickin the broadest part.	Brown, paler end cells, 4-9.	50-150 x 13-17.	1-2 (simple).	Septate.	Up to 60.
C. marylandicum Shearer (1974).	-	-	0-5.	41-127 x 2-'3.	-	Hyaline, con-colourous, 5-10.	24.7-44 x 4.5-6.5.	1 (simple).	-	33.5-80.
C. microsporum Rama Rao and Rao (1964).	-	-	1-5.	Up to 72 x 3.6-7.2.	-	Palebrown to brown, con-colourous, 2-6.	25.8-36 x 7.2-9.	1-2 (simple).	Aseptate.	10.8-28.8.
C. ontariense Matsushima (1981).	-	-	6-8.	45-200 x 5-7.	-	Palebrown, con-colourous, 3-7 (3-9).	20-35 (20-53) x 8-12 (6.5-12).	-	-	-
C. pellucidum Hughes (1951).	-	-	Up to 10.	30 to 150 x 5-8.	-	Palebrown, paler end cells, Up to 16 (7-16).	78-140 x 7.5-12.	1 (simple).	Septate.	30-145.

Table 1 cont.

C. ramosum Whitton Mc Kenzie and Hyde (2003).	-	-	4-10.	70-138 x 5.2-6.	-	Brown, paler end cells, 8-15.	80-112 x 6.4-9.6.	1 (1-3 branched).	1-2 Septate.	20-60.
C. goureae sp. nov. (Proposed taxon).	Epiphyllous, effuse, brown to glistening, myceliu m of hyphae immersed and partly superficial, stroma present.	Macronematous, mononematous, erect, straight, rarely branched, conidiogenous cells integrated, terminal, polytretic, sympodial, cylindrical, subulate, rarely denticulate.	light brown to brown, 1-3.	12.5-129.5 x 3.5-4.	Solitary, simple to subzigzag, rarely third appendage present arising from curved part, dry, acropleuro-genous, smooth, simple to appendiculate, rearly constricted at the septa, sometimes nodose swelling above 4-6 µm.	Light brown to pale brown, sometimes nodose swelling above septa, (1-10 transverse and 0-1 longi-tudinal).	25.5-60.5x2.5-4.	0-2+1, hyaline, cylindrical, fusiform, straight to curved.	1-5 trans-verse septa.	42.5-104.5x3.5-4 double & 50-169.5x4.5-5 long with single appendage.

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