



## Some interesting hyphomycetes from North- Western Himalayas

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### ABSTRACT

*Corynespora calicioidea* (Berk. and Br.) M. B. Ellis, *Dictyoarthrinium sacchari* (J.A. Stev.) Damon and *Corynespora lanneicola* Deighton and M. B. Ellis. hyphomycetes collected from Uttarakhand and Himachal Pradesh (North- Western Himalayas), are being described and illustrated.

**Key Words:** Hyphomycetes, Systematics, Taxonomy.

### INTRODUCTION

During the investigations of saprobic hyphomycetes from the North-Western Himalayas and North India, numerous new or noteworthy fungi were encountered. Several of these have been described (Prasher et al. 2008, Prasher & Verma 2012a, b, 2014a, b, Prasher & Kaur 2014, Prasher and Singh 2014, Prasher and Sushma 2014). In this paper we report three species of Hyphomycetes viz. *Corynespora calicioidea*, *Dictyoarthrinium sacchari* and *Corynespora lanneicola* which constitute a new record for North-Western Himalayas, Uttarakhand and India respectively.

### MATERIAL AND METHODS

The specimens were collected in ziplock bags. The dried specimens were placed in polyethylene bags of suitable size, along with the required data viz. collection number, details of locality, host/substrate, date of collection and name of collector. The various mountants/stains (Kirk et al. 2008) used for the taxonomical investigation of fungi are: Amann's Lactophenol: Phenol-20 g, Lactic acid-20 g, Glycerol-40 g, distilled water 20 ml; 5% (used for mounting of microscopic structures); Potassium hydroxide: Potassium hydroxide 5 g, distilled water 100 ml (used for micro-chemical tests and softening of the study materials); Melzer's Iodine: Chloral

hydrate- 22g, Iodine -0.5 g, KI- 1.5 g, distilled water- 20 ml (used to check amyloidity of the sporulating structures); 1% Phloxine: Phloxin 1 g, distilled water 100 ml (used to stain and observe septation in spores and mycelium). The drawings of various structures like Conidia and Conidiophores were made with the help of Camera Lucida manufactured by "Irma" from slide mounts. The dried specimens were deposited in the Herbarium of Department of Botany Panjab University, Chandigarh, India (PAN).

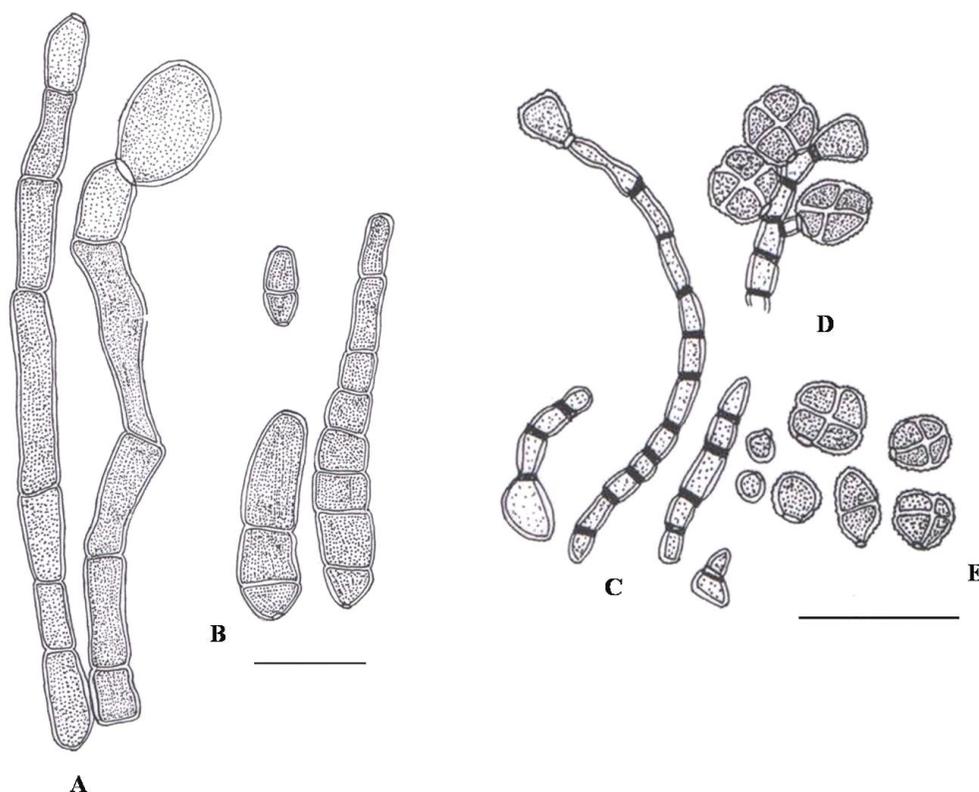
### RESULTS

Taxonomic description

*Corynespora calicioidea* (Berk. and Br.) M. B. Ellis, CMI Papers, No. 65: 9-10. 1956. **Fig 1A, B**

Colonies dark brown to black, velvety, widely effused. Mycelium immersed in the substratum, composed of branched, septate, subhyaline to pale-brown, smooth walled, 2-6 µm in diameter, thick hyphae. Stromata partly superficial, partly immersed, brown to dark brown, pseudoparenchymatous. Conidiophores arising occasionally singly from immersed hyphae but usually close together from cells of stromata in large synnema like fascicles, erect, simple, straight, or flexuous, golden brown, septate, with up to 8 successive cylindrical proliferation, 90-560 × 7.2-12.8 µm. Conidia phragmo, blasto, phaeo, formed singly through a pore

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**Fig. 1. A&B** *Corynespora calicioidea*. **A.** Conidiophores **B.** Conidia. **C-E** *Dictyoarthrinium sacchari* **C.** Conidiophores **D.** Conidiophore with attached conidia **E.** conidia. **Scale bar** = 20µm

at the apex of the conidiophore which then often proliferates through the apical pore and form another conidium at the apex of the proliferation; occasionally straight but usually curved, obclavate, tapering gradually toward the rounded apex and the truncate base, smooth, subhyaline to pale golden brown, often dark brown at the scar with 1-7 pseudosepta, 17-104 × 7.2-23.0 µm, 3-5 µm wide at scar.

**Collection examined:** I. B. Prasher, 30079 (PAN), on dead wood, Laltibba, Mussoorie (U.K.), 2290 m. Oct. 17, 2010.

The morphological description of the above fungus fits with the type description of *C. calicioidea*, but it differs from it in having:

- The length of the conidiophores is short and is 0.56 mm and not 1.7 mm.
- The conidia are short in length (17-104 µm) and wider (7.2-23.0 µm) than the length and width case of *C. calicioidea* which measure (50-170 µm long) and (10-15 µm wide).

The pseudosepta in comparison to the type description vary from 1-7 than 6-21 as referred to type species. It has previously been recorded from Allahabad and Barrakpore (West Bengal) (Bilgrami

et al. 1991 and Jamaluddin et al. 2004). It is a new record for N. W. Himalayas (Bilgrami et al. 1991 and Jamaluddin et al. 2004).

*Dictyoarthrinium sacchari* (J.A. Stev.) Damon, Bull. Torrey bot. Club 80: 164 (1953) **Fig. 1 C-E** = *Tetracoccosporium sacchari* Stevenson in Johnston and Stevenson, 1971. J. Dep. Agric. Puerto Rico 1 (4): 225, f.

Colonies effused, circular, scattered on the substratum, black, irregular, tending to be pulverulent. Mycelium internal, composed of a close network of pale brown, closely septate, branched, anastomosing hyphae, 2.5 µm. Conidiophores 8-100 × 3.2-5.6 µm, crowded, erect or bent, aggregated, cylindrical, hyaline to pale brown, with transverse septa appearing as dark bands at intervals of about 3.2-12.8 µm. Conidia dictyo, ceteri, phaeosporous, 4.8-13.0 µm in diameter, dry, dark brown, verrucose, thick-walled, cruciately septate with 4 cells somewhat spherical when young, squarish in outline and constricted at the septa, attached to the conidiophores laterally or apically, lateral and apical conidia similar, apical conidium sometimes only 1-2

celled and smooth, lateral conidia many, arising from cells of the conidiophore in a single whorl. Apical conidium is firmly fixed to the apex of the conidiophore and remaining attached even when the lateral conidia are shed.

**Collection examined:** I. B. Prasher, 30086 (PAN), on angiospermous twigs, Laltibba, Mussoorie (U.K.) 2290 m. Oct. 17, 2010.

The species in its morphology is close to the standard description of *D. sacchari* but the himalayan collection differs from the type description in having slightly smaller length of the conidiophore (100  $\mu\text{m}$  as compared to 130  $\mu\text{m}$ ).

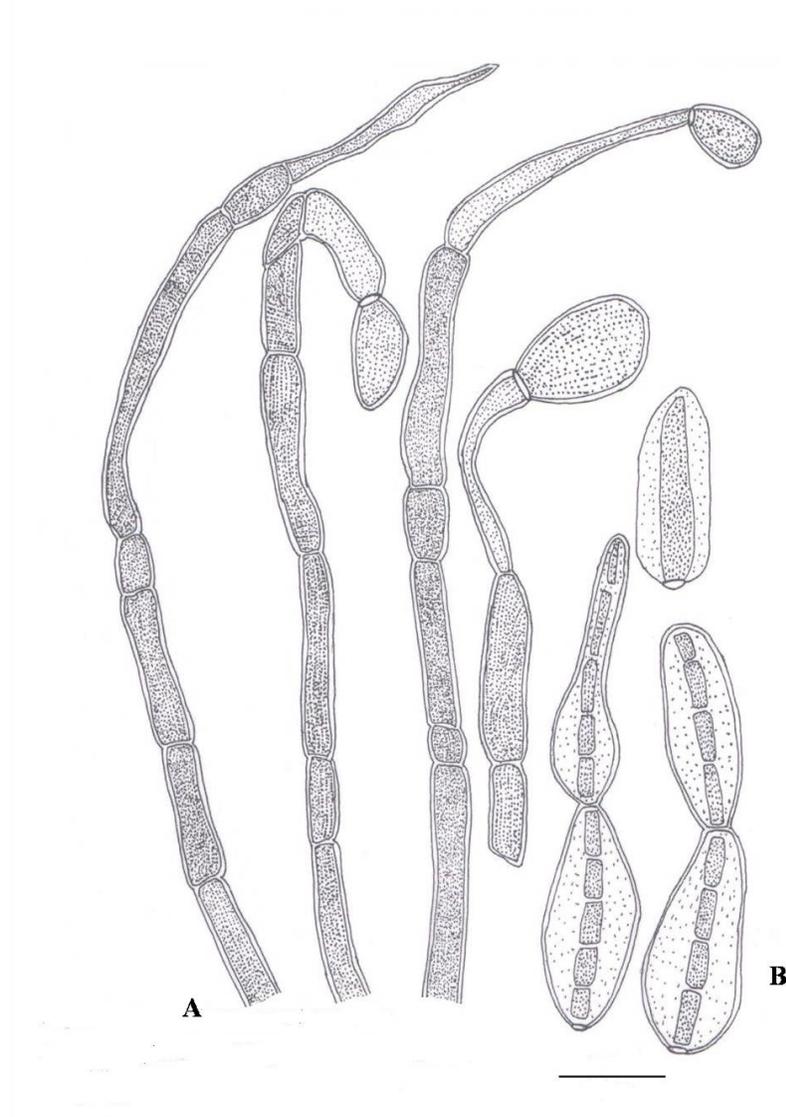
The species has been recorded by many workers from various localities in India (Bilgrami et al. 1991 and Jamaluddin et al. 2004). It is a new record for

Uttarakhand (Bilgrami et al. 1991 and Jamaluddin et al. 2004).

*Corynespora lanneicola* Deighton and M. B. Ellis. CMI papers, No. 65: 11-12, 1956

**Fig. 2**

Colonies effuse, superficial, minute, black dot like, gregarious and scattered on the substratum, composed of branched, septate, subhyaline to pale brown, smooth walled, 2-6  $\mu\text{m}$  in diameter, thick hyphae. Stromata partly superficial, partly immersed, brown to dark brown, pseudoparenchymatous. Conidiophores arising occasionally singly from immersed hyphae but usually close together from cells of the stromata in large synnema like fascicles, erect, simple, straight or flexuous, brown, septate



**Fig. 2.** *Corynespora lanneicola* A. Conidiophores B. Conidia. Scale bar =20 $\mu\text{m}$ .

with upto 3-4 successive cylindrical proliferations, 126-432 × 6.4-12.6 µm. Conidia, phragmo, blasto and phaeosporous, 12.8-108 × 8.8-21.6 µm formed singly through a pore at the apex of the conidiophore which then often proliferates through the apical pore and forms another conidium at the apex of the proliferations; occasionally straight but usually curved, obclavate, tapering gradually toward the rounded apex and truncate base, smooth walled, subhyaline to brown, often dark-brown at the scar with 3-4 pseudosepta, 3.2-7.2 µm wide at the scar.

**Collection examined:** I. B. Prasher, 30080 (PAN), on angiospermous sticks, Dharampur (H.P.), 1225 m. Sept. 19, 2010.

The species in its morphological range agrees well within the range of *C. lanneicola* but it differs from it in having:

- The length of the conidiophore is much more than *C. lanneicola* (260 µm) and is 432µm long.
- The conidia are bigger measuring 12.8-108 × 8.8-21.6 µm in comparison to type in which they are referred to measure 40-58 × 10-15 µm.
- The pseudosepta vary from 3-4, rather than 4-5 as referred to type species.
- The above species is a new record for India and N. W. Himalayas (Bilgrami et al. 1991 and Jamaluddin et al. 2004).

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