



A new arenicolous species of *Corollospora* from Iraq

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Abstract

The arenicolous *Corollospora mesopotamica* is newly described from the tidal zone of khor AL-Zubair estuary, Basrah, Southern Iraq. The fungus is distinguished by its brown, 2-4 (mostly 2) celled ascospores. The new species is described and illustrated. A key to the identification of *Corollospora* species with brown ascospores is provided.

1- Introduction

The genus *Corollospora* (Halosphaeriaceae Muller et von Arx ex Kohlmeyer, Ascomycota), typified by *Corollospora marilima* was established in 1922 by Werdermann. *Corollospora* species are characterized by carbonaceous black ascomata mostly attached to hard surfaces with a subiculum, by a central dissolving pseudo parenchyma with pit-connexions, by lateral or basal ostioles, and early deliquescing, thin-walled asci. Ascospores are hyaline or brown, smooth-walled or ridged, with or without polar primary, spine-like appendages, and with secondary sheet- or ribbon-like equatorial and polar appendages, developing by fragmentation of exospore (Kohlmeyer & Volkmann-Kohlmeyer, 1987).

During a continuous survey of ascomycetes from different substrates and from different locations of

Iraq (Abdullah & Al-Saadoon, 1944a,b; 1955; Guarro *et al.*, 1997a,b; Abdullah *et al.*, 1999, AL-Saadoon & Abdullah, 2001) an interesting ascomycete developed in a moist chamber on grains of sand collected from the tidal zone of khaw AL-Zubair estuary, Basrah, Southern Iraq. The fungus was identified as species of *Corollospora*. Its morphological characteristics differentiated it from all previously described species of the genus. In the present report the species is fully described, illustrated and proposed as new. Several attempts to cultivate ascospores of this fungus on axenic culture have proved unsuccessful. The anamorph remains unknown.

2- Materials and Methods

The sand grains samples were collected from several place, from the tidal zone of khaw AL-Zubair estuary, Basrah, Iraq during January, 2001. The samples were incubated at room temperature for up to 10 months in sterile Petri dishes size 15cm, moisted with sterile seawater obtained from the collecting site.

3- Description and discussion

Corollospora mesopotamica AL-Saadoon sp. nov. (Figs. 1-6)

Ascomata 202-247µm diametro, globosa, superficialis, ostiolata, breve papillata, carbonacea, nigra, singularia, in grains arenariis ; canalis ostioli pseudoparenchyma dilute brunneum ; paraphyses absentes ; asci 98-114 x 10-13µm, 8-spore, breve stipitata, fusiformes to sub-clavate, unitunicate, deliquescentes ante maturitatem ascosporarum; ascosporae (spinis exclusis) 30-48x10-13µm, fusiformes striatae. bi-quadro-cellulares, ceteris bi-cellulares, constrictae ad septa, brunna. appendices polares 8-15x1.5-2µm, spiniformes dilute brunneae ; appendices equaliales (15-17.5µm long) et apicales hyalines, fragmentis exosporis evolutae.

Anamorphus non foratus Holotypus: BSRA

Ascomata 202-247µm diameter, globose, superficial, ostiolate, short papillate, subiculate, solitary, attached to grains of sand, carbonaceous, black, shiny, ostiolar canal filled with a yellowish brown pseudoparenchyma, peridium composed of thick-walled cells with narrow lumina, forming a textura angularis ; subicula composed of thin-walled brown cells with large pseudoparenchymatous ; asei 98-

114x10-13µm, eight-spored, fusiform or subclavate, short stipitate, unitunicate, thin-walled, early deliquescing. Ascospores 30-48x10-13µm (excluding apical thorns and appendages), fusiform straight, 2-4 celled, usually 2-celled, constricted at the septum brown, appendaged; at both ends with a single, terminal primary appendage, 8-15x1.5-2µm, spine or thorn-like, slender, attenuate, rigid, straight or somewhat curved, at the tip with a refractive body and bearing a small cap or fibers that develop by heeling off of the exospore ; around the septum with a double frill of about 12-16 or more flexible, ribbon-shaped, canaliculate, pointed appendages. 15-17.5µm long, which develop by fragmentation of the exospore.

Mode of live : saprobic Substrate :

Sand grains **Range:** known only from khawr AL-Zubair estuary, North Arabian Gulf.

Material examined:

Holotype BSRA, Ascomata attached to grains of sand, incubated with moist tidal zone sand, khawr AL-Zubair estuary, Basrah, Iraq, salinity 28‰, 13.7. 2001, coll. A. H. AL-Saadoon.

Species of *Corollospora* are distinguished among each other primarily by their ascospores that bear characteristic ribbon like, secondary appendages. These appendages, develop by beeling off the exospore. forming apical sheets, and a double frill around the central septum (Kohmeyer & Kohmeyer, 1979 ; Jones *et al.*, 1983).



Figs. 1-6: *Corollospora mesopotamica*

1-Celled ascospore with appendages

2) 4-celled ascospore 3) 3-celled ascospore

4-5) Ascomata on sand grains 6) Ascospores with appendages

Since Werdermann's publication (1922) several species have been added to the genus *Corollospora* (Kohlmeyer *et al.*, 1967 ; Schmidt, 1969 ; Kohlmeyer & Kohlmeyer, 1971 ; Kakagiri & Tubaki, 1982 ; Jones *et al.*, 1983 ; Koch, 1986) and some seven additional *Corollospora* species have been described by Nakagiri & Tokura (1987). In the last 20yr, numerous species were added to the genus (Kohlmeyer & Volk,ann-Kohlmeyer, 1991 ; Kopytina & Andricenko. 1998). Hyde and Sarma (2000) presented a key to all 17 species described so far. *Corollospora mesopotamica* is morphologically similar to *Corollospora angusta* Nakagiri et Tokura, *Corollospora intermedia* Schmidt, *Corollospora maritime* Werdermann an/j *Corollospora cinnamomea* Koch. However. They can be easily distinguished by the following features: *C. angusta* has 4-6 celled mostly 4-celled, hyaline, longer and narrower ascospores (35-57 x 3-7.5u.rn). *C. intermedia* has hyaline, 4-celled, rarely more or less cells, shorter ascospores (25-34(36) x 7-12(im), anamorph *Varicosporina prolifera*. *C. maritime* has ascospores with 2-celled, hyaline. *C. cinnamomea* show 2-celled, shorter ascospores.

Up to now only four species of *Corollospora* were known with brown ascospores, The new fungus represents the fifth species.

Key to the species of *Corollospora* with brown ascospores

1. Ascospores muriform *C. fusca*
1. Ascospores, transverse-septate only (2)
2. Ascospores 2-celled or 2-4-celled (3)
2. Ascospores with more than 4 cells (4)

3. Ascospores 18-25 x 6-9 u.m, exclusively 2-celled, dark brown, on sand and wood. *C. cinnamomea*
3. Ascospores 30-48 x 10-13im, 2-4 mostly 2-celled, brown, on sand *C. mesopotamica*
4. Ascospores 54-72 x 6-7^m, 8-12 celled, light brown, on sand and wood *C. californica*
4. Ascospores 74-99 x 24-34am, (13-) 14-celled, dark brown, on sand and wood *C. novofusca*

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وصف *Corollospora* كنوع جديد في العراق

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الملخص

تم وصف *Corollospora mesopamica* كنوع جديد لأول مرة من منطقة المد في مصب الزبير في البصرة جنوب العراق. ويتميز هذا الفطر باحتوائه على 2-4 (غالباً 2) من الخلايا الكيسية البنية وقد تم وصف ورسم هذا النوع مع تقديم مفتاح تشخيصي لأنواع جنس *Corollospora* ذات الخلايا الكيسية البنية.
