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CYSTOTRICHIOPSIS ABBAS, SUTTON & GHAFFAR GEN.NOV., AN ADDITION TO COELOMYCETES FROM PAKISTAN

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Abstract

Cystotrichiopsis gen.nov., and *C. salvadorae* sp.nov., on *Salvadora oleoides* is described, illustrated and compared with related taxa.

***Cystotrichiopsis* Abbas, Sutton & Ghaffar gen.nov.**
Etym.: Cystotricha et opsis (Like) (facies).
Fig. 1.

Conidiomata eustromatica, immersa, separata, nigra vel dilute viridia, unilocularia vel multilocularia, globosa vel applanato-globosa, *ostiolum* singulum, circulare, centrale, parietes textura angulari compositi, regio superior conidiomatum atrior et tenuior quam regio inferior. *Conidiophora* ex cellulis interioribus parietum, unicellula vel 1-multiseptata, cylindrica ad basim multiramosa, hyalina, laevia. *Cellulae conidiogenae* laeves, hyalinae, cylindricae vel lageniformes, in conidiophoris incorporatae, enterogenicis progrevicis. Paraphyses hyalinae, laeves, irregulariter ramosae ex cellulis interioribus conidiomatum et inter conidiophora et cellulae conidiogenae intermixtae. *Conidia* primova formali hologenitica, cero enterogenitica, aseptata, laevia, hyalina vel dilute viridia, recta, fusiformia vel cylindrica, apicem obtusa ad basim truncata raro obtusa.

Sp. typ.: *Cystotrichiopsis salvadorae* Abbas, Sutton & Ghaffar sp.nov.
***Cystotrichiopsis* Abbas, Sutton & Ghaffar gen.nov.**

Conidiomata eustromatic, immersed, septate, pale green to blackish, unilocular or multilocular, globose to applanate-globose, ostiole, single, circular, central. Wall of textura angularis, usually with the upper part of the conidiomata darker and thinner than the lower part. *Conidiophores* arise from the innermost layer of the conidiomatal wall and all over the inner surface, unicellular to multicellular, when multicellular then 2- many septate, cylindrical, much branched at the base, hyaline, smooth. *Conidiogenous cells* hyaline, smooth, cylindrical to lageniform, enterogenous and progressive with 1-many percurrent proliferations. Collarette and periclinal thickening prominent, channels wide. *Paraphyses* hyaline, smooth, irregularly much branched, septate, originating from the inner surface of the conidiomatal wall, intermingled with conidiophores and almost filling the conidiomatal cavity. *Conidia* formed first hologenous, later on enterogenous, hyaline to olivaceous, aseptate, cylindrical to fusiform, apex obtuse, base truncate or sometimes obtuse, ends of the conidia brighter under low power optical microscope (probably fluorescing due to chemical composition). Sometimes paraphyses may arise from the conidiophores or bear conidia, suggesting that they are modified conidiophores.

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Fig. 1. *Cystotrichiopsis salvadorae* (A,B) V.S. of conidioma, 40X; (C) conidiogenous cells and paraphyses, 1800X; (D) conidia, 1800X.

Cystotrichiopsis is closest to *Cystotricha* Berkeley & Broome (1850) however the genera are significantly different. Both have eustromatic conidiomata which are sub-epidermal or almost superficial, unilocular and non-ostiolate in *Cystotricha*, but sub-epidermal, ostiolate, unilocular or bilocular in *Cystotrichiopsis*. The conidomatal walls in both are of textura angularis, occasionally of textura intricta in *Cystotricha*. Paraphyses are absent in *Cystotricha* but present and more developed in *Cystotrichiopsis*. Conidiophores are present in both genera but irregularly branched, obscurely septate, pale brown and rough-walled in *Cystotricha* and well-developed, septate, much branched, smooth and hyaline in *Cystotrichiopsis*. Conidiogenous cells are hyaline, terminal, lageniform and proliferate enterogenous and progressively with prominent periclinal thickenings in *Cystotrichiopsis*, compared with being pale brown, rough-walled and determinate or proliferating laterally or intercalarily in *Cystotricha* (Sutton, 1980). Conidia in both genera are hyaline or olivaceous, cylindrical or fusiform, smooth with the apices obtuse and bases truncate, but they differ in septation, aseptate conidia in *Cystotrichiopsis* and 1-septate in *Cystotricha*.

Xeroconium boreale (Karst.) Hawksworth (1981), is another taxon having some resemblance to *Cystotrichiopsis*, both taxa being similar in eustromatic conidiomata composed of thin-walled, small-celled textura angularis and lageniform, entrogenous and progressive conidiogenous cells. However, *Xeroconium* differs from *Cystotrichiopsis* in absence of conidiophores and paraphyses. Although conidia in both genera are aseptate and hyaline to olivaceous, they differ in shape and size, they are oval and small (3.5-4.5x22.5 µm) in *Xeroconium boreale* and fusiform to cylindrical and long (11.2-14.4x3.2-4 µm) in *Cystotrichiopsis salvadorae*. *Cystotrichiopsis* also has some similarity with *Sphaeropsis* but there are significant differences which separate them. Sutton (1977) was of the opinion that *Macrophoma* (Sacc.) Berl. & Vogl., is a genus separate from *Sphaeropsis* Sacc., but Sutton (1980) after examining the type of *Macrophoma sapinea* (Fr.) Petrak and *Sphaeropis visci* (Fr.) Sacc., found similarities in conidiomata, conidiogenous cells and conidial morphology. *Macrophoma* was therefore, kept in synonomy with the conserved generic name *Sphaeropsis* Sacc. *Sphaeropsis* (=*Macrophoma*) sensu Berlese & Voglino (1886) is used for taxa with larger l/b ratio and in this feature *Cystotrichiopsis* resembles *Sphaeropsis*. It differs by the eustromatic conidiomata, presence of conidiophores, paraphyses and the enterogenous progressive conidiogenous cells compared with the pycnidial conidiomata, absence of conidiophores, paraphyses and generally conidiogenous cells without progressive proliferations. *Cystotrichiopsis* also has some similarity with *Amerosporium* Speg., (Sutton, 1980) since both genera have aseptate, hyaline to olivaceous, cylindrical to fusiform conidia, enterogenous stationary conidiogenous cells and branched hyaline conidiophores. However, *Amerosporium* differs from *Cystotrichiopsis* in having setae, no conidiophores, paraphyses restricted to the lateral inner sides of the conidiomatal wall and sometimes conidia and conidiogenous cells together enclosed in a mucilaginous sheath.

Cystotrichiopsis salvadorae Abbas, Sutton & Ghaffar sp. nov.,
Fig. 1

Conidiomata eustromatica, immersa, separata, dilute viridia vel nigra, unilocularia vel bilocularia, 198-248x188-363 µm. *Ostiolum* singulum, circulare, centrale. Parietes 5-12 cellulis crassis ad 12-32 µm lati ex textura angularis compositi, regio superior conidiomatum atrior et tenuior quam regio inferior 5-12 cellulis crassi et pallide brunnea. *Conidiophora* hyalina, laevia. irreguriter ramosa ad basim, cylindrica, unicellula, raro multicellula 25-40x4-7 µm, ex cellulis interioribus parietum. *Cellulae conidiogenae* cylindricae vel lageniformes, hyalinae, laeves in conidiophoris incorporatae, 1-5 progressive, proliferationes enteroblasticae. Paraphyses hyalina, laevia, septata, irregulariter ramosa, 32-100x1.6-3.2 µm, ex cellulis interioribus conidiomatum. Conidia holoblastica, aseptata, laevia, hyalina vel dilute viridia, recta vel fusiformia vel cylindrica, 11.2-14.4 x 3.2-4.4 µm.

In ramis emortuis *Salvadorae oleoides*, Karachi, Pakistan, 3 Feb. 1975, S.Q. Abbas UCMH 759 (IMI 322594), holotypus.

Cystotrichiopsis salvadorae Abbas, Sutton & Ghaffar sp. nov.,

Conidiomata eustromatic, immersed, separate, pale greenish to black, globose to applanate-globose, unilocular to bilocular, 198-248x198-363 µm, ostiole single, circular, central, wall of textura angularis 5-12 cells thick and 12-32 µm wide, upper part of the conidiomata 5- 8 cells thick and darker than the lower part which is 5-12 cells thick but

relatively light in colour. Conidiophores hyaline, smooth, branched at the base, branches cylindrical, 25-40x4-7 µm, arising from the innermost layer of the conidiomatal wall and lining the whole locule. Conidiogenous cells cylindrical to lageniform, hyaline, smooth, integrated, with 1-5 enterogenous progressive proliferations with distinct collarettes and prominent periclinal thickenings, 12-16x2.4-3.2 µm. Paraphyses hyaline, septate, irregularly branched, 32-100x1.6-3.2 µm, intermingled with conidiophores, sometime arising from the conidiophores and bearing conidia. It is believed that they are modified conidiophores which have lost their normal function. They are so profusely developed that they almost fill the entire cavity of conidiomata. Conidia first formed hologenous later enterogenous, aseptate, hyaline to pale green, fusiform to cylindrical, straight, smooth, 11.2-14.4 x 3.2-4.4 µm.

Cystotrichiopsis salvadorae sp.nov.

On twigs of *Salvadora oleoides*, Karachi, Pakistan , 3 Feb. 1975, S.Q. Abbas UCMH 759 (IMI 322594), holotype; Karachi Pakistan, 4 Aug. 1977, S.Q. Abbas UCMH 758 (IMI 322593); Lachi, Pakistan, S. Ahmad (IMI 133444); Karachi, Pakistan, 6 Aug. 1983, S.Q. Abbas UCMH 757 (IMI 322592).

Amerosporium concinnum Petrak

On *Echinops* sp., Iran, Scharif, slide ex BPI (IMI 204124), isotype of *A. concinnum.*

Amerosporium polynematoides Speg.

On *Conium maculatum*, Buenos Aires, Argentina, Speg., slide ex LPS (IMI 103757), holotype.

Cystotricha striola Berk. & Broome

On decorticated unidentified wood, U.K., Batheastone, slide ex K (IMI 1200151), lectotype.

Xeroconium boreale (Karst) Hawksworth

On wood, Finland, 15 July 1859, P.A. Karsten, slide ex herb. Karsten No. 1493 (IMI 198492).

References

Berkeley, M.J. and C.E. Broome. 1850. 40-Notices of British Fungi. *Ann. Mag. Nat. Hist.*, 2 Ser. 5: 455-466.

Berlese, A.N. and P. Voglino. 1886. Spora un nuovo genere di Funghi Sferopsidei. *Atti Soc. Venet.-Trent. Sci. nat.*, 10: 176.

Hawksworth, D.L. 1981. The lichenicolous Coelomycetes. *Bull. Br. Mus. Nat. Hist. Bot. Series*. 9: 1-98.

Sutton, B.C. 1977. Coelomycetes VI. Nomenclature of generic names proposed for Coelomycetes. *Mycol. Pap.*, (CAB, IMI) Kew. 141: 1-253.

Sutton, B.C. 1980. *The Coelomycetes* (CAB, IMI) Kew, Surrey, U.K. pp. 696.

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