IRJSE International Research Journal of Science & Engineering
Int. Res. J. of Science & Engineering, Special Issue A10, August, 2020 SJIF Impact Factor 6.70
ISSN: 2322-0015
RESEARCH ARTICLE OPEN ACCESS

Some interesting species of aquatic hyphomycetes from Mula river in Ahmednagar District (M.S.), India

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Manuscript Details

Available online on https://www.irjse.in
ISSN: 2322-0015

Editor: Dr. Arvind Chavhan

Cite this article as:
Ghanwat SP and Aher YD. Some interesting species of aquatic hyphomycetes from Mula river in Ahmednagar District (M.S.), India, *Int. Res. Journal of Science & Engineering,* 2020, Special Issue A10: 51-54.

Article published in Special issue of International e-Conference on "Role of Science and technology in Sustainable development-2020" organized by Department of Zoology & IQAC, Digambarrao Bindu ACS College, Bhokar, Dist. Nanded, Maharashtra, India date, August 17-18, 2020.

Abstract

Present paper deals with eight species of aquatic fungi belonging to six genera of freshwater hyphomycetes found in foam samples collected from Mula river of Ahmednagar district. The foam spora represent mixture of both tropical and temperate species. Brief notes and illustration are also provided along with geographical distribution of these fungi in India.

Keywords: Aquatic Hyphomycetes, Mula dam.

Introduction

Aquatic hyphomycetes are generally found foam sample and clean fresh water habitats worldwide. Ingold [1]About more than 500 species of hyphomycetes are known from fresh water habitat, Gho and Hyde.[2]. From India a number of species were reported, Subramanian and Bhat [3], Sridhar and Kaveriappa [4-6], Chandrasekhar *et al.*[7], and Sridhar *et al.* [8]. In Maharashtra these fungi were recorded by Thakur [9], Patil and Kapidnis [10], Borse and Patil [11], Borse *et al.* [12], Patil *et al.* [13], Jadhav *et al.* [14]. The present study reports eight species of freshwater hyphomycetes fungi from Mula River in Ahmednagar district, Maharashtra over a period of two years 2018-19.

Methodology

Foam samples were collected from various points from the Mula river. The points of collection were mostly below a sharp water fall where foam was found to accumulate in the

form of thick cakes on the edges of small crevasses rocks or decaying litter. Foam was scooped up in small plastic valves and immediately fixed by adding a few drops of formalin acetic acid-alcohol mixture. They were later scanned under the microscope in the laboratory for spores of 'aquatic' hyphomycetes.

Results and Discussions

1. *Anguillospora crassa* Ingold.
Trans. Br. Mycol. Soc. 41: 365-372 (1958).
Conidia hyaline, S or L shaped 120-200 µm long and 15-20 µm wide in the middle region, tapering to 8-10 µm at the ends. Matrix: Foam sample. Loc: Mula river, Date: July- 2018. Sept, 2018. The characters and measurements of conidia of the present specimen are similar to the species *Anguillaspora crassa* hence assigned to it. Sridhar and Kaveriappa [5], collected this species first time from submerged leaves in fresh water habitat from Western Ghat forests in Karnataka. Chandrasekhar *et al.* [7], Ramesh and Vijaykumar [15], also reported this species from various fresh water bodies. This species is commonly found in the fresh waters.

2. *Anguillospora longissima* (Sacc.and Sydow) Ingold.
Trans. Br. Mycol. Soc. 25: 389 (1942).
Conidia unbranched, elongated, 8-12 septate, sigmoid with curvature in more than one plane, 200-280×2.5-3.3 µm. 74 Matrix: Foam sample. Loc: Mula river Date: Aug, 2018. Earlier this species was collected from various fresh water bodies in Western Ghat regions in South India by Subramanian and Bhat [3], Chandrasekhar *et al.* [7], Sridhar and Kaveriappa [6]. It is commonly found and is being reported for the first time from study area.

3. *Campylospora chaetocladia* Ranzoni.
Farlowia. 4:371-337 (1953).
Conidia composed of two parts, proximal half triangular, 3-4 septate, 8-12.5 µm high, 10-12 µm wide at the base, distal half allantoids, 3-4 celled, 9-13 µm long, 3.5-5 µm wide. Appendages arising from end cell setae like, 30-40 µm long. Matrix: Foam sample and submerged leaf. Loc: Madhyameshwar dam. Date: June, 2018. Jan, 2019. The characters of present fungus are similar to the species *Campylospora chaetocladia*. This species distributed commonly in fresh water bodies. This species was collected on submerged leaves of several plants from fresh water. Mangalore (Chandrasekhar *et al.* [7], Sridhar and Kaveriappa, [6], Ramesh and Vijaykumar, [15] from Western Ghat regions in Karnataka state and from Jabalpur Agrawal, *et al.* [16]. The present species is being reported first time from Ahmednagar district.

4. *Chaetendophragmia triangularia*. Matsushima
Var. africana Pirozynski. *Mycol.Pap*. 129: 42-44 (1972).
Conidiophores up to 73.2µm long 6.3-9 µm thick. Conidia with rostrum 36-40 µm long, 6.3-9 µm thick in the broadest part mostly 4 septate, rostrum usually 18-38 µm long, middle 3 cells brown, apex cell pale brown, lateral appendages 12-33 µm long narrow tapering, lateral appendages are either on one side or on both the sides, Matrix: Foam sample and submerged leaf. Loc: Mula River. Date: Sept, 2018. Nov, 2018. The characters of present collection are similar to that of original description except that the conidia are slightly smaller. Rajashekar and Kaveriappa [17]. First recorded it's occurrence in India. The species is of rare occurrence and it is being reported for the first time from Ahmednagar district.

5. *Lateriramulosa uniinflata* Matsushima.
Trans. Br. Mycol. Soc. 60:145-165 (1973).
Conidia hyaline appears as small triangles, consist of one axis, 9-11×2.5-8 µm, three branches (arms) each arm with a swollen basal part and a spike like septa. Swollen base extends to half of the upper arm. Matrix: Foam sample and submerged wood. Loc: Mula Date: Dec-2018. The present fungus is rare in occurrence. The measurements and characters to descriptions given for *Lateriramulosa uniinflata*. Sridhar and Kaveriappa [5] first reported it from Karnataka state. It is rarely encountered and is being reported for first time from Ahmednagar District.

6. *Lunulospora curvula* Ingold.
*Trans.Br.mycol.Soc.*25:339-417 (1942).
Conidia crescent-shaped, inflated in the middle, tapering towards both ends, with a conspicuous

attachment scar just below the inflated region on the convex surface 45- 60 µm. wide in the inflated region and 1.5-2.0 µm. at both ends. Matrix: Foam sample and submerged leaf. Loc: Mula River. Date: Jan, 2018. Feb, 2019. This species was first reported in India by Subramanian and Bhat [3]. This species is commonly found in the fresh waters and foam sample.

7. *Tetraploa aristata* Berk. & Br.

Mag. Nat. Hist. 2. 5:459 (1850).

Conidia 4 cell in each column. 20-35 ×12-25 µm, with appendages 12-86 µm long 3.3-6.6 µ thick at the base. 2-3.3 µm at the apex. Some times a second type of conidium is form with 2cells to each column. 6-12×6.5-10 µm with 86-350 µm long. 3.3-6.3 µm thick at the base and 1.5-2 µm at the apex. Matrix: Conidia in foam sample. 82 Loc: Mula river, Date: July. 2018. Desai and Pathwardhan, [18] Subramanian and Bhat,[3]. Collected this species from Western Ghats, Southern India. Chandrasekhar *et al.* [7], reported it from Kempu Hole River in the Western Ghats forest region, Karnataka while Ramesh and Vijaykumar,[15] collected it from freshwater habitat of Uttar Kannada, Karnataka. This species is of common occurrence and reported from many tropical and temperate regions.

8. *Triscelophorus acuminatus* Nawawi.

Trans. Br. Mycol. Soc. 64:346 (1975).

Conidia tetraradiate, each consists of a main axis tapering gradually to about 0.5µm at the apex, up to 8-septate, not constricted at the septa. Main axis 44-66 µm long and 3.5-5 µm at the widest point, the arms are connected to the basal cell by a very narrow, thread like isthmus. The arms are slightly shorter (21-54×3-4.5 µm) than the axis. Matrix: Conidia in foam sample. Loc: Mula river/Punatgaon dam/ Mula River. Date: Aug, 2018. The present fungus is common in occurrence. The characters and measurements of conidia agree with original description. This species was earlier reported from Karnataka state by Sridhar and Kaveriappa[6] Ramesh and Vijaykumar[15] Borse and Patil [11]. This species is commonly found in the fresh waters and foam sample.

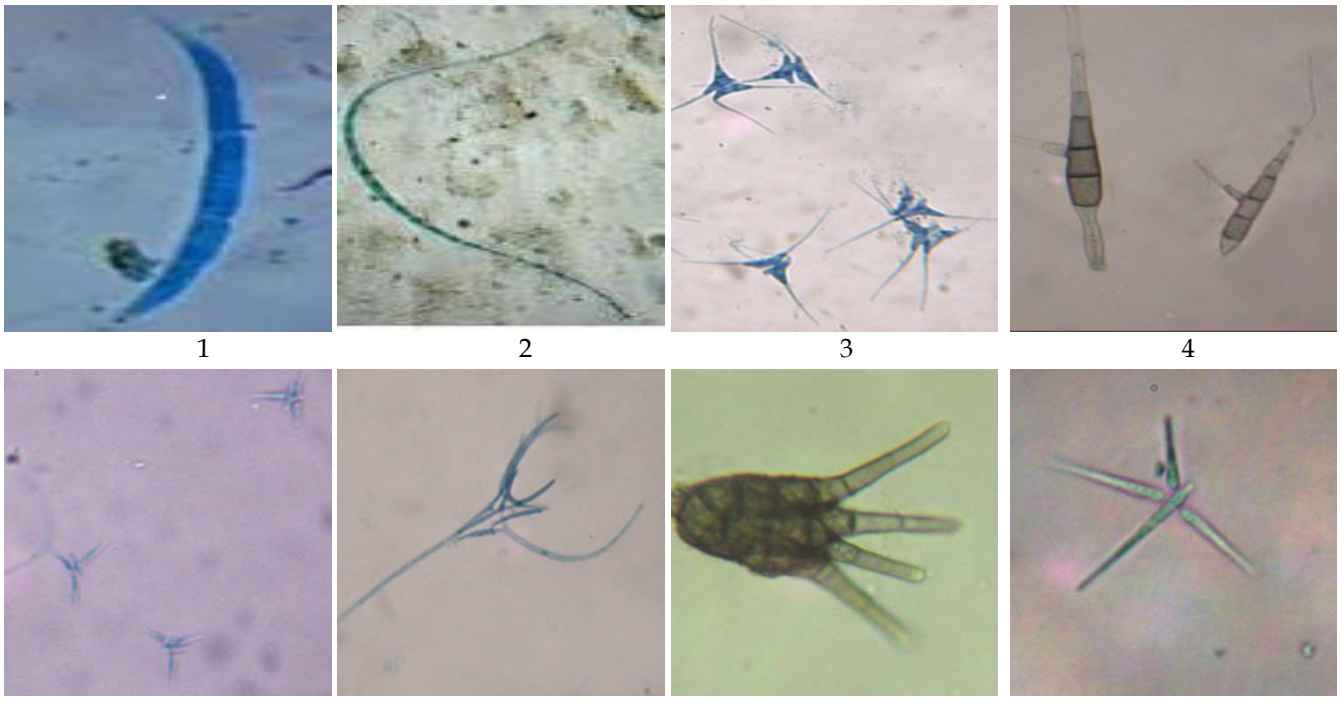

Figure: 1.1. *Anguillospora crassa* Ingold, 2.*Anguillospora longissima* (Sacc.&Sydow) Ingold, 3. *Campylospora chaetocladia* Ranzoni, 4. *Chaetendophragmia triangularia*. Matsushima var.africana Pirozynski, 5. *Lateriramulosa uniinflata* Matsushima, 6. *Lunulospora curvula* Ingold.7. *Tetraploa aristata* Berk. & Br, 8. *Triscelophorus acuminatus* Nawawi.

Conclusion

Present paper deals with eight species of aquatic fungi belonging to six genera of freshwater hyphomycetes found in foam samples collected from Mula river of Ahmednagar district. The foam spora represent mixture of both tropical and temperate species. *Anguillospora crassa* Ingold, *Lunulospora curvula* Ingold, *Tetraploa aristata* Berk. & Br, *Triscelophorus acuminatus* Nawawi. are commonly occur in study area. *Anguillospora longissima* (Sacc.and Sydow) Ingold, *Campylospora chaetocladia* Ranzoni,*Chaetendophragmia triangularia*. Matsushima var.africana Pirozynski, *Lateriramulosa uniinflata* Matsushima are rarely and reported first time from study area.

Acknowledgment:
The author thankful to the Principal Dr. Kaphapure G.B., Shri Dnyaneshwar Mahavidyalaya, Newasa, Vice-Principal Prof. Ghanwat A.J. Shri Dnyaneshwar Mahavidyalaya, Newasa. Provided Laboratory Facilities also for encouragement.

Conflicts of interest: The authors stated that no conflicts of interest.

References

1. Ingold CT. An illustrated guide to aquatic and water borne hyphomycetes (Fungi imperfecti) with notes on their Biology. Freshwater Biol. Assoc. Sci. Publ. 30, England. 1975 pp. 96.
2. Goh TK and Hyde KD. Biodiversity of freshwater fungi. *Jour. Iidust. Microbiol*, 1996, **17:328**-345.
3. Subramanian CV and Bhat DJ. Conidia from freshwater foam samples from the Western Ghats, South India, *Kavaka,* 1981, **9**: 45-62.
4. Sridhar KP and Kaveriappa KM. Aquatic fungi of the Western Ghat Forests in Karnataka. *Indian Phytopath.*1982, **37:**546.
5. Sridhar KP and Kaveriappa KM. Aquatic fungi of the Western Ghat Forests in Karnataka. *Indian Phytopath,* 1984, **35**: 293-296.
6. Sridhar KP and Kaveriappa KM. Water borne hyphomycetes spora of two freshwater streams. *Evn. and Ecol,* (1989), **7**:771-772.
7. Chandrasekhar KP Sridhar KR and Kaveriappa KM. Aquatic Hyphomycetes of the river Kempu hole in The Western Ghat forest of Karnataka. *Indian Phytopath.* 1986, **39**(3):368-373.
8. Sridhar KP, Chandrasekhar KP and Kaveriappa KM. " *Research on the Indian sub-Continent"* In The ecology of aquatic hyphomycetes (Ed Barlocher, F.) .Springer-Verlag, Berlin, Germany. 1992, pp. 182-211.
9. Thakur SB. Survival of some aquatic Hyphomycetes under dry condition. *Mycologia,* 1977, **69**:843-845.
10. Patil SD and Kapadinis BP. Stream Spora of Maharashtra *MVMP.* 1980, **14**:59-64.
11. Borse BD and Patil SY. Aquatic fungi from North Maharashtra- IV*: BRI's, J. Adv. Sci. and Tech.,* 2006, **9**:91-95.
12. Borse BD, Patil VR. and Patil SY. Aquatic fungi from Buldhana District (M.S.) *Bioinfolet*, 2008,**5**:44-47.
13. Patil DK, Patil KB and Borse KN. Some aquatic Hyphomycetes from Khandwa district of M.P., India. *Int. Res. Jour. Biolog. Sci.* 2014, **3(**6):53-56.
14. Jadhav C.S, Patil SY and Borse BD. Aquatic fungi from Nashik district-I *Rec.Res.Sci.Technol.* 2011, 13(5):17-18.
15. Ramesh CH and Vijaykumar. Studies on freshwater foam fungi of Uttar Kannada Karnataka, *Indian Phytopath* 2005, **58**(1): 84-195.
16. Agarwal DK, Agarwal GP and Pandey AK. Seasonal occurrence of aquatic hyphomycetes in different aquatic habitats at Jabalpur. *Jour.Ind.Bot.Soc*,1992, **71**:95-97.
17. Rajshekar M and Kaveriappa KM. New records of water borne Hyphomycetes from India. *Indian Phyto.* 1992, **45:17**-138.
18. Desai HS and Pathwardhan PG. Additions to the Hyphomycetes of Maharashtra. *Jour. Univ. Poona.*1974, **46:**127-133.