

Freshwater ascomycetes from north Maharashtra-IV

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Abstract

The present paper deals with two species of *Aniptodera* Shearer & Miller the freshwater ascomycetes viz. *Aniptodera chesapeakensis* Shearer & Miller and *Aniptodera lignicola* Hyde, Ho & Tsui were collected from the submerged wood samples from the various water bodies in North Maharashtra region. *Aniptodera lignicola* Hyde, Ho & Tsui is being recorded for the first time from India, while *Aniptodera chesapeakensis* Shearer & Miller is being reported for the first time from freshwater habitat from India. Brief notes and illustration are given for each taxon. Geographical distribution of each species in India is also provided.

Keywords: Freshwater ascomycetes, North Maharashtra, India.

INTRODUCTION

Alocasia indica is a plant that is normally found in the wild, it belongs to the family of Liliaceae. It is a perennial growing to 1.5m by 0.75m.

Freshwater Ascomycetes are defined as Ascomycetes which have been recorded in freshwater habitats and which complete part, or the whole of their lifecycle within freshwater environments [1, 2 and 3]. According to this definition, in addition to species of Ascomycetes that function in water, transient ascomycetous fungi present in water and terrestrial ascomycetous fungi that release spores that are dispersed in water are all regarded as freshwater ascomycetes [4]. Lignicolous freshwater Ascomycetes inhabit submerged woody material in lentic (lakes, bog, ponds, swamps, pools) and lotic (rivers, streams, creeks, brooks) habitats [3 and 4], playing an important role in recycling organic matter in the aquatic ecosystem. Thomas (1996) [2], however, states that the aquatic nature of some substrates is questionable (e. g. emerging part of a plant), therefore fungi growing on these substrates cannot be classified as freshwater fungi.

Shearer (1993) [1] listed 288 species of freshwater Ascomycetes (FA) that had been recorded from freshwater habitats; this number has grown to 577 species [5,6 and 7]. The number increased dramatically during the last ten years because numerous new taxa of FA have been recorded from submerged wood in tropical streams and other regions [8,9, 10,11, 12,13, 14,15, 16,17, 18,19,20 and 21].

MATERIALS AND METHODS

The survey was undertaken for two years (2008-2010). Monthly random collections of fifty submerged; partially decomposed

woody debris (1-5 cm diam. and 30 cm length) were made from the various sites viz. Tapti river, Panzara river, Latipada Dam, Aner Dam. The samples were returned to the laboratory keeping in plastic bags in the field and immediately examined with a dissecting microscope to locate fungal fruiting bodies. After the first observation, samples were incubated for few months on a moist paper towels in sterile plastic boxes at ambient temp. of 25^o -30^o C for three months to stimulate fungal development. Incubated samples were examined on day ten and then over three months under a dissecting microscope for fungal fruiting bodies. The fungal taxa present on the wood samples were recorded, identified and isolated. Voucher slides of the fungi reported were deposited in the mycology herbarium, P. G. Department of Botany, S. S. V. P. Sanstha's L. K. Dr. P. R. Ghogrey Science College, Dhule, M. S.

TAXONOMIC ACCOUNT

Genus: *Aniptodera* Shearer & Miller

Ascomata: globose or subglobose, immersed or superficial, ostiolate, papillate, membranaceous, hyaline to light brown.

Necks: Cylindrical, periphysate, brown at the tip.

Hamathecium: thin-walled cells filling venter of young ascomata, breaking up into catenophyses.

Asci: eight-spored, clavate, short pendunculate, unitunicate, thin-walled except for a thick-walled area below the apex, flattened and refractive at the tip, provided with a simple pore, slightly constricted below the apex, relatively persistent even after ascospore release, developing at the base of the ascomata venter.

Ascospores: ellipsoidal, 1 – 3-septate, hyaline, thick-walled, with or without appendages. The genus is represented by 9 marine and 11 fresh water species [12,22 and 23].

Aniptodera chesapeakensis Shearer & Miller

Ascomata: 180-298 µm high, 170-265 µm. in diameter, globose, subglobose or ellipsoidal, immersed or superficial, ostiolate, papillate, membranaceous, hyaline, light brown or grayish brown, solitary.

Peridium: 12-15 µm wide, composed of elongated thin-walled cells with large lumina, forming a *textura angularis*, merging into the pseudoparenchyma of the venter.

Necks: 45-289 µm long, 36-60 µm in diameter, cylindrical, periphysate, brown at or below the tip.

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Hamathecium: Thin walled cells, breaking up into catenophyses.
Asci: 64-116 x 15-36 μm , eight-spored, clavate, short pedunculate, unitunicate, thin-walled, except for a thick-walled, area below the apex, flattened and refractive at the tip, provided with a simple pore, slightly constricted below the apex, rather persistent even after ascospores release, developing at the base of ascomata venter.
Ascospores: 25-37 x 7-13 μm , ellipsoidal, one-septate, not constricted at septum, hyaline, thick-walled with appendages.

Habitat: On submerged wood.

Distribution in India

Marine habitats: Andhra Pradesh: [24]; Maharashtra: [25]; Goa [26]; Kerala and Karnataka: [27]; Andaman and Nicobar Islands: [28].

Remark: The measurements of Ascomata, Ascospores, Asci and description completely in agreement with that of *Aniptodera chesapeakensis* Shearer & Miller (1977) [29]. Therefore, it is assigned to that species. It is being reported for the first time from fresh water habitats of India.

Ascomata: 160-240 μm in diameter, globose to subglobose, partly immersed or superficial, hyaline, becoming black at maturity, membranaceous, ostiolate, papillate, periphysate. Peridium consists of compressed cells. Catenophyses present.

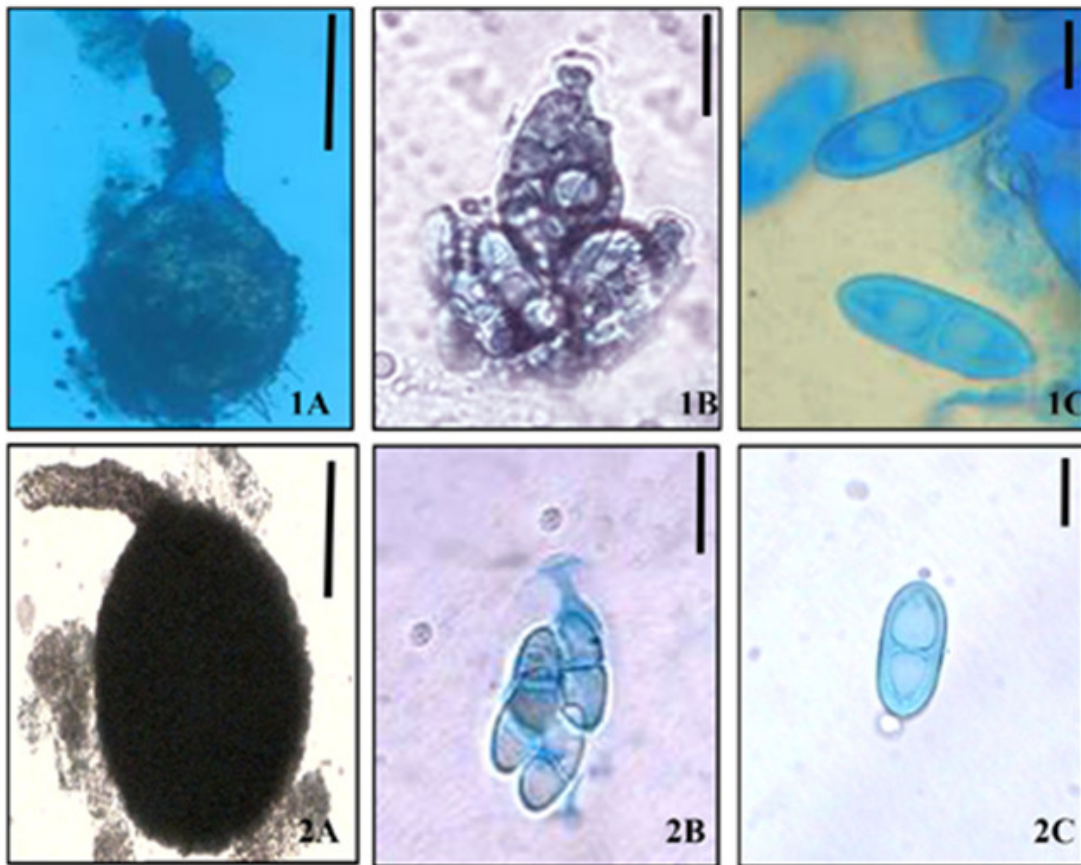
Asci: 50-64 x 14 - 18.5 μm , 8-spored, cylindrical to clavate pedicellate, thin-walled, apically truncate and thickened, with an apical pore and cytoplasm retracted below the ascus apex, persistent.

Ascospores: 16-21.5 x 6.5 - 7.5 μm , hyaline, ellipsoidal, bicelled, not constricted at the septum, relatively thin-walled (< 1 μm . thick).

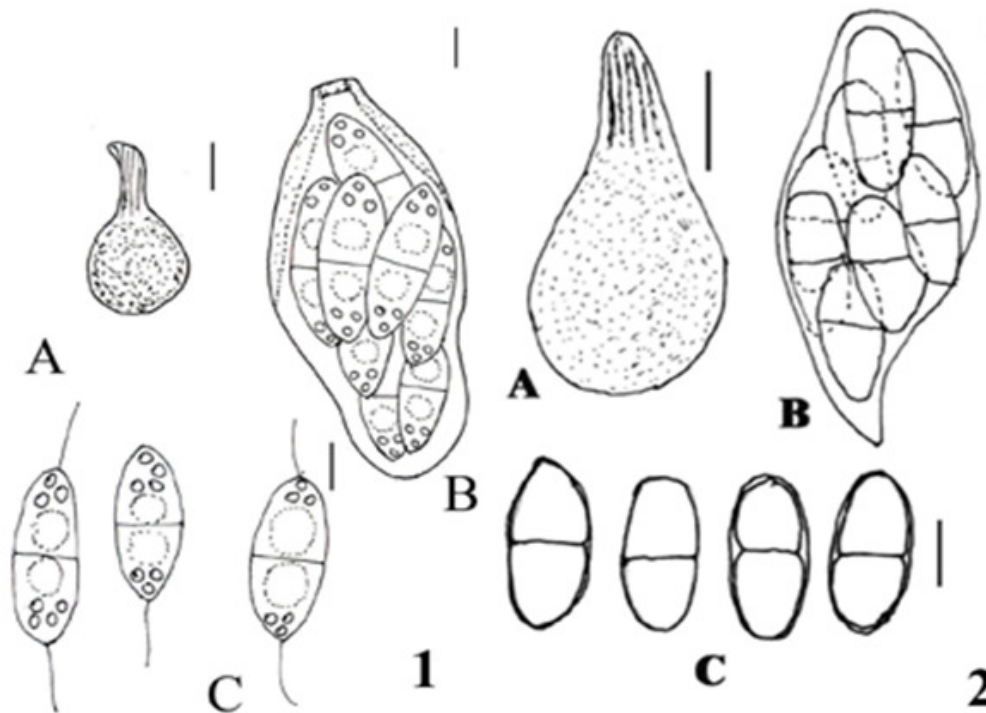
Habitat: On submerged wood.

Remark: The measurements and description of Ascomata, Asci and Ascospores completely in agreement with that of *Aniptodera lignicola* Hyde et al. (1999) [30]. Therefore, it is assigned to that species. This makes new addition to the fungi of India. *Aniptodera lignicola* Hyde, Ho & Tsui is being recorded for the first time from India, while *Aniptodera chesapeakensis* Shearer & Miller is being reported for the first time from freshwater habitat from India.

Aniptodera lignicola Hyde, Ho & Tsui



- 1) *Aniptodera chesapeakensis*
 - A) Ascomata (Scale Bar= 50 μm)
 - B) Ascus (Scale Bar=10 μm)
 - C) Ascospores (Scale Bar=10 μm)
- 2) *Aniptodera lignicola*
 - A) Ascomata (Scale Bar= 100 μm)
 - B) Ascus (Scale Bar=10 μm)
 - C) Ascospores (Scale Bar=10 μm)



- 1) *Aniptodera chesapeakensis*
 - A) Ascomata (Scale Bar= 75µm)
 - B) Ascus (Scale Bar=50 µm)
 - C) Ascospores (Scale Bar=15 µm)
- 2) *Aniptodera lignicola*
 - A) Ascus (Scale Bar=20 µm)
 - B) Ascospores (Scale Bar=20 µm)

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