



ON SOME ADDITIONS OF TESTATE AMOEBAE (PROTOZOA: RHIZOPODA) TO INDIAN FAUNA FROM COORG, KARNATAKA, INDIA

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ABSTRACT

Microbial communities living in mosses are known to constitute early indicators of ecosystem disturbances. Testate amoebae are a group of unicellular free-living protozoa which are characterized by morphologically distinct shells (tests) which play an important role in the natural ecosystems as bio-indicators. So far no study has been made in Karnataka state of India and this study was done from the moss samples received from Coorg or Kodagu of Karnataka of Western Ghats, a hotspot of India. The study revealed the occurrence of extended distribution of 12 species of testate amoebae to Coorg, Karnataka, India span over 6 families and 9 genera under two classes. 9 species were recorded under the class Lobosea and 3 under Filosea (3:1 ratio). All the species are new records to Karnataka state.

KEYWORDS: *Protozoa, Testate amoebae, Coorg, Karnataka.*

INTRODUCTION

Testate amoebae are characterised by the presence of tests that cover the entire body except the pseudopodia. These amoebae inhabit in the soil, moist places, water bodies and also in association with mosses. Mosses are distributed in soil, rock, wall and barks of trees in humid environment. They provide suitable microhabitat by providing insulation against heat, cold and wind, particularly for free living protozoa of which testate amoebae are most abundant. Nguyen *et al.* (2004) suggested that testate amoebae might be considered as potential biomonitors for atmospheric pollution. Reports on moss dwelling testate amoebae from India are meagre (Penard, 1907; Chattopadhyay and Das, 2003; Bindu, 2010, Bindu, 2013). The present communication reports some new records of testate rhizopods from Coorg, Karnataka.

MATERIALS AND METHODS

The moss samples for the present study were obtained from Dr. Nandi, Rtd. Additional Director of Zoological Survey of India. The collections were made on 29. ix. 2016 from tree bark from Abbydhama estate, Coorg, Karnataka. Kodagu or Coorg district is the smallest district in the Karnataka state with an area of 4102sqkm. It lies in eastern and western slopes of the Western Ghats at an elevation of 900 m. and extends between the latitude 12. 4244° N and longitude 75. 7382°E. The moss samples were cultured in the laboratory under room temperature with non-flooded petri dish method as described by Foissner (1992) and the tests were isolated

with a micropipette and observed under the compound microscope, Nikon Model 50i. Permanent slides were prepared and all the slides were deposited in National collections of Marine Biology Regional Centre of Zoological Survey of India, Chennai.

RESULTS

Systematic account

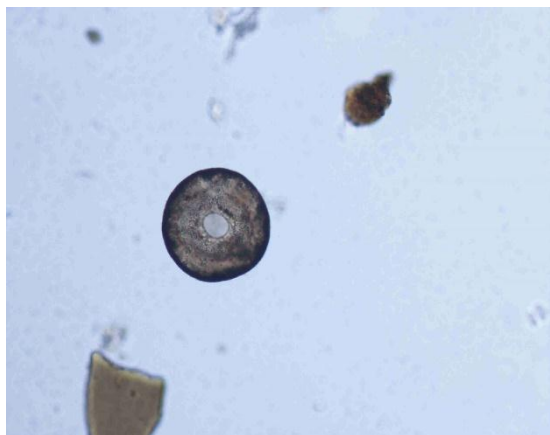
According to the recent classification of Adl *et al.*, 2005 the systematic position of the species reported herewith are as follows,

Phylum Amoebozoa
Class Lobosea
Order Arcellinida
Family Arcellidae

1. *Arcella arenaria* Greeff, 1866

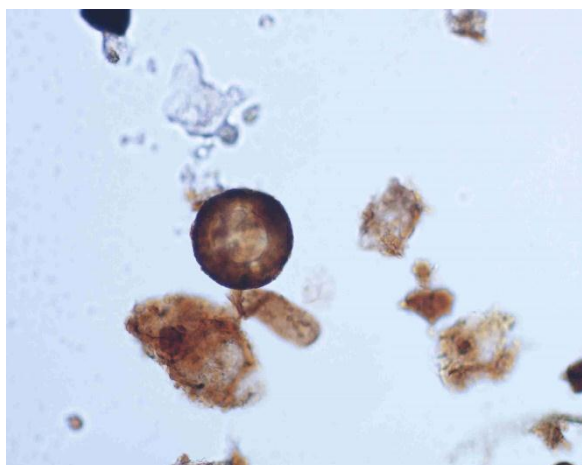
Diagnosis: Shell circular in outer view, slightly dome-shaped in lateral view; dorsal surface flattened. Shell brown in colour. Aperture small, slightly oblique, its diameter is 1/6th of the shell. Many small pores around the aperture. Height of the shell not less than half the diameter of the shell; nuclei more in number; many vacuoles are seen along the ectoplasm.

Remarks: This species is reported for the second time from India; the first report was by the author from Himachal Pradesh.



2. *Arcella megastoma* Penard, 1902

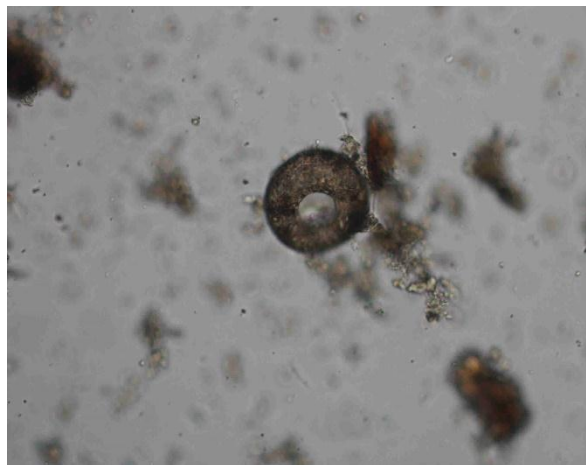
Diagnosis: Shell very flattened with a wide aperture; shell dark brown in colour; aperture/shell diameter ratio is 0.52-0.61; nuclei varies from 2 to 200.



Family Centropyxidae

3. *Centropyxis minuta* Deflandre, 1929

Diagnosis: Test small, brown, oblong-elliptical in ventral view; subspherical in lateral view with slightly more elevated posterior part; aperture always elliptical and eccentric and obliquely invaginated; test encrusted with siliceous particles.



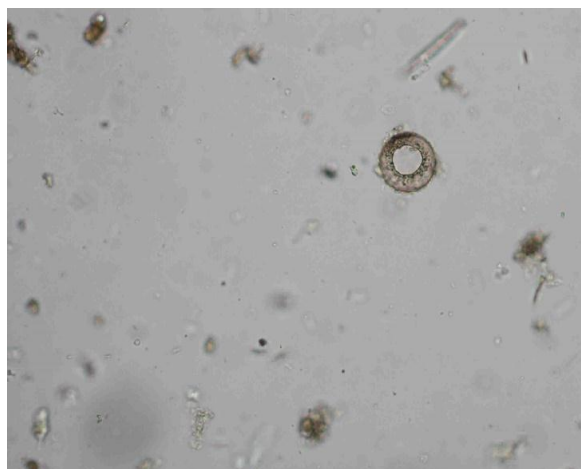
4. *Centropyxis orbicularis* Deflandre, 1929

Diagnosis: Test brownish, circular in ventral view, ventral surface flat; in lateral view test semi circular, displaying considerable invagination towards the oral aperture; oral aperture nearly semi circular, plagiostomic; test encrusted with large stony particles on its dorsal border.



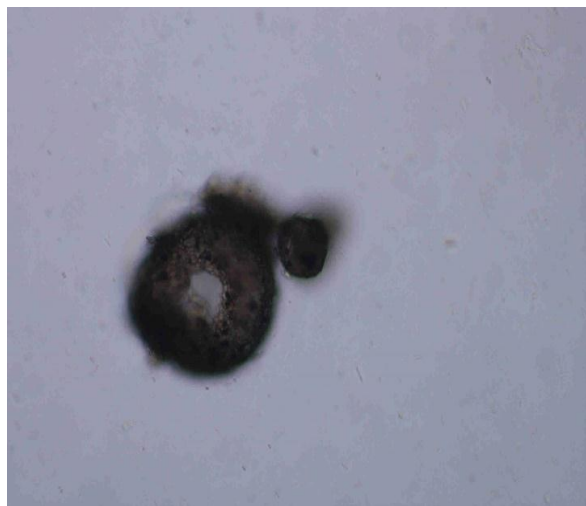
5. *Cyclopyxis eurystoma* Deflandre, 1929

Diagnosis: Test hemispherical in lateral view, circular or elliptical in ventral view; brownish, aperture central, circular and slightly invaginated with regular smooth edge and half or little more than half the diameter of the test; test encrusted with quartz particles.



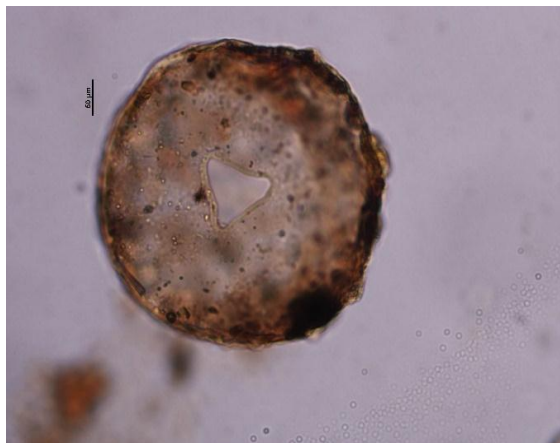
6. *Cyclopyxis kahli* Deflandre, 1929

Diagnosis: Test circular in ventral and dorsal view; slightly elliptical and brown in colour; in lateral view hemispherical, composed of xenosomes, distinct and rough on dorsal surface and smooth on ventral surface, aperture centrally located, distinctly invaginated, roughly circular with irregular edge, completely or partially bordered by regularly arranged dent like xenosomes.



7. *Trigonopyxis arcula* (Leidy, 1879), Penard, 1912

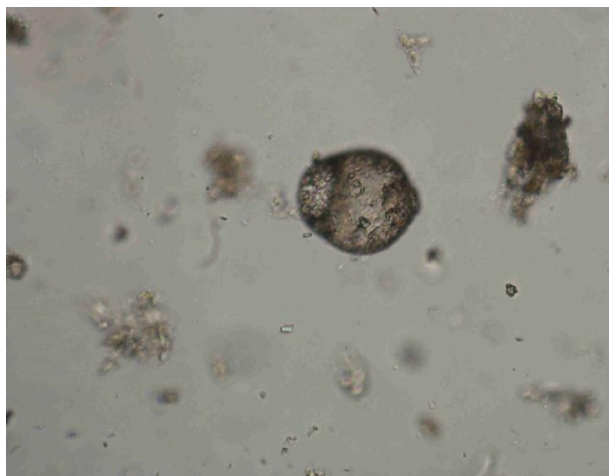
Diagnosis: Test brownish, hemispherical, aperture central, invaginated, triangular but sometimes irregular, usually surrounded by a small ring of organic cement.



Family Diffugiidae

8. *Diffugia lithophila* Penard, 1902

Diagnosis: Shell ovoid with a short distinct neck that forms a small collar; shell in cross-section circular; shell composed of small quartz particles, sometimes mixed with fragments of diatom shells; pseudostome circular.



Family Nebelidae

9. *Nebela tubulata* Brown, 1910

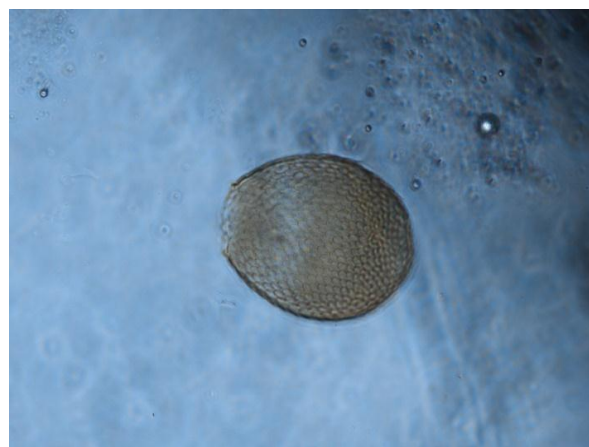


Class Filosea

Family : Assulinidae

10. *Assulina seminulum* Leidy, 1879

Diagnosis: Test yellowish to dark brown, pyriform or ovoid, compressed, composed of imbricated oval or elliptical siliceous platelets, aperture terminal, oval, surrounded by a thin chitinous membrane with irregularly dentate margin.



Family :Euglyphiidae

11. *Euglypha ciliata* Leidy, 1878

Diagnosis: Test ovoid, laterally compressed, in cross-section elliptical; aperture circular; aperture bordered by denticulated structures; body-scales oval; nucleus ovular, large with small nucleoli scattered throughout the nucleoplasm.



12. *Trinema lineare* Penard, 1890

Diagnosis: Test hyaline, elliptic or elongate, formed of circular platelets of different sizes, aperture circular, oblique, invaginated, bordered by toothed apertural platelets.



SUMMARY

The study revealed the occurrence of extended distribution of 12 species of testate amoebae to Coorg, Karnataka, India span over 6 families and 9 genera under two classes. 9 species were recorded under the class Lobosea and 3 species under Filosea (3:1 ratio). The number of species will definitely can be well revised in the light of future thorough research and this is a preliminary report of the testate amoebae of Coorg, Karnataka.

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