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FRESH WATER MICROSCOPIC ANIMALS SPOTTED IN TELANGANA

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Abstract: India is home to an impressive 81,000 animal species, representing about 6.4% of the world's animal biodiversity, placing it sixth globally. Among these, insects dominate India's fauna, with around 57,000 species. Telangana, a relatively new state in India, boasts rich biodiversity thanks to its natural features like rivers, streams, ponds, lakes, deciduous forests, red and black soil types, and semi-arid climate.

Several insect species found in Telangana are not exclusive to the region but also occur globally. During our field exploration, we identified lesser-known fresh water microscopic animal species, which are detailed in this presentation. These species include: Tardigrada, Euchlanis, Chaetonotus, Coleps, and Dorilaimus. Taxonomically, they belong to. These species were primarily observed during the monsoon season, typically from June to September.

Keywords: Fresh Water organisms, Water piglets, Nematodes, Gastrotrichs and Microscopic animals.

I. INTRODUCTION:

Every organism around us plays a unique and vital role in maintaining ecological balance, depending on other species for food, shelter, and survival. Disruption to one can have ripple effects on many others. Biodiversity

encompasses vast differences in habits, habitats, structures, and genetic makeup among organisms. Studying this diversity is essential to preserving ecological harmony, which in turn contributes to sustainable socio-economic development. Telangana, in southern India, is a biodiversity hotspot, especially rich in invertebrate life, supported by its network of rivers and water bodies, dry deciduous forests, and semi-arid climate. A large number of species emerge in their natural environments during the rainy season (June to September). Some species native to South India and others found internationally are also recorded in Telangana.

Significance of the Topic:

Invertebrates are vital to ecological stability. Researching them offers valuable insights into environmental processes and biodiversity conservation.

Existing Knowledge:

Prior research has reported numerous microscopic fresh water animal species in Telangana, including both ecologically important and pest species.

Knowledge Gap:

Despite these findings, there is limited understanding of the evolutionary development and ecological impact of these species within the region.

Rationale:

Gaining deeper insights into the ecological functions and evolutionary background of Telangana's invertebrates is key to conserving biodiversity and supporting environmental protection efforts.

Research Question:

What evolutionary pathways and ecological roles do microscopic fresh water animal species in Telangana follow, and how can this knowledge contribute to environmental preservation?

Aim and Objective:

This research aims to catalog microscopic fresh water animal species in Telangana and explore their evolutionary backgrounds and roles in local ecosystems.

Hypothesis:

It is proposed that microscopic fresh water animal in Telangana have diverse evolutionary lineages and play essential roles in ecosystem functioning. Preserving these species could significantly enhance biodiversity conservation in the state.

Methodology:

Species were documented through photography, enabling detailed observation of their anatomical and morphological traits. Habits and habitats were recorded through field study. Identification was supported by reverse image search tools (e.g., Google Lens), allowing comparison with existing data. Taxonomic classification was based on the physical characteristics observed during the study.

1. Tardigrada

Phylum: Tardigrada Class: Heterotardigrada:
Order: Echiniscoidea: Family: Echiniscidae
Genus: Echiniscis Species: Echiniscis.

Tardigrades are commonly known as water bears or moss piglets, are a phylum of eight-legged segmented micro-animals. Tardigrades live in freshwater. They can easily be found living in a layer of water on lichens and mosses. Tardigrades use a special spike that allows them to eat the animal or plant cell fluids, and then a "sucker" to pick up the fluids. During dangerous situations Tardigrades exhibit a unique feature called cryptobiosis. It is believed that, it can withstand extreme higher and extreme lower temperatures. It can tolerate starvation

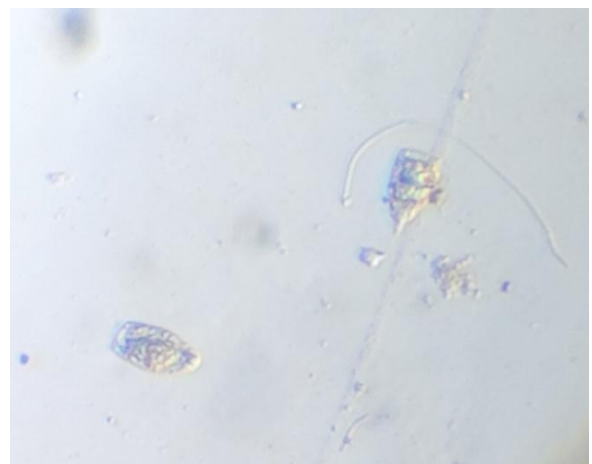
and dehydration for a prolonged period. Tardigrades are known to have ability to survive after exposure to high radiation by its sophisticated DNA repair mechanisms. Spotted in Telangana 2025.



2. Euchlanis

Phylum: Rotifera, Class: Eurotatoria, Subclass: Monogononta, Superorder: Pseudotrocha, Order: Ploima, Family: Euchlanidae. Genus: Euchlanis: Species: dilatata.

Euchlanis is a genus of rotifers, sometimes alternatively referred to as wheel animalcules. The body consists of two plates, dorsal and ventral, the dorsal one being much the large, about twice as wide as the ventral. Spotted in Telangana 2025.



3. Chaetonotus heideri

Phylum: Gastrotricha,
Order: Chaetonotida,
Family: Chaetonotidae,
Subfamily: Chaetonotinae,
Genus: Chaetonotus Species: heideri

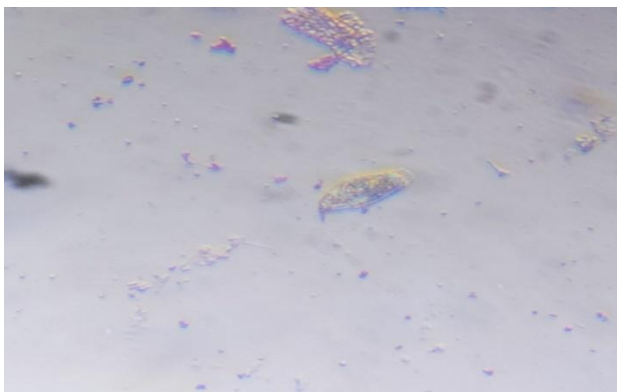
Chaetonotus is the freshwater gastrotricha animal spotted in Telangana. It has a worldwide distribution and encompasses 37 species predominantly living in the benthos and periphyton of limnetic habitat. Body covered dorsally and dorsolaterally by nine alternating columns of partially imbricated scales.



4. Colepshirtus,

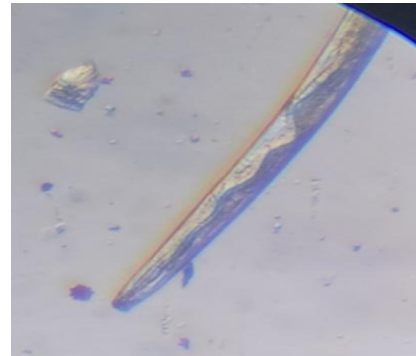
Phylum: Ciliophora, Subphylum: Intramacronucleata, Infraphylum: Ventrata, Class: Prostomatea, Order: Prorodontida, Family: Colepidae
 Genus: Coleps, Species: hirtus

Coleps hirtus, a type of ciliated protozoan, has been reported from various locations in India, including Osmanabad and Nashik. These ciliates are typically found in freshwater environments like reservoirs and ponds. It's a common freshwater ciliate with a barrel-shaped body and is known for its spiny armor. The body of the genus Coleps is barrel shaped and covered in regularly arranged prominent ectoplasmic plates. These plates are composed of amorphous calcium carbonate. There are about 20 longitudinal rows of pellicular plates. The oral aperture is circular and it is surrounded by special plates. It is a common holotrich ciliate in fresh water habitats, especially in situation where algae and other plant material has begun decompose. Spotted in Telangana-2025.



5. Dorylaimus

Phylum: Nematoda, Class: Enoplea, Order: Dorylaimida, Family: Dorylaimidae, Genus: Dorylaimus.



Large Nematodes measure 2 to 9 mm in length. Cuticle thick with longitudinal ridges.

Lip region slightly offset from body contour; lips somewhat separated and strong odontostyle. Guiding ring double near anterior of odontostyle. Esophagus muscular, wider posterior portion about 50% of length. Female genital system diovarial, amphidelphic. Vulva a transverse slit. Male with numerous, small, ventromedian supplements. Female tail elongate to filiform; male tail short and rounded. Spotted in Telangana-2025.

II. REFERENCES:

- [1]. Wallace, R.L. & T.W. Snell, 2010, Rotifera, 173-235.
- [2]. Miller, William, 2017, Tardigrades, Retrieved 13 April 2018.
- [3]. Schwank, P. & T. Kanneby, 2014, Contribution to the freshwater gastrotrich fauna of wetland areas of southwestern Ontario (Canada) with redescription of seven species and a check-list for North America, doi:10.11646/zootaxa.3811.4.3.
- [4]. Balsamo, M. L. Pierboni, P. Grilli & P. Plazi, 2009, Taxonomic and nomenclatural notes on freshwater Gastrotricha, doi:10.11646/zootaxa.2158.1.1.
- [5]. Bindu, L., 2008, Freshwater ciliates (protozoa) from Kolkata wetland, West Bengal, in press.
- [6]. Pawar, Sharda Balaji, 2015, Two Species of Genus: Coleps (C. Hirtus & C. Elongatus) Found In Reservoir at Dhanegoan, Osmanabad (Ms), IND, Page: Volume-4 | Issue-7.
- [7]. Dhanapathi, M.V.S.S.S., 2000, Taxonomic notes on the Rotifers from India (from 1889–2000), 1–180pp.



- [8]. cfb.unh.edu, [No Date Available in Source], *Euchlanis dilatata* Ehrenberg, 1832, URL.
- [9]. GBIF Secretariat, 2023, *Euchlanis dilatata* Ehrenberg, 1832 in GBIF Backbone Taxonomy. Checklist dataset, doi:10.15468/39omei.
- [10]. Wickham, Stephen A. & Eva Gugenberger, 2008, Evaluating inducible morphological defences in the common freshwater ciliate, *Coleps hirtus*, doi:10.1093/plankt/fbn076.
- [11]. Andrassy, I., 2009, Free-living Nematodes of Hungary III, 60.
- [12]. Asghar U, Mukherjee I, Sonntag B, de Paula CP, Kasalický V, Bulzu P-A, Singh A, Shabarova T, Piwosz K, Šimek K (2025)
- [13]. Morphological and molecular analyses of season-specific responses of freshwater ciliate communities to top-down and bottom-up experimental manipulations. *mSystems* 0: e00304-25.
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