

Vol 4 Issue 7 Jan 2015

ISSN No :2231-5063

International Multidisciplinary
Research Journal

Golden Research
Thoughts

Chief Editor
Dr.Tukaram Narayan Shinde

Publisher
Mrs.Laxmi Ashok Yakkaldevi

Associate Editor
Dr.Rajani Dalvi

Honorary
Mr.Ashok Yakkaldevi

Welcome to GRT

RNI MAHMUL/2011/38595

ISSN No.2231-5063

Golden Research Thoughts Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial board. Readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

International Advisory Board

Flávio de São Pedro Filho Federal University of Rondonia, Brazil	Mohammad Hailat Dept. of Mathematical Sciences, University of South Carolina Aiken	Hasan Baktir English Language and Literature Department, Kayseri
Kamani Perera Regional Center For Strategic Studies, Sri Lanka	Abdullah Sabbagh Engineering Studies, Sydney	Ghayoor Abbas Chotana Dept of Chemistry, Lahore University of Management Sciences[PK]
Janaki Sinnasamy Librarian, University of Malaya	Ecaterina Patrascu Spiru Haret University, Bucharest	Anna Maria Constantinovici AL. I. Cuza University, Romania
Romona Mihaila Spiru Haret University, Romania	Loredana Bosca Spiru Haret University, Romania	Ilie Pinteau, Spiru Haret University, Romania
Delia Serbescu Spiru Haret University, Bucharest, Romania	Fabricio Moraes de Almeida Federal University of Rondonia, Brazil	Xiaohua Yang PhD, USA
Anurag Misra DBS College, Kanpur	George - Calin SERITAN Faculty of Philosophy and Socio-Political Sciences AL. I. Cuza University, IasiMore
Titus PopPhD, Partium Christian University, Oradea,Romania		

Editorial Board

Pratap Vyamktrao Naikwade ASP College Devrukh,Ratnagiri,MS India	Iresh Swami Ex - VC. Solapur University, Solapur	Rajendra Shendge Director, B.C.U.D. Solapur University, Solapur
R. R. Patil Head Geology Department Solapur University,Solapur	N.S. Dhaygude Ex. Prin. Dayanand College, Solapur	R. R. Yaliker Director Managment Institute, Solapur
Rama Bhosale Prin. and Jt. Director Higher Education, Panvel	Narendra Kadu Jt. Director Higher Education, Pune	Umesh Rajderkar Head Humanities & Social Science YCMOU,Nashik
Salve R. N. Department of Sociology, Shivaji University,Kolhapur	K. M. Bhandarkar Praful Patel College of Education, Gondia	S. R. Pandya Head Education Dept. Mumbai University, Mumbai
Govind P. Shinde Bharati Vidyapeeth School of Distance Education Center, Navi Mumbai	Sonal Singh Vikram University, Ujjain	Alka Darshan Shrivastava Shaskiya Snatkottar Mahavidyalaya, Dhar
Chakane Sanjay Dnyaneshwar Arts, Science & Commerce College, Indapur, Pune	G. P. Patankar S. D. M. Degree College, Honavar, Karnataka	Rahul Shriram Sudke Devi Ahilya Vishwavidyalaya, Indore
Awadhesh Kumar Shirotriya Secretary,Play India Play,Meerut(U.P.)	Maj. S. Bakhtiar Choudhary Director,Hyderabad AP India.	S.KANNAN Annmalai University,TN
	S.Parvathi Devi Ph.D.-University of Allahabad	Satish Kumar Kalhotra Maulana Azad National Urdu University
	Sonal Singh, Vikram University, Ujjain	

Address:-Ashok Yakkaldevi 258/34, Raviwar Peth, Solapur - 413 005 Maharashtra, India
Cell : 9595 359 435, Ph No: 02172372010 Email: ayisrj@yahoo.in Website: www.aygrt.isrj.org



GRT **TWO SPECIES OF GENUS: COLEPS (*C. HIRTUS* & *C. ELONGATUS*) FOUND IN RESERVOIR AT DHANEGOAN, OSMANABAD (MS), INDIA.**

Pawar Sharda Balaji

M.Sc., Ph.D (Zoology).

Abstract:-Coleps is barrel –shaped free-living ciliated protozoa which is belong to the Family Colepidae (Ehrenberg 1838), which represented the following characters- “Brosse is as three inconspicuous short files of dikinetids, calcium carbonate plates in cortex and often with anterior or posterior spines”. In the present investigation, author has identified and re-described a species of genus Coleps. *C. hirtus* & *C. elongates*. It is first time reported from Osmanabad region.

Keywords:Ciliated protozoa, Coleps, *C. hirtus*, *C. elongates*.

INTRODUCTION

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 present study include the identification and re-description of two species if genus Coleps namely *C. hirtus* and *C. elongatus*.

MATERIALAND METHODS:

The water samples were collected from reservoir at Dhanegoan, Osmanabad (MS). The observations on ciliates were done after their movements were slowed down with methyl cellulose. For fixation Schaudinn’s fluid was permanent preparation was made by Dry Sliver Impregnation (Klein, 1928, 1958) and tungsto phosphoric for Haematoxyline method.

RESULTAND DISCUSSION:

Description of the Genus:

The genus Coleps is first reported by Nitzsch in 1827 and is a member of Class Prostomatea (Schewiakoff, 1896). Now previously it is considered as a member of class Kinetofragminophora, and Order Prorodontida. The members of this Class Prostomatea, somatic monokinetids are usual with radial transverse ribbon, slightly convergent postciliary ribbon and anteriorly directed kinetodesmal fibril that does not overlap those of other kinetids. Cytostome is apical to subapical, oral dikinetid postciliary ribbon that extend laterally from each dikinetid, Overlapping one another and in some species forming a circular microtubular band that supports the walls of a shallow pre-cytostomal cavity with rhabdos like cytopharyngesl apparatus, stomatogenesis ventral with migration of cytostome to apical position following cytokinesis.

According to J. O. Corliss the individuals of Order Prorodontida possess an apical or slightly subapical and ventral cytostome which permanently open to the surface. In some species the mouth opening is rounded or oval in outline may be little sunken in a slight invagination or shallow atrium or an unadorned oral groove may be present. Toxicysts are generally present but are considered somatic in nature i.e. they are seldom in direct association with the oral area are sensu strict mucocysts are common. The cytopharyngeal complex is still of the rhabdon type. The

individuals of this order, in which the cytostome is apical to subapical, bross of kinetid units often as three or more files of dikinetids are varying from parallel to perpendicular to body axis and developing on parental ventral surface. Extra oral toxicysts usually near kinetids of brosse. Stomatogenesis is basically of the telokinetal type and cytokinesis precedes its completion. The brosse is apparently reported at the same time (Dragesco et al 1974)

Body form is barrel-shaped; with regularly arranged ectoplasmic plates; cytostome at anterior end, surrounded by slightly longer cilia; often spinous projection at or near posterior end; one or more long caudal cilia (Kudo, 1966). The species of this genus has the barrel shaped body cytostome is at anterior side of the body and it directly open to the outside. It is surrounded by slightly longer cilia. Pellicular plates are present, which are regularly arranged in longitudinal rows and their number varies from species to species. There are two to eight spinous projections are present at or near the posterior end of the body. Some of the species possess one or more long caudal cilia at the posterior end.

Genus Coleps represents following species.

Coleps hirtus Muller, 1786

C. elongatus Ehrenberg, 1838

C. spiralis Noland, 1925

C. bicuspis Noland, 1925

C. octospinus Noland, 1925

C. heterocanthus Noland, 1925

Present author has identified and re-describe the *C. hirtus* Muller (1786) and *C. elongatus* Ehrenberg (1838).

C. hirtus Muller (1786)

DESCRIPTION OF THE SPECIES:

The body of *Coleps hirtus* 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. In present study 14 to 19 longitudinal rows of plates are observed. The present species is ranging from 70-110 μ in length and 40-63 μ in width.

The body of the *Coleps hirtus* is anterior as well as posterior is rounded or slightly flattened which is tooth like projection of the 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. There are three spinous processes at the posterior end of the body. Ciliation is uniform over the whole body i.e. in regular longitudinal kineties along the striation in the plates. The movement of *Coleps hirtus* is circular and it swims rapidly.

Present author collected this species from freshwater reservoir at Dhanegoan.



Figure 1 : *C. hirtus*.

COMMENTS:

Genus Coleps was first reported by Nitzsch (1827), many other workers such as Stein (1867), Fromental (1874), Kent (1880-1882), Maupas (1885, 1888, 1889), Butschli (1887-1889), Schewedkoff (1893, 1896), Rous (1901), Bhatia (1961, 1936), Ghosh (1921), Gulati (1925), Noland (1925, 19336), Lepsi (1926), Sandon (1927), Kahl (1935), Bick (1972, 1974), Mahajan and Nair (1974), Foissner et al., (1994), Kasai (2001) and Kiyose (2001, 2003) reported the same genus, Shaikh (2006), Deshmukh (2010) also reported the same species of the genus.

Body barrel shaped with regularly arranged pellicular ectoplasmic platelets, which are the main characteristics of the genus Coleps. *C. hirtus* is long and has twenty longitudinal rows of pellicular platelets *C. elongatus* has fourteen to seventeen rows of pellicular platelets while there are sixteen rows of platelets in *C. bicuspis* and in *C. octospinus* there are about twenty four rows of platelets. In *C. spiralis* having twenty three longitudinal rows

of platelets.

Noland reported sixteen longitudinal rows of pellicular platelets while Rao (1979) reported fourteen to sixteen rows of platelets, Shaikh (2006) observed fourteen to eighteen platelets in *C. hirtus* while present author reported fourteen to nineteen longitudinal rows of platelets. It is found to be more close to *C. hirtus*, *C. elongatus* and *C. bicuspis* but differ from *C. elongates* in body shape. Present species is broader than the *C. elongatus*.

Coleps hirtus is differing from *C. bicuspis* which has two posterior processes. *C. elongates* has three posterior processes and present species has three posterior processes at posterior end and body is barrel shaped. *C. hirtus* also has three posterior processes and barrel shaped body hence resembles to *C. hirtus*. It also differs from *C. octospinus* which has eight spines posterior processes.

Present species has lack of caudal cilium as in *C. elongatus* also lack of caudal cilium and hence differ from *C. bicuspis* and *C. spiralis* as these have a long caudal cilium at the posterior end.

Present species also reported by Shaikh (2006) reported 14 to 18 longitudinal rows of plates and body measured about 73 to 116 μ in length and 44 to 62 μ in width. Present author reported the same species of the same genus it is about 14 to 19 longitudinal rows of platelets and body is measured about 70 to 110 μ in length and 40 to 63 μ in width. Rao (1979) has also reported same species *C. hirtus* it is 95-103 μ in length and 70-78 μ in width.

After discussion and comparison of the present species from all the species of genus Coleps, this species found to be more close to *C. hirtus* and rediscrined here as *C. hirtus*.

***C. elongatus* Ehrenberg, 1838**

Description of the species:

The individual of this species have barrel shaped body. Body of this species covered by regularly arranged prominent ectoplasmic pellicular plates which are made up of amorphous calcium carbonate. Body is elongated and measured about 14.60 μ to 21.5 μ in width and 36.87 μ to 42.99 μ in length.

Anterior end of the body is somewhat flattened while posterior end is rounded. Oral aperture is circular and surrounded by slightly long cilia. At the posterior end there are three spinous specs are observed. Body has uniform ciliation along regular longitudinal rows of plates. The ciliate moves along the axis with a moderate speed and also swims in a circular path. They are commonly found in all type of water containing organic detritus. It also occurs in reservoir, lakes and ponds. They are feed on saprophytically upon other protozoan and on algae, flagellates and small ciliates or rotifers.

Present author collected this species from freshwater reservoir at Dhanegoan



Figure 2: *C. elongates*

COMMENTS:

Body is barrel shaped with regularly arranged pellicular ectoplasmic platelets, which is the main characteristic of the genus Coleps. Coleps was first reported by Nitzsch (1827), Shaikh (2006), Deshmukh (2010) also reported the genus of the same species.

Coleps elongatus has fourteen to seventeen rows of platelets, *C. hirtus* is long and has twenty longitudinal pellicular platelets, while there are sixteen rows of platelets in *C. bicuspis* and *C. octospinus* there are about twenty four row of platelets present. *C. spiralis* is having twenty three longitudinal rows of platelets.

Deshmukh (2010) reported sixteen to eighteen longitudinal rows of these pellicular platelets. Present author

reported fourteen to seventeen longitudinal rows pellicular platelets. In number of rows of platelets it is found to be more close to *C. hirtus*, *C. elongatus* and *C. bicuspis* but differ from *C. hirtus* in body shape. Present species is slender and narrow than *C. hirtus*. *C. hirtus* is also differing from *C. bicuspis* which has two posterior processes while present species has three spinous processes at posterior end. At posterior *C. elongatus* also has three posterior processes hence resembles to *C. elongatus*. It also differs from *C. octospinus* which has eight spinous posterior processes.

Present species lacks the caudal cilium and hence differ from *C. bicuspis* and *C. spiralis* as they have a long caudal cilium at the posterior end and it has 14-17 rows of platelets. Present species is measured about 14.60-21.5 μ in width and 36.87-42.99 μ in length. Deshmukh (2010) also reported same species it is measured about 15.89-24.97 μ in width and 38.59-45.4 μ in length and observed 14 to 18 longitudinal rows of platelets.

After the discussion and comparison of the present species from all the species of genus Coleps this species found to be more close to the *C. elongatus* and rediscrbed here as *Coleps elongatus*.

ACKNOWLEDGEMENT:

Author is thankful to head of the Dept. of Zoology & Fishery Sci.,RSM, Latur for providing all necessary facilities.

REFERENCES:

1. Albright L. J., Sherr E. B., Sherr B. F. et al (1987): Grazing of ciliated protozoa on free and particle-attached bacteri. Mar. Ecol. Prog. Ser. 38:125-129.
2. B. J. Finaly & G. F. Estaban (1998): Freshwater Protozoa: biodiversity & ecological functions. Vol.7 (9) pp: 1163-86.
3. B.J. Finally. (1997): The global diversity of protozoa and other small species. Int.J. Para., Vol. 28(1): 29-48.
4. Bary. B.M. (1950): Four new Species of freshwater ciliates From New Zealand. Zool. Publ. Victoria Univ. Coll; 2:1-19(1950b)
5. Bick, H. (1972): Ciliated Protozoa. An illustrated guide to the species used as biological indicators in freshwater biology. Germany.
6. Calkins, G.N. (1901): Protozoa. Macmillan, New York.
7. Cole, F.J. (1919): The History of Protozoology, London.
8. Corliss, J.O. (1952): Sliver impregnation of ciliated protozoa by the Chatten-Lwoff technic. Stain technology. 28:97.
9. Corliss, J.O. (1956): On The Evolution & Systematics of ciliated Protozoa, Syst. Zool. 5:68-91.
10. Corliss, J.O. (1979): The ciliated protozoa: Characterization, Classification and Guide to the literature. 2nd. Ed. Pergamon Press. Elmsford. New York. 470pp.
11. Das A.K., A.K. Mandal and N.C. Sarkar, (1993): Free-living protozoa, Fauna of West Bengal, part12, Zool.Surv. India, pp 1-133.
12. Frankle, J. (1957b): Pattern formation in ciliary organelle system of ciliated protozoa. Ciba found, symp (N.S) 29: 25-49.
13. Glasse, R.W. & Coria N.A. (1930): Methods for the pure culture of certain protozoa. J. Exper. Med. 51:787.
14. John O. Corliss (2001): Protozoan Taxonomy and Systematics. Ency. Lif. Sci. pp 1-7
15. Klein, B.M. (1958): The dry silver method and its proper use. J. Protozool. 5:99
16. Kudo, R.R. (1966): Protozoology. 5th edition. springfield, III, Chane C. Thomas (1774)P.
17. L. Bindu, (2008): Freshwater ciliates (protozoa) from Kolkata wetland, West Bengal, Rec. of Zool. Surv. Of India, in press.



Pawar Sharda Balaji
M.Sc., Ph.D (Zoology).

Publish Research Article International Level Multidisciplinary Research Journal For All Subjects

Dear Sir/Mam,

We invite unpublished Research Paper, Summary of Research Project, Theses, Books and Book Review for publication, you will be pleased to know that our journals are

Associated and Indexed, India

- * International Scientific Journal Consortium
- * OPEN J-GATE

Associated and Indexed, USA

- EBSCO
- Index Copernicus
- Publication Index
- Academic Journal Database
- Contemporary Research Index
- Academic Paper Database
- Digital Journals Database
- Current Index to Scholarly Journals
- Elite Scientific Journal Archive
- Directory Of Academic Resources
- Scholar Journal Index
- Recent Science Index
- Scientific Resources Database
- Directory Of Research Journal Indexing

Golden Research Thoughts
258/34 Raviwar Peth Solapur-413005, Maharashtra
Contact-9595359435
E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com
Website : www.aygrt.isrj.org