

Vol III Issue VII Jan 2014

Impact Factor : 1. 9508(UIF)

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

IMPACT FACTOR : 1. 9508(UIF)

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	Catalina Neculai University of Coventry, UK	Anna Maria Constantinovici AL. I. Cuza University, Romania
Romona Mihaila Spiru Haret University, Romania	Ecaterina Patrascu Spiru Haret University, Bucharest	Horia Patrascu Spiru Haret University, Bucharest,Romania
Delia Serbescu Spiru Haret University, Bucharest, Romania	Loredana Bosca Spiru Haret University, Romania	Ilie Pinteau, Spiru Haret University, Romania
Anurag Misra DBS College, Kanpur	Fabricio Moraes de Almeida Federal University of Rondonia, Brazil	Xiaohua Yang PhD, USA
Titus PopPhD, Partium Christian University, Oradea,Romania	George - Calin SERITAN Faculty of Philosophy and Socio-Political Sciences AL. I. Cuza University, IasiMore

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 Annamalai 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.net**



GRT BIODIVERSITY OF FRESH WATER ALGAE FROM PRESIDENCY COLLEGE CAMPUS, CHENNAI, INDIA

S. Elumalai , R. Sakthivel and A. Mohammed Halith

PG and Research Department of Plant Biology & Plant Biotechnology,
Presidency College (Autonomous), Chennai , Tamil Nadu

Abstract:-The present work deals with the 28 fresh water algal samples and description of 36 taxa of biodiversity of fresh water algae from Presidency college, Chennai, India. Collection of 28 fresh water algal samples were carried out during August 2013 to October 2013. Samples were examined in the laboratory and identified. The following algae were present *Chlorella* (2), *Chlorococcum* (1), *Pediastrum* (1), *Coelastrum* (1), *Tetrastrum* (1), *Scenedesmus* (2), *Cosmarium* (1), *Euglena* (2), *Phacus* (1), *Spirogyra* (1), *Stigeoclonium* (1), *Melosira* (1), *Cyclotella* (1), *Nitzschia* (2), *Navicula* (1), *Synedra* (1), *Microcystis* (2), *Gloeocapsa* (1), *Synechococcus* (1), *Merismopedia* (1), *Oscillatoria* (5), *Anabaena* (3), *Lyngbya* (1), *Hapalosiphon* (1) and *Glocotrichia* (1) were recorded. Algae are described with photographs.

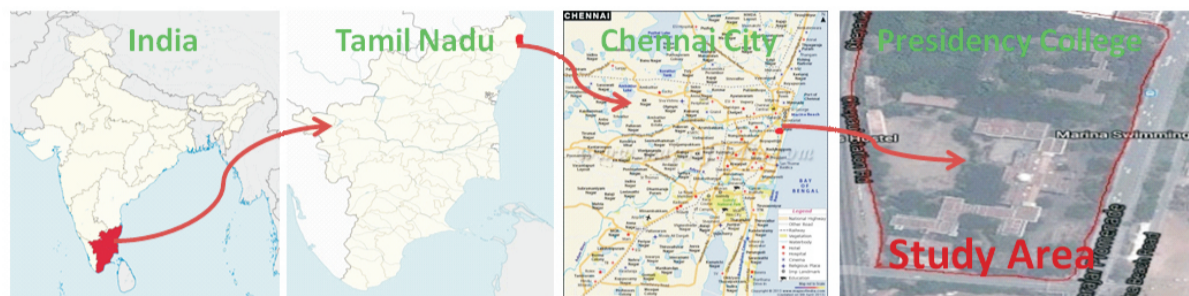
Keywords:Biodiversity, Bacillariophyceae, Chlorophyceae, Cyanophyceae, Fresh water algae.

INTRODUCTION

Algae are microscopically small, unicellular organisms, some of these form colonies and reach size visible to naked eye as minute green particles. The organisms are finely dispersed throughout the water and may cause considerable turbidity showing the maximum algal bloom. The fresh water ecosystem is of lotic and lentic types, lotic includes streams, channels, dripping rocks, drains, canals, water falls and rivers. The lentic system includes pools, puddles, tanks, wells, ponds, reservoirs, lakes and the agricultural fields like paddy fields. Sub aerial algae into various types of planktons (free floating) and benthons (attached to stones, other aquatic plants, aquatic animals, barks of the trees, sand or embeded in mud, surface of leaves and moist soil). Studies on taxonomy of algae also began in the early part of the last century and monographs on different groups of algae were published (Forel, 1901; Smith, 1924; Hustedt, 1930; Fritsh, 1931, 1945; Geittler, 1932; Iyengar, 1933; Prescott, 1951; Krishnamurthy, 1954; Ganapati, 1956; Desikachary, 1959; Randhawa, 1959; Venkatraman, 1961; Pal, 1962; Philipose, 1967; Anand, 1978 and Zhafer, 1986). The taxonomic group of fresh and marine algal ecosystem (Elumalai. *S et al.*, 2011, 2013 and Sakthivel. *R et al.*, 2012). So seasonal variation in combination with ecosystem variation results in biodiversity of algal species.

MATERIALS AND METHODS

Study Area (Fig. 1)



1. Botanical Garden Pool, 2. Cement Tank near main gate, 3. Near Canteen Well, 4. Near Geology Dept. Well I, 5. Near Geology Dept. Well II, 6. Calcium deposited place near new building, 7. Biotech. Dept. wall, 8. Computer Science Dept. Opposite wall, 9. Bark of the tree near Botanical Garden

The study area presidency college is one of the premier institution of educational excellence in the country is situated in Chennai, the capital city of the Tamil Nadu, facing the sparkling waves of the Bay of Bengal. The college was started in 1840. The latitude and longitude of the study area is 13.0601 degree N and 80.2821 degree E respectively.

Random sampling method has been applied in the algal collection procedure. Sample collections were carried out during the month of August to October 2013. The different types of algal forms were collected from lentic environment only. The soil is protective and climates are the best situated for different class of algae. On initial examination of the living samples, the coarser material was removed by filtration through a mesh net. The algal samples were preserved in 4% formalin (aqueous solution of formaldehyde). The microalgae were used different stains glycerin was used for mounting the materials. The sentric organism has been photographed using the OLYMPUS CH20i microscope with attached SONY camera.

RESULTS

Chlorophyceae

Chlorella vulgaris Beyerinck (Plate-1, fig.1, 2)

Alga free living. Cells usually solitary or in small colonies, spherical and with a thin cell membrane. Chloroplast parietal, cup shaped and with a pyrenoid which is sometimes indistinct. Cells usually 4.1 μ broad; 4.7 μ long.

Occurrence: C.F. India (Philipose, 1967), Tamil Nadu (Mahendrapuram & Anand, 2008; Elumalai. S *et al.*, 2011, 2013; Arulmurugan *et al.*, 2011) and Kerala (Arulmurugan *et al.*, 2010)

Collected from: Near Geology Department Well 1 and Near Canteen Well

Chlorococcum humicola (Naeg) Rabenhorst (Plate-1, fig.3)

Cells spherical, solitary or in small clumps, variable in size within the same plant mass; cells 15-30 μ m in diameter. Occurrence: C.F. Tamil Nadu (M. Perumal and Anand, 2008; Arulmurugan *et al.*, 2011 and Sakthivel. R *et al.*, 2012) and Kerala (Arulmurugan *et al.*, 2010).

Collected from: Near Canteen Well.

Pediastrum simplex Meyen (Plate-1, fig. 4)

Colonies circular to oval, of 4-8-16-32 or more cells. Inner side of marginal cells nearly straight, outer side produced into a gradually tapering process, sides concave. Inner cells polygonal. Cells in contact with adjacent ones and usually without intercellular spaces. When present, intercellular spaces very small and few in number. Cell wall smooth or punctate to granulate. Cells 8-13 μ m broad, 19-26 μ m long.

Occurrence: C.F. India (Philipose, 1967).

Collected from: Cement Tank near main gate.

Coelastrum cambricum W. Archer. (Plate-1, fig.5)

Coenobium spherical, 32 globose cells (ranging from 8 to 128 in number) short projections of the sheath so that triangular intercellular spaces results; outer free wall of the cells with a flattened, truncate projections; cells 20-25 μ m in diameter, including sheath.

Occurrence: Orissa (Pattanaik and Adhikary, 2002).

Collected from: Calcium deposited place near new building.

Tetrastrum heteracanthum (Nordest) Chodat (Plate-1, fig.6)

Colonies 4-celled and flat with the cells quarterly arranged. Cells nearly heart shaped (triangular with the outer face slightly concave, rarely convex) with a long and short seta from the outer surface. Seta straight or curved. Chloroplast parietal and usually with a pyrenoid. Cells 35 μ m.

Occurrence: Orissa (Philipose, 1967).

Collected from: Near Geology Department Well 2.

Scenedesmus acuminatus (Lagerheim) Chodat (Plate-1, fig.7)

Colonies curved and of four to eight (usually four) fusiform cells with sharp pointed ends. All the cells in a colony lunate, or the interior cells forming a flat plate and the other cells lunate and at an angle to the plane of the interior cells; rarely, all cells in the same plane. Cell wall smooth and without teeth or spines. Cells 2-7 μ broad, 12-48 μ between apices.

Occurrence: C.F. India (Philipose, 1967).

Collected from: Botanical Garden Pool.

Scenedesmus bijugatus (Turpin) Kuetzing (Plate-1, fig.8)

Colonies flat or slightly curved, of 2-4-8 cells arranged in a single linear series. Cells oblong-ellipsoid to ovoid with the ends broadly rounded. Cells 3.5–7 μ broad, 7-23 μ long.

Occurrence: C.F. India (Philipose, 1967).

Collected from: Cement Tank near main gate.

Cosmarium nitidulum De Not. (Plate-1, fig.9)

Cells longer than broad, deeply constricted, semicells truncate-subsemi-circular, tapering evenly from rounded basal angles to flattened apex with straight margin; long cell 33.0-36.0 μ m, lat.cell 24.0-26.0 μ m, lat.isthmus 6.0-8.0 μ m.

Occurrence: Orissa (Jena *et al.*, 2005).

Collected from: Botanical Garden Pool.

Euglena polymorpha Dangeard (Plate-1, fig.10)

Cells metabolic, ovoid-pyriiform to subcylindric, narrowed gradually posteriorly to a short, blunt tip; periplast with spiral striations; chloroplast many and disc-like with lancinate margins, with 1 pyrenoid; cell 10 μ m in diameter 36.0 μ m long.
Occurrence: United States (Prescott, G.W. 1951).

Collected from: Near Canteen Well.

Euglena proxima Dangeard (Plate-1, fig.11)

Cells metabolic, fusiform, narrowed posteriorly to a blunt tip; periplast spirally striated; chloroplast numerous, irregularly shaped discs; paramylon bodies numerous small rods scattered throughout the cells; cell 20.0 μ m in diameter, 36.0 μ m long.

Occurrence: Orissa (Ratha *et al.*, 2006).

Collected from: Near Geology Dept. Well 1.

Phacus acuminatus Stokes (Plate-1, fig.12)

Cells suborbicular in outline, broadly rounded posteriorly, with a short, blunt apiculation; periplast longitudinally striated; paramylon bodies 1-2 ring-like discs; cells 42.0 μ m in diameter, 50.0 μ m long.

Occurrence: Orissa (Ratha *et al.*, 2006).

Collected from: Botanical Garden Pool.

Spirogyra decimina (O. Muller) Kuetzing (Plate-1, fig.13)

Vegetative cells 34-38 μ m broad, 125-140 μ m long, each cell with 2 chloroplast making 1-2-5 turns; conjugation scalariform.

Occurrence: Orissa (Jena *et al.*, 2005).

Collected from: Near Geology Dept. Well 2.

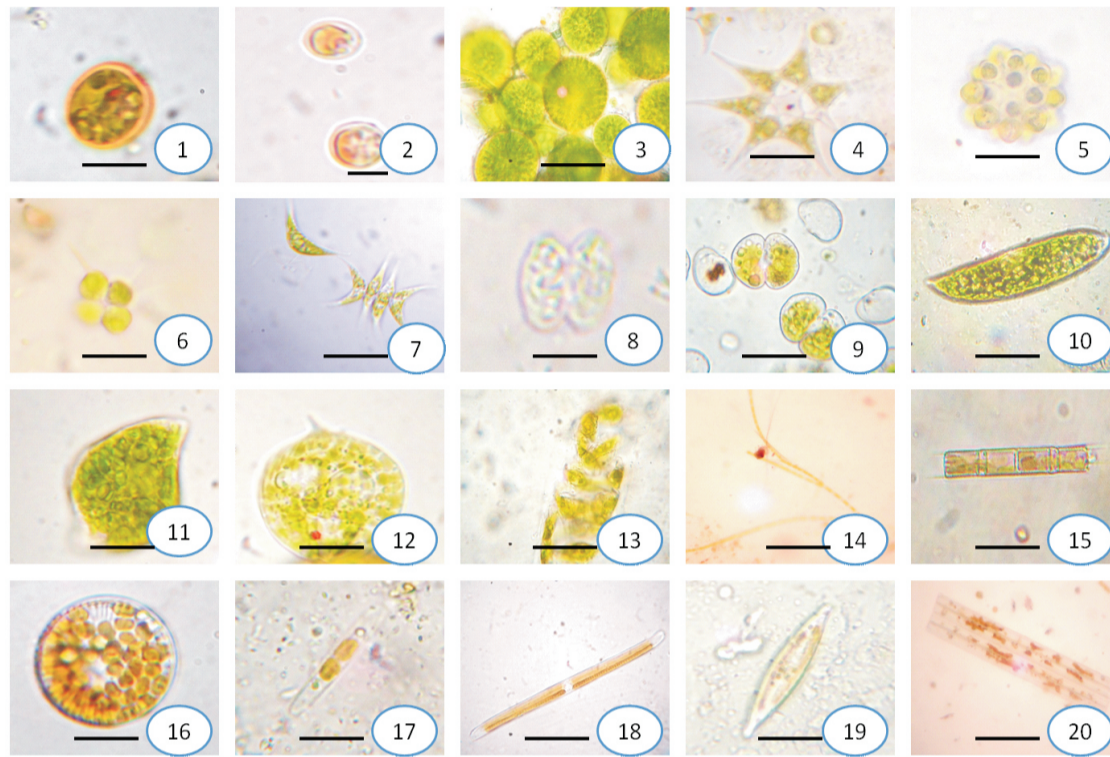


PLATE – 1, 1, 2. *Chlorella vulgaris* Beyerinck; 3. *Chlorococcum humicola* (Naeg) Rabenhorst, 4. *Pediastrum simplex* Meyen, 5. *Coelastrum cambricum* W. Archer, 6. *Tetrastrum heteracanthum* (Nordest) Chodat, 7. *Scenedesmus acuminatus* (Lagerheim) Chodat 8. *Scenedesmus bijugatus* (Turpin) Kuetzing, 9. *Cosmarium nitidulum* De Not, 10. *Euglena polymorpha* Dangeard, 11. *Euglena proxima* Dangeard, 12. *Phacus acuminatus* Stokes, 13. *Spirogyra decimina* (O. Muller) Kuetzing, 14. *Stigeoclonium subsecundum* Kutz, 15. *Melosira granulata* Ehr. Ralfs, 16. *Cyclotella meneghiniana* Kütz, 17. *Nitzschia patea* (Kützing) W. Smith, 18. *Nitzschia sigma* W. Sm. var. *rigidula*, 19. *Navicula halophila* (Grun.) Cleve f. *subcaptata* Ostrup, 20. *Synedra ulna* (Nitzsch) Ehrenberg var. *oxyrhynchus* (Kuetzing) Van Heurck. (Scale bar; Figs 1-20 = 1-45 μ m).

***Stigeoclonium subsecundum* Kutz. (Plate-1, fig.14)**

Filaments elongate, branched; sometimes short and composed of only 2 or 3 cells. Cells elongate and cylindrical but with slight constrictions at the cross walls; 6-10 μ m in diameter and up to 70 μ m long.

Occurrence: C. f. Tamil Nadu (Mahendrapurumal and Anand, 2008).

Collected from: Botanical Garden Pool.

***Melosira granulata* Ehr. Ralfs (Plate-1, fig.15)**

Frustules robust, cylindrical, united to form short or long chains; mantle portion cylindrical, punctate, slightly spiral appearance; disc flat; ends cells with few long marginal spines along with sulcus shallow or acute. Diameter of frustules, 7.5-8.6 μ m; height of semicell, 12.5-15 μ m.

Occurrence: C.F. Tamil Nadu (Anand, 1998; Mahendrapurumal and Anand, 2008).

Collected from: Botanical Garden Pool.

***Cyclotella meneghiniana* Kütz. (Plate-1, fig.16)**

Valves discoid, margins strong, striae thick and coarse, wedge shaped and radially placed. Central portion with extremely fine puncta. Diameter of the cell is 15 to 22 μ , Striae 5 to 10 in 10 μ .

Occurrence: C.F. Tamil Nadu (Anand, 1998; Mahendrapuram and Anand, 2008).

Collected from: Botanical Garden Pool.

Nitzschia patea (Kützing) W. Smith (Plate-1, fig.17)

Valves are lanceolate with sides parallel and tapering rapidly at the poles, terminating with subcapitate apices. Fibulae are distinct, with a distinct central nodule and number 11-13 in 10 μm . Length 12-42 μm , Width 3-4 μm , Striae in 10 μm : 36-38. Occurrence: Gujarat (Rita N. Kumar et al., 2012).

Collected from: Cement Tank near main gate.

Nitzschia sigma W. Sm. var. rigidula (Plate-1, fig.18)

Valves gently sigmoid, ends attenuate narrow, length 35-60 μm long, 4-5 μm broad, carinal dots 4-14 in 10 μm .

Occurrence: West Bengal (Dasand S. K and S. P. Adhikary, 2012).

Collected from: Calcium deposited place near new building.

Navicula halophila (Grun.) Cleve f. subcapitata Ostrup. (Plate-1, fig.19)

Valves, lanceolate with distinctly constricted highly produced rounded ends; raphe thin straight, median, with distinct closely placed central nodules; axial area narrow, central area moderately broad; striae fine, lineate, parallel throughout the valve.

Collected from: Botanical Garden Pool

Occurrence: Andaman and Nicobar Islands (Prasad & Misra, 1984).

Synedra ulna (Nitzsch) Ehrenberg var. oxyrhynchus (Kützing) Van Heurck (Plate-1, fig.20)

Valve linear to slightly lanceolate, long, straight, end narrow, roundly capitate, striation parallel through out the valve, slightly radiate at the apices, striae 10-14 in 10 μm area, many times longer than broad, 54-64.6 μm long and 7.5-10 μm broad.

Occurrence: West Bengal (Dasand. S. K and S. P. Adhikary, 2012).

Collected from: Near Canteen Well.

Microcystis aeruginosa Kutz. (Plate-2, fig.21)

Colonies round, cells 2-4 μm in diameter, spherical, generally with gas vacuoles.

Occurrence: Tamil Nadu (Anand and Subramanian, 1994).

Collected from: Near Geology Dept. Well 1.

Microcystis elongate Desikachary (Plate-2, fig.22)

Colony elongate, sometimes clathrate, up to 1mm in length, constricted colonial mucilage distinct, occasionally lamellated, hyaline, refractive; cells often closely arranged, grouping absent, arrangement on uniform, 3.9-5.2 μm broad, gas vacuole present.

Occurrence: C.F. India (Desikachary, 1959).

Collected from: Cement Tank near main gate.

Gloeocapsa nigrescens Nageli (Plate-2, fig.23)

Thallus crustaceous, thin; cells spherical, cells sheath 12-13.5 μm diam., uniting laterally; sheath broad, not lamellated, many in a homogeneous sheath.

Occurrence: Tamil Nadu (Desikachary, 1959; Anand and Subramanian, 1994).

Collected from: Wall of the Building.

Synechococcus elongates Nag. (Plate-2, fig.24)

Cells cylindrical, 1.4-2 μm broad, single or 2-4 cells together; contents homogeneous and light blue-green.

Occurrence: Tamil Nadu (Desikachary, 1959).

Collected from: Botanical Garden Pool.

Merismopedia convolute Breb. (Plate-2, fig.25)

Cells spherical 3-4.0 μm broad, blue-green, olive-green or yellowish.

Occurrence: Tamil Nadu (Desikachary, 1959).

Collected from: Near Geology Dept. Well 2.

Oscillatoria princeps Vaucher (Plate-2, fig.26)

Trichome blue green not constricted at the cross walls not granulated 20-25 μm broad; 1.5-2.0 μm long; end-cells flatly rounded.

Occurrence: Tamil Nadu (Desikachary, 1959, Anand and Subramanian, 1994).

Collected from: Wall of the Building.

Oscillatoria curviceps Ag. ex Gomont (Plate-2, fig.27)

Thallus light or dark blue-green; trichomes more or less straight, bent at the end or spirally coiled, not attenuated or very little attenuated, not constricted at the cross-walls, 10-17 μm broad, cells 1/3-1/6 as long as broad, 2-5 μm long, cross-walls sometimes granulated; end-cells flat rounded, not capitates.

Occurrence: Tamil Nadu (Desikachary, 1959).

Collected from: Botanical Garden Pool.

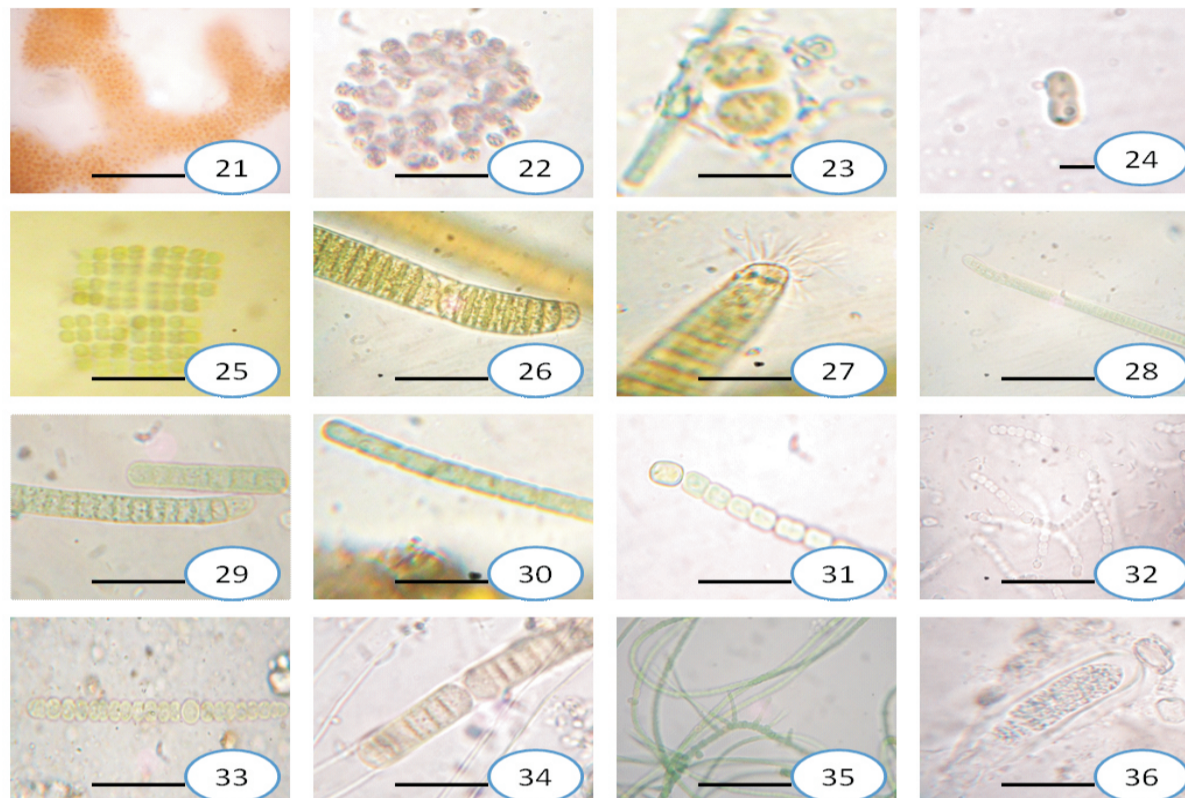


PLATE – 2, 21. *Microcystis aeruginosa* Kutz, 22. *Microcystis elongate* Desikachary, 23. *Gloeocapsa nigrescens* Nageli, 24. *Synechococcus elongates* Nag, 25. *Merismopedia convolute* Breb, 26. *Oscillatoria princeps* Vaucher, 27. *Oscillatoria curviceps* Ag. ex Gomont, 28. *Oscillatoria agardhii* Gom, 29. *Oscillatoria tenuis* Ag, 30. *Oscillatoria hamelii* Fremy, 31. *Anabaena oryzae* Fritsch, 32. *Anabaena circinalis* Rabenhorst ex Born. et Flah, 33. *Anabaena Oscillarioides* Bory, 34. *Lyngbya majuscula* (Dillwya) Harvey, 35. *Hapalosiphon welwitschii* W. et G. S. West, 36. *Glucotrichia ghosei* Singh. (Scale bar; Figs 21-36 = 1-45 μm).

***Oscillatoria agardhii* Gom.** (Plate-2, fig.28)

Trichomes straight, 2-3.5 μm broad, cells mostly shorter than long, quadrate, end cells convex.

Occurrence: Tamil Nadu (Desikachary, 1959).

Collected from: Cement Tank near main gate.

***Oscillatoria tenuis* Ag.** (Plate-2, fig.29)

Thallus straight, 4-6 μm broad, not attenuated at the apices, not capitates; 2.0-6.0 μm long.

Occurrence: Tamil Nadu (Desikachary, 1959, Anand and Subramanian, 1994).

Collected from: Near Canteen Well.

***Oscillatoria hamelii* Fremy** (Plate-2, fig.30)

Trichome curved, constricted at the joints, apex of the trichome straight, calyptras none; cells 2-4 μm in length.

Occurrence: Tamil Nadu (Desikachary, 1959).

Collected from: Near Geology Dept. Well 1.

***Anabaena oryzae* Fritsch** (Plate-2, fig.-31)

Thallus gelatinous, membranous, straight, parallel cells 2.5-3.0 μm broad, more or less barrel shaped, heterocyst terminal and intercalary.

Occurrence: Tamil Nadu (Desikachary, 1959).

Collected from: Wall of the Building.

***Anabaena circinalis* Rabenhorst** ex Born. et Flah (Plate-2, fig.32)

Thallus circinate, without a sheath, 8-14 μm broad; cells barrel shaped, heterocyst subspherical, 6-8 μm broad.

Occurrence: Tamil Nadu (Desikachary, 1959).

Collected from: Bark of the tree near Botanical Garden.

***Anabaena Oscillarioides* Bory** (Plate-2, fig.33)

Thallus green, trichome 4.0-6.0 μm broad; cells barrel shaped as long as broad, end cells rounded; heterocysts oval 3.0-6.0 μm broad, 4.0-6.0 μm long.

Occurrence: Tamil Nadu (Desikachary, 1959).

Collected from: Botanical Garden Pool.

***Lyngbya majuscula* (Dillwya) Harvey** (Plate-2, fig.34)

Filaments very long, slightly coiled; sheath colourless, lamellated up to 8 μm thick, outside trichome blue green, not attenuated at the ends, calyptras absent.

Occurrence: Tamil Nadu (Desikachary, 1959, Anand and Subramanian, 1994).

Collected from: Near Canteen Well

***Hapalosiphon welwitschii* W. et G. S. West** (Plate-2, fig.35)

Filaments single among other algae, somewhat flexuous, 5.5-7.5 μm broad; sheath very close, hardly visible, colorless; cells sub spherical or elongate, as long as broad or longer; lateral branches short, as broad as the main filament narrower, 3.5-5.7 μm broad, slightly attenuated at the ends; cells of the branches 1-3 time as long as broad; heterocyst rare, intercalary, quadrate rounded or cylindrical, 6 μm broad, 6-8 μm long; spores sub-spherical or oblong, 5 μm broad 1-2 times as long as broad.

Occurrence: C.F. India (Desikachary, 1959) and Tamil Nadu (Mahendrapurumal & Anand, 2008).

Collected from: Calcium deposited place near new building.

***Glocotrichia ghosei* Singh** (Plate-2, fig.36)

Thallus spherical, brown sheath; heterocyst single spherical, 8.5-10 μm broad, spores long ellipsoidal with a hyaline smooth outer wall, with sheath 5-6.5 μm thick.

Occurrence: Tamil Nadu (Desikachary, 1959).

Collected from: Wall of the Building.

DISCUSSION

A total number of genera 25 and species 36 belonging to Chlorophyceae (Genus 11, Species 14) of *Chlorella* (2), *Scenedesmus* (2) and *Euglena* (2) were dominant genus, Bacillariophyceae (Genus 5, Species 6) of *Nitzschia* (2) were dominant genus and Cyanophyceae (Genus 9, Species 16) of *Oscillatoria* (5) and *Anabaena* (3) were dominant genus are recorded from Presidency College, Chennai, India.

ACKNOWLEDGEMENT

We thank The Principal and Head, Plant Biotechnology Department, Presidency College (Autonomous), Chennai – 600005. The authors also expressed sincere thanks to Defence Research and Development Organisation (DRDO), Govt of India and Director, DIBER for their financial support.

REFERENCES

1. Anand, N and Subramanian, T. D., (1994). Distribution of natural population of blue green algae in a rice field. *Phykos*. 33, 163 – 169.
2. Anand, N., (1989). Handbook of Blue-green algae (of rice fields of south India). Bishen Singh Mahendrapal Singh, 23-A, Cannanught palce, Dehra Dun, p.1-79.
3. Anand, N., (1998). Indian fresh water Microalgae. Bishen Singh Mahendrapal Singh, 23-A, Cannanught palce, Dehra Dun, p-94.
4. Arulmurugan, P, Nagaraj, S and Anand, N., (2010). Biodiversity of fresh water algae from Temple tanks of Kerala. *Rec. Res. Sci. Tech.*2, 58-72.
5. Arulmurugan, P, Nagaraj, S and Anand, N., (2011). Biodiversity of fresh water algae from Guindy campus of Chennai, India. *J.of Ecobiotechnology*.3(10), 19-29.
6. Dasand, S. K and Adhikary, S. P., (2012). Diversity of Freshwater Algae in Arunachal Pradesh and their distribution in different Altitudes. *J. Indian bot. Soc.* 91(1-3), p.160-182.
7. Desikachary, T.V., (1959). Cyanophyta, Indian council of agricultural research, New Delhi, 1-686.
8. Elumalai, S and Sakthivel, R., (2013). GC-MS and FT-IR spectroscopic determination of Fattyacid Methyl Ester of 16 freshwater Microalgae. Isolated from Cement Industries of Tamil Nadu, India. *J. Algal Biomass Utln.* 4(1), 50-69.
9. Elumalai, S, Sakthivel, R, Infant Santhose, B, Arul Murugan, P., (2011). Isolation, Identification, Morphological Studies and Lipid Granules Staining (Nile red) of Different Micro-Algae for Biodiesel Production from Fresh Water and Saline Water. *Journal of Experimental Sciences.* 2(7), 26-29.
10. Elumalai, S, Sakthivel, R and Ganesh Kumar, S., (2011). Ultra Structural and Analytical Studies of Biodiesel Producing Microalgae (*Chlorella vulgaris* and *Scenedesmus* sp.) Collected from Tamil Nadu, India. *Current Botany.* 2(6), 19-25.
11. Jena. M and Adhikary., (2007). Chlorococcales (Chlorophyceae) of eastern and northern states of India. *Algae.* 22(3), 167-183.
12. Mahendrapurumal, G and Anand, N., (2008). Manual of fresh water algae of Tamilnadu, Bishen Singh Mahendrapal Singh, 23-A, Dehra Dun. 1-124.
13. Pattanaik, B and Adhikary, S.P., (2002). Blue-green algal flora on archaeology monuments of India. *Bull. Bot. Surv. India.* 44: 61 – 74.
14. Philipose, M. T., (1967). Chlorococcales, Indian Council of Agricultural Research, New Delhi. 1-365.
15. Prasad, B.N and Misra, P.K., (1984). Some new taxa of desmids from Andaman Islands. *Phykos.* 109, 149-158.
16. Prescott, G.W., (1951). *Algae of western great lakes area*: Wm. C. Brown Co. Publishers Dubuqu Iowa.
17. Rita, N, Kumar, Rajal Solanki and Nirmal, Kumar, J. I., (2012). Spatial Variation in Phytoplankton Diversity in the Sabarmati River at Ahmedabad, Gujarat, India. *Annals of Environmental Science.* 6, 13-28.
18. Sakthivel, R, Elumalai, S, Santhiya, S., (2012). Fatty acids methyl ester anlaysis of potent microalgae *Scenedesmus dimorphus* (Turpin) Kutzing and *Chlorococcum infusum* (Schrank) Meneghini isolated from effluents of Neyveli thermal power station expansion I. *J. Algal Biomass Utln.* 3(3), 12-20.



S. Elumalai

PG and Research Department of Plant Biology & Plant Biotechnology, Presidency College (Autonomous), Chennai , Tamil Nadu

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.net