# PRELIMINARY STUDY ON ALGAL DIVERSITY IN CHERLA ANKIREDDY PALLY VILLAGE LAKE, MEDAK DISTRICT, TELANGANA STATE,INDIA

**DR. A.RCHANA, M. SRINIVAS**

**Abstract:** A study was conducted to analyze the diversity of algal components of Cherla ankireddy pally village lake located besides water filter bed of Moulana abdul kalam. Algal samples were collected at monthly intervals from January to June 2016. Acid washed collection bottles were used for algal samples were collected. In present study 55 species under 32 genera have been identified and recorded. Algal members belongs to Chlorophyceae, Bacillariophyceae, Cyanophyceae,Charophyceae and Euglenophyceae were recorded. Chlorophyceae group was found dominant which is followed by Cyanophycae, Bacillariophyceae, Charophyceace, and Euglenophyceae. Algal genera such as *Chara, Spirogyra, Nitella, Scenedesmus, Cosmarium, Cladophora, Gloeocystis, Chlorella, Fragilaria, Oscillatoria, Microcystis, Spirulina, Lyngbya, Gloeothecae* and *Pediastrum* were found dominant.

**Key words:** Cherla ankireddy pally, Algae, Biodiversity,

**Introduction:** Algae are important fraction of plankton in aquatic environments (Hecky and Kling 1981). Ponds, lakes and small reservoirs support flora & fauna which include plant and animal communities called phytoplankton and zooplankton respectively. Algae is a diverse group of plant kingdom. rivers, streams, ponds, puddles, pools, lakes and dams are the different types of fresh water habitats where algae grows abundantly and found in diverse form(Pandey,1973, Kumar et al 1974, Prasad and suxena,1980, Mohan et, al 1989). Cherla Ankireddy pally is a village located in Medak district of Telangana state. This lake is located besides Sujala Sravanthi water filter bed of Moulana abdul kalam at Mallaram. Geographically it is situated at $18^{o}$ $10^{1}$ $15^{11}$ Latitude Northern and $78^{o}$ $69^{1}$ $16^{11}$ Longitude Eastern. In the present investigation, data on morphometric features, water quality parameters, density and bio diversity of phytoplankton communities with special reference to diversity of algae have been gathered.

**Meterials and Methods:** Medak is one of the 10 districts of telangana state lies beteen $17^{o}$ $27^{1}$ and $18^{o}$ $18^{1}$ Northern latitude and $77^{o}$ $28^{1}$ and $79^{o}$ $10^{1}$ of Eastern longitude. To study algal biodiversity of Cherla ankireddy pally lake of Medak district.

Algal samples were collected from the lake at monthly intervals from January to june 2006. Acid washed collection bottles were used for collection of algal samples. Floating, planktanic submerged and attached epiphytic algal samples were collected separately in collection bottles. Collected samples preserved in Lugol's solution for further taxonomic study. Fresh as well as preserved algal forms were microscopically examined using Olympus Binocular research microscope and microphotographs were taken using Sony cyber shot digital camera in department of P.G. Botany, Government degree college, Siddipet. Algal identification was done with the aid of standard books and monographs [Fritsch(1935), Desikachary(1959), Philipose(1967 Prescott(1951), Smith(1950)]. Internet resources were also used for identification.

**Results and Discussion:** Algae are the primary producers of the aquatic ecosystem, an area that covers 71% of the Earth's surface. Algae occur in oceans, lakes, ponds and streams as well as on and in soil, rocks, ice, snow, plants and animals. In total, 40% of global photosynthesis is contributed by algae. It is a vital group of plants in aquatic ecosystem for monitoring programs to evaluate water quality. They are suited to water quality assessment because of their nutrient needs, rapid reproduction rate and very short life cycle. Algal community variability from time to time can result from seasonal changes in temperature and light availability. Microscopic analysis of water a samples collected from lakes, Streams and other bodies determines the diversity and density of algal species and provides potentially useful early warning signs of deteriorating conditions. Recently,algae have been associated with regulating environmental pollution. These can help in removing pollutants from the surroundings, restoring contaminated sites and preventing further pollution.

The diversity of algae from the lake is remarkable. The species identification revealed that there was very high diversity of algal members in these lake. In present study a total of 62 species of algae under 56 genera have been identified and recorded. There are very high number of green algae followed by Blue Green algae and Diatom. Green algae dominated with more than 32 genera followed by blue green algae with species 8 and 6 species Diatoms 3 species Eugliniophyceae 2 species Charophyceae. (Ashtekar(1980), Kumawat(2004), Talekar2009) Pochman (1942) , Ramanathan (1964).,(Table-I).

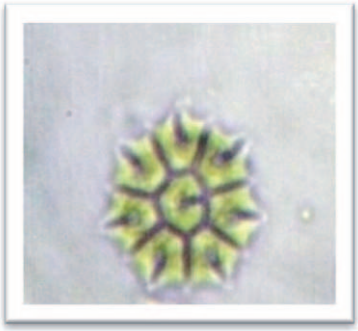
Algal diversity studied in this lake had 62 species under 56 genera. About 45 species were representive of green algae under 32 genera. The number of species of *Scenedesmus* was high and it was represented by eight species. It is followed by *Pediastrum* five species. *Cosmarium* was represented by four species.three speices of *Closterium* was identified. *Ankistrodesmus,Chlamydomonas,Chlorococcim,Chlorella*, *Tetradesmus*, had a representation of two species. Blue green algae were represented by eight genera. Diatoms represented by 6 genera. Only one species of *Chara*, *Nitella*, *Euglena* and *Phacus* were identified. Similar kind of results were obtained by Somani and Pejaver(2003), Mahajan and Nandan (2005) and Nandan Mahajan (2007).

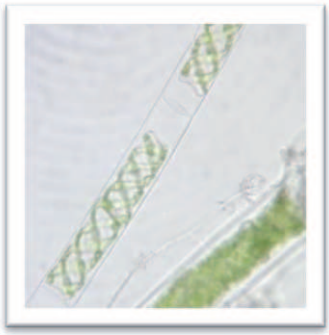
**TABLE-I**

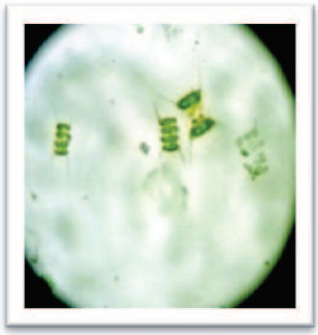
| | |
|---|---|
| **Chlorophyceae** | *Pediastrum duplex, Pediastrum simplex,Chlorella vulgaris,* *Oocystis* spp, *Volvox* spp, *Scenedesmus acunminatus, Scenedesmus acuttus, Scenedesmus armatus, Scenedesmus denticulatus, Scenedesmus dimorphus, Scenedesmus maximus, Ankistrodesmus falcatus, Ankistrodesmus* sp, *Chlorococcum* sp, *Closterium* sp, *Cosmarium contractum, Cosmarium depressum, Cosmarium quadrifarium, Hydrodictyon reticulatum, Pandorina* sp,*Spirogyra* sp,*Chlamydomonas gigas,* Fritsch,*Oedogonium* sp,*Tetraedron regulare,*(pres), *Zygnema pectinatum,* Rao, |
| **Cyanophyceae** | *Anabaena Oryzae,*Fritsch,*Chroococcus giganteus*,(Smith), *Microcystis aeruginosa* (kuetz),*Oscillatoria nigroviridis,*(kuetz), *Rivularia aquatica,* De wilde, *Spirulina priceps,* w.et. G.S. west *Gleocapsa nigrescens,* (kuetz), *Cylindrospermum majus,* (kuetz). |
| **Bacillariophyceae** | *Cyclotella meneghiniana,* kuetz, *Cymbella tumida* (Breb) van.Heurck, *Fragilaria intermedia* (gurn) var.robusta, *Navicula papula*,Kuetz, *Navicula halophila*,Kuetz, *Pinnularia braunii* (Nitz) Her., *Syndera* ulna(Nitz) Her, |
| **Eugleniophyceae** | *Euglena sp, Phacus sp,* |
| **Charophyceae** | *Chara* sp, *Nitella* sp |

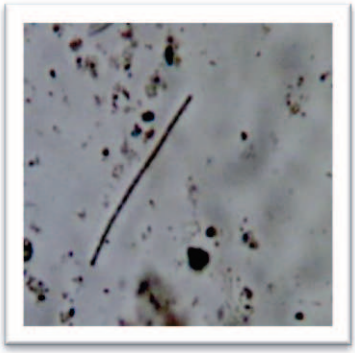
**FIGURE-1**
**OVER VIEW OF CHERLA ANKIREDDY PALLY LAKE.**

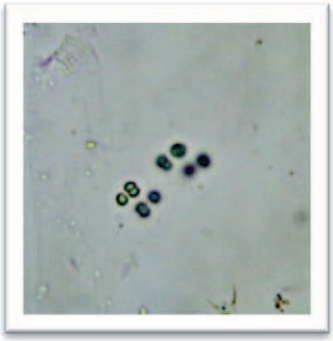
**FIGURE-2**
**MICROSCOPIC VIEW OF FEW ALGAL GENERA IDENTIFIED IN CHERLA ANKIREDDY PALLY LAKE.**

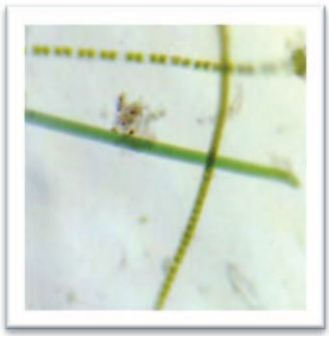

Peidastrum spp.


Scenedesmus spp.


Spirogyra spp.

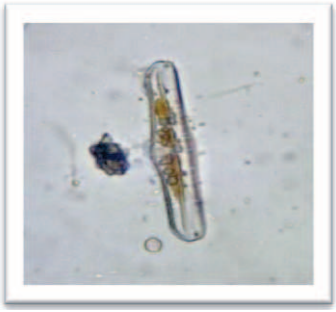

Anabaena spp.


Gloeocapsa spp.


Oscillatoria spp.


Cymbella spp.


Navicula spp.


Pinnularia spp.


Chara spp.


Nitella spp.


Euglena spp.

**References:**


1. *Jitendra Singh Pachaya, Navin K.Jain,* Phytodiversity of Alirajpur District With Special Reference to Conservation Stratagies; Life Sciences International Research Journal , ISSN 2347-8691, Volume 2 Issue 2 (2015): Pg 144-163
2. Ashtekar PV,1980. Studies on fresh water algae of Aurangabd district. Ph.D. thesis, Marthwada University, Aurangabad.
3. Desikachary , T.V., Cyanophyta, I.C.A.R, New delhi(1959).

4. Fritsch, F.E., structure and reproduction of the algae Vol.I and II. Cmbridge Iniversity Press Cambridge (1935).
5. *Balkrishna Sandikar,* Screening of Efficient Strains of *Bacillus* Species for Production of Amylases; Life Sciences International Research Journal , ISSN 2347-8691, Volume 2 Spl Issue (2015): Pg 279-283
6. Hecky,R.E. and H.J.Kling 1981. The phytoplankton and zooplankton of the euphotic zone of lake tanganuika species compostion ,Biomass,Chlrophyll,Content of spatio. Temporal distribution. Lomnolofical Oceanography 26: 546-564.
7. *Kapil Dev, Mandala K,* Correlation of Protein Expression Between Apoptotic ; Life Sciences international Research Journal , ISSN 2347-8691, Volume 2 Issue 1 (2015), Pg 487-490
8. Kumar.H.D., L.M. Bisaria,B.G. Bhandari and V.Sharama. 1974. Ecological studies of algae isolated from effluent a refinery fertilizer factory and a brewery. Indian .J.Environ.Health.16(13): 247-265.
9. S Desai ,Dhanshri J Gadgil, Richard V Peter, Fiza Arjuman S, Kavitha. A, ,Basavaraj S Hungund, Isolation of Tannase Producing Fungi and Partial Savitha; Life Sciences International Research Journal , ISSN 2347-8691, Volume 1 Issue 1 (2014): Pg 267-270
10. Kumawat DA and Jawale AK,2004. An ecological Behavior Euglenoids in a fish pond, periodicity and abundance, J. Aqua. Bio. 19(1):7-10.
11. Mahajan SR and Nandan SN, 2005. Studies on algae of polluted lakes of North Maharashtra(India). Plant diversity and Biotechnology:67-71.
12. Nandan SN and Mahajan SR, 2007. Green algae of Hartala lake of Jalgaon,Maharashtra, Poc. Nat. Symp. on recent trends in algal biotechnology and biodiversity Ed.Patil S S : 51-54.
13. *Sayali Daptardar, Dr. Unnatipadalia,* Nosocomial infections: A Threat to Neonates in ICU; Life Sciences International Research Journal , ISSN 2347-8691, Volume 2 Spl Issue (2015): Pg 250-255
14. Pandey, S.N. 1973: Studies on distribution periodicity and some ecological aspects of phytoplankton of Kanpur. Adv. Appl. Phycol.II B (3-4): PP.70-73.
15. *Jagdish Kannoje,* Qualitative Assesment of Municipal Solid Waste Management Practices. A Case Study of Nagda Municipality; Life Sciences International Research Journal , ISSN 2347-8691, Volume 2 Spl Issue (2015): Pg 69-72
16. Philipose, M.T., Chlorococcales. I.C.A.R.,New Delhi(1967).
17. Prasad B.N. and M. Suxena 1980. Ecological study of blue green algae in the river Gomti. Indian. J. Environ Health,22(2); 151-168.
18. *Dr. Chithambaram Chandrasekeran, Dr. Krupa Daniel,* Absence of Ligamentum Teres – A Rare Variation of Liver; Life Sciences International Research Journal , ISSN 2347-8691, Volume 2 Issue 2 (2015): Pg 179-180
19. Prescott, G.W. 1951. Algae of western great lake areas. Cranbook institute of sciences Broomfield Hills.Mich.
20. Ramanthan, K.R.1964. Ulotrichales, ICAR ,New Delhi.
21. *Dr.Reddy, P.B , Sushma, P.,* The Impact of Life Style Factors on infertility And Reproductive Performance; Life Sciences International Research Journal , ISSN 2347-8691, Volume 2 Spl Issue (2015): Pg 37-44
22. Sivasubramanian V,Subramanian V V, Raghavan B G and Ranjithkumar R. 2009.Large scale phycoremediation of acidic effluent from an alginate industry. Science Asia, 35:220-226.
23. Talekar Santosh M, 2009. Studies on algal biodiversity of Manjara River and its reservoirs in Beed district of Maharashtra. Ph. D thesis, Dr. Babasaheb Ambedkar Marthwada University, Avurangabad.
24. *Umema Mohsin, Madan Lowry, Preeti Shrivastava,* Evaluation of Physico Chemical Properties ; Life Sciences international Research Journal , ISSN 2347-8691, Volume 2 Issue 1 (2015), Pg 472-474



Dr. A. Rchana
Assistant professor in Botany, Department of P.G. Botany
Government Degree College Siddipet (A), Medak District, Telangana, India
M. Srinivas
Lecturer in P.G. Botany, Department of P.G. Botany
Government Degree College Siddipet (A), Medak District, Telangana, India