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A PRELIMINARY CHECK-LIST OF ALGAE IN LOTIC AND LENTIC TYPE OF WATER BODIES IN CUDDALORE DISTRICT OF TAMIL NADU

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Abstract:

Algal samples were collected from lotic and lentic type of water bodies in cuddalore district in Tamil Nadu. Collections were carried out during the month of January to December 2021. Samples were studied in the laboratory and identified. Samples were collected from the study areas and it comprising of the present study listed a total of 265 species in the Lotic and lentic water bodies in cuddalore district. Out of 265 species representing 78 genera of 4 families and 27 orders as per classification referred by Desikachary (1959). Among Chlorophyceae members, the genus *scenedesmus* was dominant with 106 species followed by *cosmarium, coelastrum, spirogyra, pediastrum, Ankistrodesmus, and Oocystis*. The predominant genera in Bacillariophyceae are *Cyclotella,Pinnulatoria, Nitzschia, Caloneis, Tabellaria*, and Amphora encompassing a total of 58 species. The Cyanophyceae includes a total of 68 species, among which the genera *Oscillatoria, Chroococcus*, and *Lyngbya* were observed in maximum. In Euglenophyceae, 24 species were recorded such as Euglena and *Trachelomonas* which contributed the least number of species comparatively. The present study revealed that the Species richness (SR) were in the order of Chlorophyceae >Bacillophyceae > Cyanophyceae > Euglenophyceae. The exploration of biodiversity. Identification, isolation and culturing of different microalgae and the study of their utility has already been an interesting area of research so far.

Key Words: Biodiversity, Microalgae, Lotic &Lentic Type of Water Bodies

Introduction:

Ecology is the study of structure and function of the nature. Exploitation of nature by man has disturbed the delicate ecological balance between living and non-living components of the biosphere. The unfavourable condition created by man, have threatened the survivalnot only of man himself, but also other living organisms (Sharma, 2000). Water is the most vital resource for all kinds of life on this planet. It has got a majestically power to embellish the land by flourishing the life of the planets and animals and thereby giving life to the planet. Water is a soul and hope of the nature. The solid part of the earth is blessed with water in many forms. Among these fresh and marine are two sub divisions, which spread on the earth's surface and cover about two third of land. About 97% of the water on earth consists of sea water; about 2% is ice which is located mainly in the Polar Regions and the remaining 1% is mainly seen in fresh and brackish land waters. Due to the easy availability of water, human civilization has been flourishing in the vicinity of the water resources. It is used for various activities such as drinking, irrigation, fish production and power generation etc. Increased human activities over the last 25 years are imposing a greater stress on the water bodies, causing changes in their features and there is an imperative need of scientific management to exploit and conserve the natural resources of the water bodies. To achieve this goal, basic and applied research on various aspects of the aquatic ecosystem is very essential.

Biodiversity of algal flora in the water bodies is governed by the ambient physico-chemical factors. Algae are the primary producers in the food-chain of the aquatic ecosystem and their productivity depends upon the quality of water. Among the aquatic algae, phytoplankton occupies an important position in the food-web of the freshwater ecosystems, as primary producers. Any change in the phytoplankton community will reflect on the entire aquatic system. So, knowledge on their abundance, composition and seasonal variation is an essential pre-requisite for any successful aqua-management programmed. Further, the phytoplankton are good indicators of changes in water quality because they are strongly affected by environmental conditions and they respond quickly to the changes in environmental quality. Hence, qualitative and quantitative studies of phytoplankton are of great importance.

Study Area:

For the present investigation lotic fresh water bodies in Cuddalore district were selected and the study create out from January 2021 to December 2021

Vellar River (Sethiyathope):

The Sethiyathope. Watershed scheme was formed in 1848. This was the first watershed in the Vellar basin. Sethiyathope scheme is one of the important irrigation system in the Vellar basin in Tamil Nadu, providing irrigation facilities to 7244 hectares of direct command for double crop paddy and to 12, 222 hectares

of direct command for single crop paddy (39204 acres of both direct and indirect command) in South Arcot District. The system comprises of Sethiyathope supply channel on the left bank of the Vellar river known as Vellar Rajan Channel and its 9 branches, two major tanks namely Wallajah Tank and Perumal Tank and their channels, and a few minor tanks and a drainage carrier known as the Paravanar river. This scheme was introduced during 1847-48 and it is at the tail end of the vellar river, situated in Sethiyathope village, about 25 Kms from Chidambaram town.

The Vellar river is the main source of water supply to this system and it carries fairly heavy flood discharges during the north-east monsoon and moderate to normal flow during the south-west monsoon. The soil type in the major portion of the command area is clay and most suitable for paddy cultivation.

Willington Lake:

Willington watershed is situated in Kilcheruvai village near Thittagudi in South Arcot Vallalar district. The Willington supply channel (85 cuses) is on the left-side of the Tholudur regulator. This channel runs for 5.77 kims and feeds 4 tanks having a command area of 59 hectares and then it enters the Willington watershed area. The Willington watershed consists of an earthen bund of 4.425 kms. An irrigation sluice pierces the bund at 2.518 kms from the left flank. There is also a surplus regulator. The top width of the bund is 4.00 m to 5.00 m and the rear slope of the bund is 2.1. the catchment area is 128 sq kms and the capacity is 65.19 mm3 at full tank level. The maximum height of strorage is 9.00 m and water spread at this level is 16.64 sq kms. The surplus regulator is installed on the low-level supply channel at 150 m from the left flank. It has 30 vents of 3.05m x 1.70 each and is capable of discharging flood upto 384.3 cusecs. The surplus water flows into the Kalidur Odai (Stream), which is located at its till end and flows towards the east. It joins the Periya Odai (stream) and finally discharges into the Manimuktha Nadhi, upstream of Vridhachalam Dam.

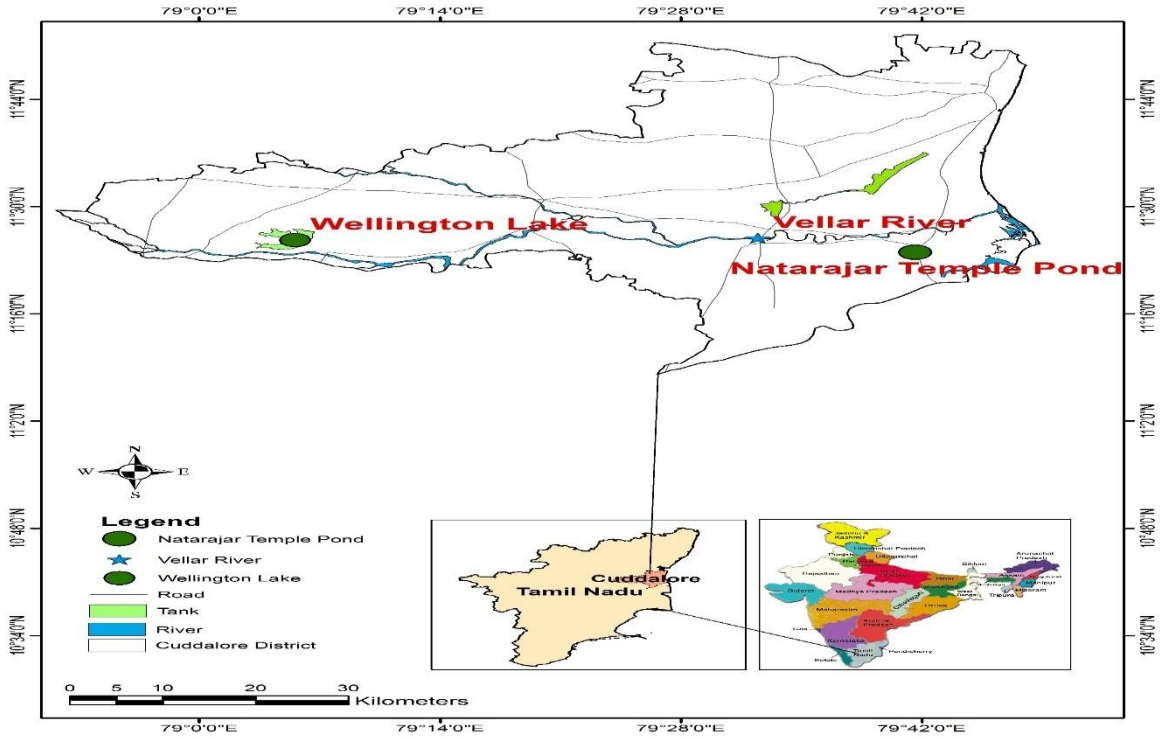

Figure 1: Map showing the station of the lotic and lentic type of water bodies Cuddalore District

Fixation and Concentration of Sample:

Lugol's solution and Formalin methods followed in the preservation of phytoplankton sample. Lugol;s solution: After Collection of phytoplankton sample, preservation is done using Lugol's solution. 0.7 ml per 100 ml of sample was added and buffered formaldehyde; then 2.5% final preservation of Lugol's solution was added to made final concentration after 1 hour. Formalin: After collection of the sample 4% of formalin (20g sodium borate, Na2B2O4, + 1 L 37% formaldehyde) are added to 50 ml sample immediately. The sample were fixed in 4% formalin and concentrated by centrifugation for the further analysis of phytoplankton.

Phytoplankton Community:

Phytoplankton sample were collected by lotic and lentic water through plankton net with (mouth diameter 0.35mm) made up of bolting silk (no.30: mesh size 48 µ) for half an hour. The filtrate was immediately preserved in 4% formaldehyde. Were added to it for fixation and preservation of planktonic cells. Plankton were enumerated using Sedgewick Raftar cell (Welch,1948) and expressed as numbers per litre. Qualitative identification of phytoplankton organisms was done with the help of monographs and they are identified up to species level The phytoplankton sample were observed thoroughly under microscope and have been identified

with the help of standard literature Periodic investigation of freshwater bodies was carried out by various workers to ascertain the water quality status of the water body. In India, numerous lakes and reservoirs have been studied for their water quality in relation to algal taxonomy by Desikachary (1986), Anand (1988), David *et al.* (2003),Veereshakumar and Hosmani (2006),Sivakumar and Senthilkumar (2008), Poonguzhali and Mayakannan (2009).

Results:

Table 1: List of Phytoplankton from lotic and lentic type of water bodies in Cuddalore District January 2021 to December 2021

S.No	Class: Bacillariophyceae	Order	Family
1	*Melosira varians C.Agardh 1827*	Melosirales	Melosiraceae
2	*Melosira italic Ehrenberg Kutzing 1844*	Melosirales	Melosiraceae
3	*Cycotella meneghiniana Kutzing 1844*	Stephanodiscales	Stephanodiscaceae
4	*Fragillaria brevistriata Grun.1885*	Fragilariales	Fragilariaceae
5	*Fragillaria brevistriata Grun.1885*	Fragilariales	Fragilariaceae
6	*Fragillaria capucina Desmaziers 1830*	Fragilariales	Fragilariaceae
7	*Fragillaria crotonensis Kitton 1869*	Fragilariales	Fragilariaceae
8	*Fragillaria intermedia Grun 1881*	Fragilariales	Fragilariaceae
9	*Fragillaria Vaucheriae Kutz 1938*	Fragilariales	Fragilariaceae
10	*Fragillaria Virescens Ralfs 1843*	Fragilariales	Fragilariaceae
11	*Frustulia rhomboids (Her.) De Toni.1891*	Fragilariales	Fragilariaceae
12	*Frustulia vulgaris (Thwaites) De Toni 1891*	Fragilariales	Fragilariaceae
13	*Synedra acus Kutzing 1844*	Fragilariales	Fragilariaceae
14	*S.berolinensis Lemmermann 1900*	Fragilariales	Fragilariaceae
15	*S.ulna (Nitzsch) Ehrenberg 1832*	Fragilariales	Fragilariaceae
16	*Stauroforma exiguiformis (Lange-Bertalot) 1996*	Fragilariales	Fragilariaceae
17	*Amphora pediculus Kutzing Grunow 1875*	Fragilariales	Staurosiraceae
18	*Skeletonema costatum (Grev.) Cleve.1873*	Thalassiophysales	Catenulaceae
19	*Thalassiosira Cleve 1873*	Thalassiophysales	skeletonematceae
20	*Navicula capitatoradiata H.Germain ex Gasse 1986*	Naviculales	Naviculaceae
21	*Navicula papula A.W.F. Schmidt Cleve 1894*	Naviculales	Naviculaceae
22	*Navicula radiosa Ehrenberg 1844*	Naviculales	Naviculaceae
23	*Navicula rhynchocephala Kutzing 1844*	Naviculales	Naviculaceae
24	*Navicula cari Ehrenberg 1836*	Naviculales	Naviculaceae
25	*Navicula cuspidata Kutz. 1844*	Naviculales	Naviculaceae
26	*Navicula proctracta Grunow 1880*	Naviculales	Naviculaceae
27	*Navicula radiosa Kutz.1844*	Naviculales	Naviculaceae
28	*Navicula cincta Her.Ralfs in Pritchard 1861*	Naviculales	Naviculaceae
29	*Navicula reinhardtii (Grunow) Grunow 1880*	Naviculales	Naviculaceae
30	*Navicula viridula Kutzing Ehrenberg 1836*	Naviculales	Naviculaceae
31	*Navicula schroeteri var escambia Patrick 1959*	Naviculales	Naviculaceae
32	*Pinnularia borealis Her.1843*	Naviculales	Naviculaceae
33	*Pinnularia joculata (Manguin) Krammer,2000*	Naviculales	Pinnulariaceae
34	*Pinnularia divergens W.Smith 1853*	Naviculales	Pinnulariaceae
35	*Pinnularia braunii Grun.1888*	Naviculales	Pinnulariaceae
36	*Pinnularia gibba Ehr.1843*	Naviculales	Pinnulariaceae
37	*Pinnularia interrupta W. Smith 1853*	Naviculales	Pinnulariaceae
38	*Pinnularia viridis (Nitzsch) Ehr. 1843*	Naviculales	Pinnulariaceae
39	*Gyrosigma distortum (W.Smith) JW Griffith 1856*	Naviculales	Naviculaceae
40	*Gyrosigma elongatum (W.Smith) G.S.West, 1909*	Naviculales	Naviculaceae
41	*Gyrosigma spencerii Var. nodiferum Grunow 1894*	Naviculales	Naviculaceae
42	*Stauroneis anceps Ehr.1843*	Naviculales	Naviculaceae
43	*Nitzchia acicularis (Kutzing) W. Smith 1853*	Naviculales	Stauroneidaceae
44	*Nitzchia archibaldii Lange- Bertalot 1983*	Bacillariales	Bacillariaceae
45	*Nitzchia closterium (Ehrenberg) W. Smith 1853*	Bacillariales	Bacillariaceae
46	*Nitzchia palea (Kutzing) W. Smith 1856*	Bacillariales	Bacillariaceae
47	*Nitzchia brebissonii W. Smith 1853*	Bacillariales	Bacillariaceae
48	*Cymbella affinis Kutzing 1844*	Bacillariales	Bacillariaceae
49	*Cymbella Helvetica Kutzing 1844*	Cymbellales	Cymbellaceae
50	*Cymbella aspera (Ehrenberg) H.Peragallo 1889*	Cymbellales	Cymbellaceae
51	*Cymbella lanceolate (C. Agardh) Kirchner 1878*	Cymbellales	Cymbellaceae
52	*Cymbella tumida (Brebission) Van Heurck 1880*	Cymbellales	Cymbellaceae
53	*Gomphonema subventricosum Hustedt 1962*	Cymbellales	Cymbellaceae
54	*Gomphonema clavatoides H.P.Ghandi 1960*	Cymbellales	Cymbellaceae
55	*Eunotia bilunaris 1880*	Eunotiales	Eunotiaceae
56	*Eunotia pectinalis 1880*	Eunotiales	Eunotiaceae
57	*Tabellaria flocculosa Roth (Kutz.) 1844*	Tabellariales	Tabellariaceae
58	*Tabellaria quadrisepta B.M knudson 1952*	Tabellariales	Tabellariaceae
	Class: Chlorophyceae	**Order**	**Family**
59	*Pandorina morum O.F.Muller 1826*	Chlamydomonadales	Volvocaceae
60	*P.morum Bory 1824*	Chlamydomonadales	Volvocaceae

61	*Chlamydomonas elegans G.S. West 1915*	Chlamydomonadales	Chlamydomonadaceae
62	*C. globosa J.W.Snow.1903*	Chlamydomonadales	Chlamydomonadaceae
63	*C.polypyrenoideum Prescott 1944*	Chlamydomonadales	Chlamydomonadaceae
64	*C.consociate (Klebs) G.M. Smith 1933*	Chlamydomonadales	Chlamydomonadaceae
65	*Chlorococcum infusionum Schrank Meneghini 1842*	Chlamydomonadales	Chloroccocaceae
66	*Chlorococcum humicola (Nageli.) Rabenhorst 1868*	Chlamydomonadales	Chloroccocaceae
67	*Chlorococcum humicola Nageli Rabenhorst 1868*	Chlamydomonadales	Chloroccocaceae
68	*Chlorococcum minutum R.C.Starr 1955*	Chlamydomonadales	Chloroccocaceae
69	*Chlorococcum macrostigmatum R.C.Starr 1954*	Chlamydomonadales	Chloroccocaceae
70	*Dictyochloropsis Geitler 1966*	Trebouxiales	Trebouxiaceae
71	*Dictyochloropsis splendida Geitler 1966*	Trebouxiales	Trebouxiaceae
72	*Ankistrodesmus falcatus (Corda) Ralfs.1848*	Sphaeropleales	Selenastraceae
73	*Ankistrodesmus fusiformis* Corda 1838	Sphaeropleales	Selenastraceae
74	*Ankistrodesmus densus* Korshikov 1953	Sphaeropleales	Selenastraceae
75	*Ankisrodesmus densus Korshikov 1953*	Sphaeropleales	Selenastraceae
76	*Characium acuminatum A.Braun 1849*	Desmidiales	Closteriaceae
77	*Coelastrum microporum Nageli 1855*	Desmidiales	Closteriaceae
78	*Coelastrum reticulatum P.A.Dangeard senn 1899*	Desmidiales	Closteriaceae
79	*Coelastrum astroidem De Notaris 1867*	Desmidiales	Closteriaceae
80	Coelastrum microporum Naegeli G.M. Smith, 1920	Desmidiales	Closteriaceae
81	Coelastrum proboscideum Bohlin J. Brunnthaler, 1915	Desmidiales	Closteriaceae
82	*Coelastrella terrestres Reisigl Hegewald 2002*	Desmidiales	Closteriaceae
83	*Coelastrella vaculata I.Shihira And R,W.Krauss 2000*	Desmidiales	Closteriaceae
84	*Dictyococcus varians Gerneck 1907*	Desmidiales	Closteriaceae
85	*Gleocystis gigas Kutzing Lagerheim 1883*	Sphaeropleales	Distyococcaceae
86	*Hydrodictyon reticulatum Linnaeus Bory 1824*	Sphaeropleales	Radiococcaceae
87	*Pediastrum reticulatum Lagerheim 1882*	Sphaeropleales	Hydrodictyaceae
88	*Pediastrum boryanum (Turpin) Meneghini 1840*	Sphaeropleales	Hydrodictyaceae
89	*Pediastrum duplex* var. *gracilimum* West & West, 1895	Sphaeropleales	Hydrodictyaceae
90	*Pediastrum duplex* var. *reticulatum* Lagerheim 1882	Sphaeropleales	Hydrodictyaceae
91	*Pediastrum simplex* (Meyen) Lemmermann, 1829	Sphaeropleales	Hydrodictyaceae
92	*Pediastrum tetras* (Ehrenb.) Ralfs 1845	Sphaeropleales	Hydrodictyaceae
93	*Pediastrum tetras* (Ehrenb.) Ralfs 1845	Sphaeropleales	Hydrodictyaceae
94	*Pediastrum simplex Hey. var. Biwanse Fukush 1953*	Sphaeropleales	Hydrodictyaceae
95	*Pediastrum tetras Ehrenberg Ralfs.1845*	Sphaeropleales	Hydrodictyaceae
96	*Scenedesmus accuminatus var.manor G.M.Smith 1916*	Sphaeropleales	Scenedesmaceae
97	*Scenedesmus obliquus Turpin Kutzing 1833*	Sphaeropleales	Scenedesmaceae
98	*Scenedesmus bijuga (Turpin) Kutzing*	Sphaeropleales	Scenedesmaceae
99	*Scenedesmus alternans Reinsch*	Sphaeropleales	Scenedesmaceae
100	Scenedesmus quadricauda var. granulates (Hortobagyi) Hortob, 1954	Sphaeropleales	Scenedesmaceae
101	*Scenedesmus quadricauda* var. *maximus* West & West, 1895	Sphaeropleales	Scenedesmaceae
102	*Scenedesmus acuminatus* (Lag.) Chodat, 1902	Sphaeropleales	Scenedesmaceae
103	Scenedesmus perforates var. major (Turner) Comb. M.T. Philipose 1967	Sphaeropleales	Scenedesmaceae
104	Scenedesmus quadricauda (kirchner) Chodat, 1913	Sphaeropleales	Scenedesmaceae
105	*Scenedesmus major E. Hegewald 1829*	Sphaeropleales	Scenedesmaceae
106	*Scenedesmus boryanum Ann. Bot.*	Sphaeropleales	Scenedesmaceae
107	*Scenedesmus quadricauda Turpin Brebisson 1835*	Sphaeropleales	Scenedesmaceae
108	*Selenastrum biraianum Reinsch 1866*	Sphaeropleales	Selenastraceae
109	Selenastrum gracile Reinsh G.M. Smith, 1920	Sphaeropleales	Selenastraceae
110	*Selenastrum gracile Reinsch 1866*	Sphaeropleales	Selenastraceae
111	*Westella botryoides (W. West)1897*	Sphaeropleales	Selenastraceae
112	*Ulothrix variablis Kutz. 1849*	Ulotrichales	Ulotrichraceae
113	*Ulothrix moniliformis Kutzing 1849*	Ulotrichales	Ulotrichraceae
114	*Oedogonium Link ex Hirm 1900*	Oedogoniales	Oedogoniaceae
115	*Oedogonium curtum* Witt. & Lundell ex Hirn1900	Oedogoniales	Oedogoniaceae
116	*Oedogonium braunii Kutzging ex Hirn 1900*	Oedogoniales	Oedogoniaceae
117	*Microspora tumidula Hazen 1902*	Sphaeropleales	Microsporaceae
118	*Chaetophora attenuate Hazen 1902*	Chaetophorales	Chaetophoraceae
119	*Chaetophora elegans roth C.Agardh 1812*	Chaetophorales	Chaetophoraceae
120	*Stigeoclonium tenue C.Agardh Kutzing 1843*	Chaetophorales	Chaetophoraceae
121	*Cladophora glomerata Linnaeus Kutzing 1843*	Cladophorales	Cladophoraceae
122	*Cladophora crispate f.Funiformis Roth Grunow 1843*	Cladophorales	Cladophoraceae
123	*Pithophora polymorpha Wittrock 1877*	Cladophorale	pithophoraceae
124	*Chlorella prototheco*ids Kruger 1894	Chlorellales	Chlorellaceae
125	*Chlorella pyrenoidosa H.Chick 1903*	Chlorellales	Chlorellaceae
126	*Chlorella minutissima Fott and Novakova 1969*	Chlorellales	Chlorellaceae
127	*Chorella vulgaris Beyerinck 1890*	Chlorellales	Chlorellaceae
128	*Chlorella minuta Butcher 1952*	Chlorellales	Chlorellaceae
129	*Kerato*coccus bicaudatus 1915	Chlorellales	Chlorellaceae
130	*Actinotaeminum cucurbita (Breb.) Teiling 1954*	Desmidiales	Desmidiaceae

131	*Actinotaeminum diplosporum f.minus Cushman Teiling 1954*	Desmidiales	Desmidiaceae
132	*Closterium aciculare T.West 1860*	Desmidiales	Closteriaceae
133	*Closterium archerianum Cleve ex P.Lundell 1871*	Desmidiales	Closteriaceae
134	*Closterium Kuetzingii Brebisson 1856*	Desmidiales	Closteriaceae
135	*Closterium mecilentcem (Breb.) var. Japonicum*	Desmidiales	Closteriaceae
136	*Closterium ehrenbergii meneghinii ex Ralfs 1848*	Desmidiales	Closteriaceae
137	*Closterium porrectum Norst.1870*	Desmidiales	Closteriaceae
138	*Closterium purvulum Nageli 1849*	Desmidiales	Closteriaceae
139	*Closterium leibleinii Kutzing ex Ralfs 1848*	Desmidiales	Closteriaceae
140	*Closterium tumidum L.N. Johnson 1895*	Desmidiales	Closteriaceae
141	*Cosmarium botrytis Menegh 1848*	Desmidiales	Desmidiaceae
142	*Cosmarium depressum (Naeg.) P.lundell 1871*	Desmidiales	Desmidiaceae
143	*Cosmarium subcostatum Nordst 1876*	Desmidiales	Desmidiaceae
144	*Cosmarium blyttii Wille 1880*	Desmidiales	Desmidiaceae
145	*Cosmarium quadratulum Var.aplanatum Insam 1936*	Desmidiales	Desmidiaceae
146	*Cosmarium auriculatum Var.bogoriense C.Bernard 1908*	Desmidiales	Desmidiaceae
147	*Cosmarium quadrum P.Lundell 1871*	Desmidiales	Desmidiaceae
148	*Cosmarium speciosum P.Lundell 1871*	Desmidiales	Desmidiaceae
149	*Cosmarium awadhense B.N.Prasad and R.K.Mehrotra 1977*	Desmidiales	Desmidiaceae
150	*Cosmarium granatum Brebisson ex Ralfs 1848*	Desmidiales	Desmidiaceae
151	*Cosmarium angulosum Brebisson 1856*	Desmidiales	Desmidiaceae
152	*Euastrum ansatum var.Ccommune Ducellier 1918*	Desmidiales	Desmidiaceae
153	*Euastrum bidentatum Nag.1849*	Desmidiales	Desmidiaceae
154	*Euastrum gessneri Krieger and Bourrelly 1956*	Desmidiales	Desmidiaceae
155	*Euastrum insulare Wittrock J.Roy 1877*	Desmidiales	Desmidiaceae
156	*Euastrum spinlosum Delponte 1876*	Desmidiales	Desmidiaceae
157	*Micrasterias foliacea Bailey ex Ralfs 1848*	Desmidiales	Desmidiaceae
158	*Netrium digitus Ehrbg. Itzigsohn & Rothe 1856*	Zygnematales	Mesotaeniaceae
159	*Staurastrum gracile Ralfs ex Ralfs 1848*	Desmidiales	Desmidiaceae
160	*Staurastrum apiculatum Brebisson 1856*	Desmidiales	Desmidiaceae
161	*Spirogyra rhizobrachialis C.C Jao 1935*	Zygnematales	Zygnemataceae
162	*Spirogyra subsalsa Kutz. 1845*	Zygnematales	Zygnemataceae
163	*Spirogyra varians (Harsall) Kutz. 1849*	Zygnematales	Zygnemataceae
164	*Spirogyra chungkingensis* Jao 1935	Zygnematales	Zygnemataceae
	Class: Cyanophyceae	**Order**	**Family**
165	*Chroococcus limneticus Lemm.1898*	Chroococcales	Chroococcaceae
166	*Chroococcus turgidus (Kuetzing) Naegeli 1849*	Chroococcales	Chroococcaceae
167	*Chroococcus disperses (V. Keissler) Lemm. 1904*	Chroococcales	Chroococcaceae
168	*Chroococcus macrococcus (Kutz.) Rabenh 1892*	Chroococcales	Chroococcaceae
169	*Chroococcus minor (Kutz.) Nageli 1849*	Chroococcales	Chroococcaceae
170	*Chroococcus prescottii Drouet & Daily 1942*	Chroococcales	Chroococcaceae
171	*Chroococcus tenax (Kirchn) Hieron 1892*	Chroococcales	Chroococcaceae
172	*Gloeocapsa magma (Breb.) Kutz. 1847*	Chroococcales	Microcystaceae
173	*Gloeocapsa nigrescens Nag. 1865*	Chroococcales	Microcystaceae
174	*Gloeocapsa punctata Nag. 1849*	Chroococcales	Microcystaceae
175	*Microcystis aeruginosa Kuetzing 1846*	Chroococcales	Microcystaceae
176	*Microcystis incerta Lemm.1903*	Chroococcales	Microcystaceae
177	*Gomphosohaeria aponina (Kutz.) 1836*	Chroococcales	Gomphosphaeriaceae
178	*Aphanocapsa grevillea (Hass). Rabenhorst 1865*	Synechococcales	Merismopediaceae
179	*Aphanocapsa banaresensis 1935*	Synechococcales	Merismopediaceae
180	*Aphanocapsa pulchra (Kutz.) 1865*	Synechococcales	Merismopediaceae
181	*Aphanocapsa littroralis Hansgirg 1892*	Synechococcales	Merismopediaceae
182	*Aphanocapsa bullosa (Menegh) 1865*	Synechococcales	Merismopediaceae
183	*Aphanocapsa microscopica Nag. 1849*	Synechococcales	Merismopediaceae
184	*Merismopedia elegans A. Braun ex Kutzing 1849*	Synechococcales	Merismopediaceae
185	*Merismopedia glance (Ehrenberg) Kutzing 1845*	Synechococcales	Merismopediaceae
186	*Merismopedia Punctate Meyen 1839*	Synechococcales	Merismopediaceae
187	*Merismopedia minima Beck 1897*	Synechococcales	Merismopediaceae
188	*Merismopedia flos-aquae (Wittr.) Kirchner 1898*	Synechococcales	Merismopediaceae
189	*Anabaena lada (Bory) Ex. Bornet. 1886*	Nostocales	Nostocaceae
190	*Anabaena spiroides Klebahn 1895*	Nostocales	Nostocaceae
191	*Anabaena orientalis Dixit*	Nostocales	Nostocaceae
192	*Anabaeana oscillarioides Bory ex Bornet & Flahault*	Nostocales	Nostocaceae
193	*Anabaena volzii Lemm.1905*	Nostocales	Nostocaceae
194	*Nostoc paludosum Kutzing ex Bornet & Flahault 1886*	Nostocales	Nostocaceae
195	*Nostoc spongiaeforme Agardh ex Born.et flah*	Nostocales	Nostocaceae
196	*Nostoc calcicola Breb ex. Born et Flah.1886*	Nostocales	Nostocaceae
197	*Nostoc carneum Ag. ex. Born et. Flah. 1886*	Nostocales	Nostocaceae
198	*Nostoc muscorum C.Agardh ex Bornet Flahault 1888*	Nostocales	Nostocaceae
199	*Nostoc pruniforme C.Agardh ex Bornet Flahault 1886.*	Nostocales	Nostocaceae
200	*Hapalosiphon welwitschia Wwest G.S.West 1897*	Nostocales	Hapalosiphonaceae

201	*Hapalosiphon flagelliformae Bornet 1889*	Nostocales	Hapalosiphonaceae
202	*Westiellopsis prolifica Janet 1941*	Nostocales	Hapalosiphonaceae
203	*Scytonema stuposum Bornet ex Bornet 1886*	Nostocales	Scytonemataceae
204	*Leptoyngbya boryana Gomont Anagnostidis and Komarek 1988*	Synechococcales	Leptolyngbyaceae
205	*Leptolyngbya tenuis Gomont Anagnostidis and Komarek 1988*	Synechococcales	Leptolyngbyaceae
206	*Leptolyngbya fragilis Gomont Anagnostidis and Komarek 1988*	Synechococcales	Leptolyngbyaceae
207	*Leptolyngbya circumcreta*	Synechococcales	Leptolyngbyaceae
208	*Arthrospira jenneri Stizenb. et Gomont 1892*	Oscillatorales	Microccoleaceae
209	*Arthrospira platensis Gomont 1892*	Oscillatorales	Microccoleaceae
210	*Lyngbya aestuari Liebm Ex Gomont 1892*	Oscillatorales	Oscillatoraceae
211	*Lyngbya dendrobia Bruhl at Biswas*	Oscillatorales	Oscillatoraceae
212	*Lyngbya martensiana Mengh. Ex. Gomont. 1892*	Oscillatorales	Oscillatoraceae
213	*Lyngbya shackletoli West 1892*	Oscillatorales	Oscillatoraceae
214	*Lyngbya versicolor (Vartm) Gom. 1892*	Oscillatorales	Oscillatoraceae
215	*Oscillatoria Subbrevis Schmidle 1901*	Oscillatorales	Oscillatoraceae
216	*Oscillatoria simplicissima Gomont*	Oscillatorales	Oscillatoraceae
217	*Oscillatoria chlorina Kutz. ex Gomont 1892*	Oscillatorales	Oscillatoraceae
218	*Oscillatoria curviceps Ag. ex Gomont 1892*	Oscillatorales	Oscillatoraceae
219	*Oscillatoria laeteviresis (Grouan) Gomont. 1892*	Oscillatorales	Oscillatoraceae
220	*Oscillatoria magartifera Kutz Ex Gomont.1892*	Oscillatorales	Oscillatoraceae
221	*Oscillatoria obtuse N.L.Gardner 1927*	Oscillatorales	Oscillatoraceae
222	*Oscillatoria pseudogeminata G. Schmidle 1914*	Oscillatorales	Oscillatoraceae
223	*Oscillatoria sancta Kutzing ex Gomont 1892*	Oscillatorales	Oscillatoraceae
224	*Oscillatoria subbrevis Schmidle F. Crassa 1901*	Oscillatorales	Oscillatoraceae
225	*Oscillatoria terebriformnis C.Agaardh ex Gomont 1892*	Oscillatorales	Oscillatoraceae
226	*Oscillatoria vizagapatens Rao. C.B 1938.*	Oscillatorales	Oscillatoraceae
227	*Oscillatoria Tenuis C. Agardh ex Gomont 1892*	Oscillatorales	Oscillatoraceae
228	*Phormidium papyraceum Ag. Gomont. 1892*	Oscillatorales	Oscillatoraceae
229	*Spirullina major Kutzing ex Gomont 1892*	Spirulinales	Spirulinaceae
230	*Spirulina meneghiniana Zanard ex. Gomont 1892*	Spirulinales	Spirulinaceae
231	*Spirullina princeps Voucher ex. Gomont 1892*	Spirulinales	Spirulinaceae
232	*Spirullina subsalsa Oerst. ex. Gom. 1892*	Spirulinales	Spirulinaceae
	Class: Euglenophyceae	**Order**	**Family**
233	Euglena acus (O.F. Muller) Ehrenberg 1980	Euglenales	Euglenaceae
234	E. clavata Skuja 1948	Euglenales	Euglenaceae
235	E. caudata K. Hubner 1886	Euglenales	Euglenaceae
236	E.deses Ehrenberg 1834	Euglenales	Euglenaceae
237	E.fundoversata L. P. Johson 1944	Euglenales	Euglenaceae
238	E.limnophila Lemm. 1898	Euglenales	Euglenaceae
239	E.oxyuris f. Maior 1966	Euglenales	Euglenaceae
240	E.proxima P.A. Dangeard 1902	Euglenales	Euglenaceae
241	E.repulsans J. Schiller 1952	Euglenales	Euglenaceae
242	E. spirogyra Ehrenberg 1932	Euglenales	Euglenaceae
243	Trachelomonas hispida (Perty) F. Stein 1878	Euglenales	Euglenaceae
244	T.lacustris Drezepolski 1925	Euglenales	Euglenaceae
245	T.robusta Swir.emend Deflandre 1926	Euglenales	Euglenaceae
246	T. volvocina Ehrenberg 1834	Euglenales	Euglenaceae
247	T.curta var. punctata 1993	Euglenales	Euglenaceae
248	T.armata var. steinii 1905	Euglenales	Euglenaceae
249	T.oblonga var. 1915	Euglenales	Euglenaceae
250	Lepocinclis acuta Prescott 1949	Euglenales	Euglenaceae
251	L. fusiforms (H. J. Carter) Lemmermann 1901	Euglenales	Phacaceae
252	L.texta (Dujardin)Lemmerm 1901	Euglenales	Phacaceae
253	L.Salina F.e.Fristsch 1918	Euglenales	Phacaceae
254	L.Spirogyroides Marin et Melkonian 2003	Euglenales	Phacaceae
255	Phacus acuminatus Stoker 1885	Euglenales	Phacaceae
256	P. anacoelus f.major Prescott 1944	Euglenales	Phacaceae
257	P.anomalus (F.E.Fritsch et M.F.Rich)1929	Euglenales	Phacaceae
258	P.caudatus K.Hubner 1886	Euglenales	Phacaceae
259	P.triqueter Ehrenberg Dujardin 1841	Euglenales	Phacaceae
260	P. Curvicauda Svirenko 1915	Euglenales	Phacaceae
261	P. elegans pochmann 1942	Euglenales	Phacaceae
262	P.tortus Lemmermann Skvortsov 1928	Euglenales	Phacaceae
263	P.longicauda Ehrenberg 1842	Euglenales	Phacaceae
264	P.orbicularis K. Hubner 1886	Euglenales	Phacaceae
265	Euglena acus (O.F. Muller) Ehrenberg 1980	Euglenales	Phacaceae

The present study listed a total of 265 species in the Lotic and lentic water bodies in cuddalore district. Out of 265 species representing 78 genera of 4 families and 27 orders as per classification referred by Desikachary (1959) Volvoccales Chlorococcales Sphaeropleales Ulothricales Odegoniales Microsporales Chaetophorales Chladophorales Chlorellaes Zygnematales Chroococcles Synechocystales Nostocales Stigonematales

Pseudoanabenales Oscillatoriales Spirulinales Melosirales Thalassiosirales Fragilariales Thalassiophysales Naviculales Bacillariales Cymbellales Eunotiales Tabellariales Euglenales.

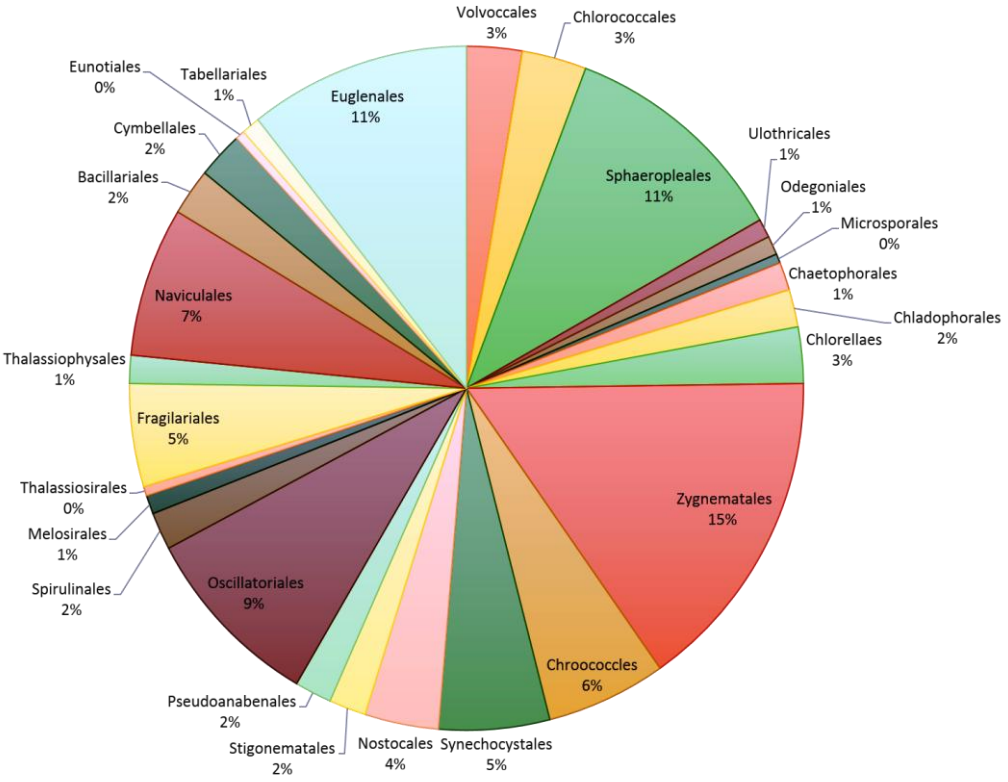

Figure 3: Phytoplankton Diversity in Lotic and Lentic Type of Water Bodies

Discussion:

Phytoplankton are also important as an environmental impact study as much as they are extremely responsive to change in the environment and thus indicate the environmental changes and fluctuations that may occur. Phytoplankton acts as biological indicators of water pollution. The phytoplankton composition of the reservoir indicated that water of this reservoir is slowly getting mesotrophic and leading for eutrophy. Substantial contribution of algal forms like *Navicula, Nitzschia, Synedra, Euglena phormedium,* which are part of palmer's list of sixty more pollution tolerant genera in the world (Palmer, 1969). Most of the works studied were the periodicity and distribution of algae in Indian fresh water bodies.

A total of 265 algal taxa including 58 Bacillariophyceae, 106 Chlorophyceae, 68 Cyanophyceae and 33 Euglenophyceae were identified in the velar river. In the present investigation, Bacillariophyceae formed the major component of phytoplankton both in population and individual species. It is followed by Bacillariophyceae, Chlorophyceae, Cyanophyceae and Euglenophyceae. The source of inlets of showed drainage wastewater showed *Scenedesmus, Navicula, Oscillatoria*as a dominant genus. *Cyclotella meneginiana* and *Coscinodiscus* sp.,were the centric diatoms recorded from this site. *Microcystis, Spirulina, Oscillatoria* were found to form algal blooms. *Anabaena* was observed only in the month of May. Maximum percentage composition of Chlorophyceae was recorded in September, Bacillariophyceae in November, Euglenophyceae in August and Cyanophyceae in the month of MayMicroalgae recorded at velar River showed a continuous occurrence. Common generaof Chlorophyceae *Spirogyra, Cosmarium, Scenedesmus, Pediastrum, Closterium* and *Chlorella.*Common genera of Cyanophyceae *Microcystis, Oscillatoria, Anabaena* and *Ulothrix.*Common genera of Bacillariophyceae *Cyclotella, Fragillaria, Navicula, Nitzschia* and *Euglena* were recorded. *Chlorella,* were found to participatein bloom formation. Maximum percentage composition of Chlorophyceae was recorded in November, Bacillariophyceae in June, euglenoids in August and Cyanophyceae in July. The population and existence of species was maximum during summer season in lotic and lentic water bodies. The stable hydrographical features prevailed during summer season resulted higher phytoplankton production as well as species richness. The lower phytoplankton population density was observed during monsoon in the lotic and lentic water bodies. The rainfall and consequent reduction in salinity during monsoon drastically reduced the population.

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