



AN ASSESSMENT OF AQUATIC PHYTOPLANKTON AND THEIR SEASONAL VARIATION FROM HISTORICAL “KHAJANA VIHIR” DIST.BEED

Jogdand S. K.

P.G.Department of Botany, Mrs.K.S.K.College, Beed(M.S.)

ABSTRACT

The investigation was done to study and have an assessment of phytoplankton biodiversity from Khajana vihir in Beed district of Maharashtra. From June 2018 to 2019 the study was carried out . Phytoplanktons are most abundant autotrophic element of aquatic ecosystem. They serve as the basic unit of the aquatic food web. The abundance of phytoplanktons observed 46 species of the following Bacillariophyceae ,Chlorophyceae, Euglinophyceae and Myxophyceae. The population density of phytoplankton shows variation during study period. The dominating group of phytoplankton was Myxophyceae and lowest Euglinophyceae. In present study revealed that the water body of Khajanavihir contaminated due to human activities but it is useful for irrigation and drinking purpose.

INTRODUCTION

Khajana vihir (well) is a historic well situated approximately 6 km south of the township of Beed .It was constructed in 991 AD (1583) by a Jagirdar of Beed in the period of Murtaza Nizam Shah of Ahemadnagar named Salabat Khan. It is believed, the level of water in this well remains constant even in driest of seasons .Three water currents from the well irrigate the land around the town. The well is constructed using stones and lime mortar. Total depth of well is 7.0 meter. The inner diameter of the well is around 19.0 meter up to the depth of 4.7 meter and below this depth it is 12.6 meter. On this offset of 6.4 meter between these diameters, a lime concrete is laid to form a nice platform.

Khajanavihir (well) acts as a source of land irrigation as well as drinking water for people and animals. Due to the pollutants as well as entry of sewage waste water and matter and interaction in between all these factors, some significant changes were recorded in the ecosystem. This water body is eco-biologically active, having a variety of flora. Biodiversity of fresh water phytoplanktons were studied in marathwada region earlier by Kamat(1962, 1979,1980 and 1983) Sarode and Kamat (1984)Ashtekar(1980) and Talekar (2009). The phytoplanktons are the main autotrophic constituent of aquatic ecosystem. Moreover, numbers and species of phytoplankton's can be used to determine the quality of waterbody in which they are collected. That is why, the present investigations was decided.

Material and Methods

The samples from the well, Khajana Vihir were collected at monthly intervals during the period of one year July 2018 to June 2019 for the investigation. The samples were preserved and stored in 4% formalin for further study. The standard texts, relevant monograph and recent available literature were used to identify the phytoplankton(Agarwal 1990;Desikacharya,1950;Edmondson,1959;Mrugan,1998; Fritch,1956; Patel and Wadgaonkar, 1981 ;Kamat 1962,1963,1974; Philipose,1967). Many published work on aquatic environment and biodiversity of phytoplankton in fresh water are available, Dixit (1936), Yogesh Shashtry *et.al.*(1999) More and Nandan (2003) and also such type of work done by other researchers.

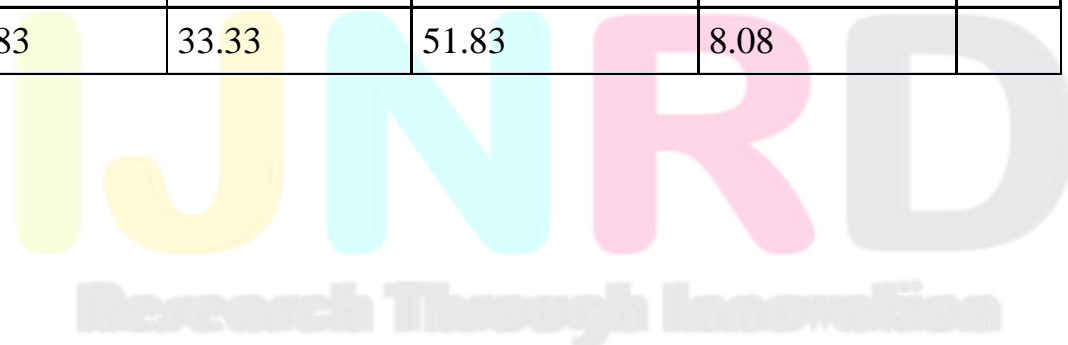
RESULT AND DISCUSSION

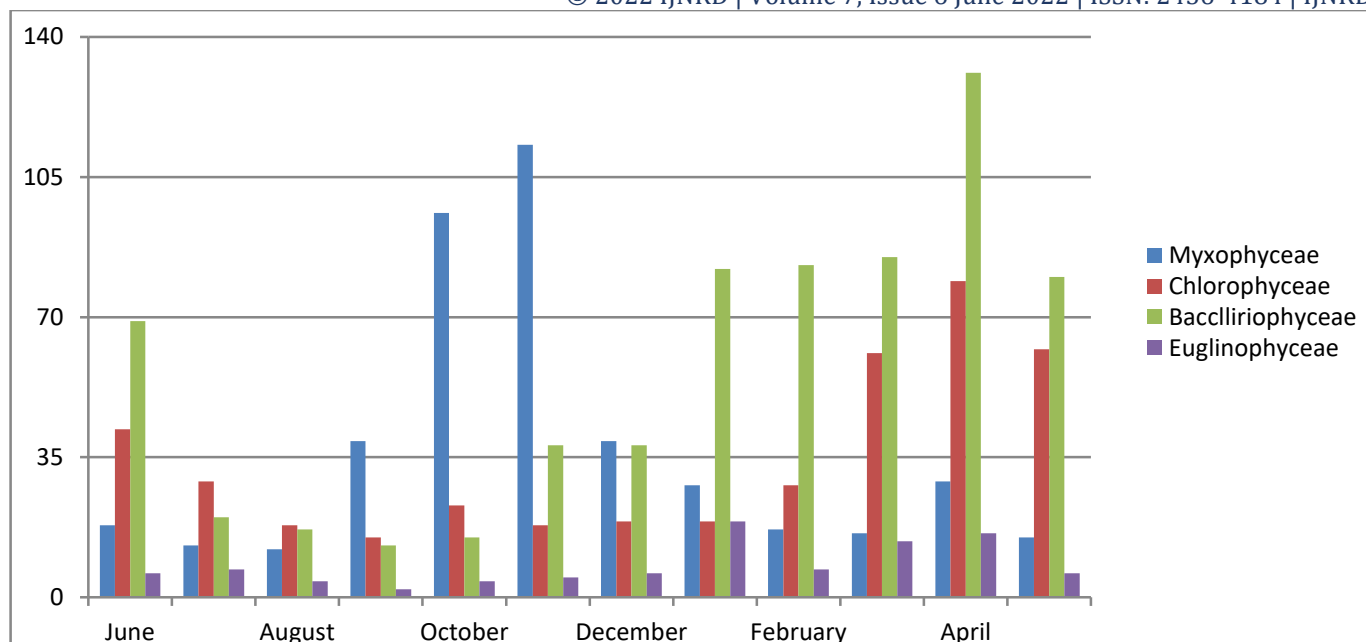
In present investigation the phytoplanktons of biodiversity in Khajanavihir waterbody is full of four major groups of which 11 species belong to Myxophyceae, 9 species to Bacillariophyceae, 23 species of Chlorophyceae and 8 species belong to Euglinophyceae. The Density of phytoplanktons ranged maximum from 260x118/l in the month of April and observed minimum 48x5/l in month of August. LGradual increase in the total density of population observed January to April. The annual mean percentage of these four groups was observed about (42.76) Myxophyceae , (26.70) Chlorophyceae, (27.00), (42.78) Bacillariophyceae and(5.70) of Euglinophyceae.

The total number of phytoplankton and their species of the water body and monthly average of qualitative and quantitative identified species are given in

Table no.1

Month	Class Myxophyceae	Class Chlorophyceae	Class Bacillariophyceae	Class Euglinophyceae	Total
June	18	42	69	6	135
July	13	29	20	7	69
Aug	12	18	17	4	51
Sep	39	15	13	2	69
Oct	96	23	15	4	138
Nov	113	18	38	5	174
Dec	39	19	38	6	102
Jan	28	19	82	19	148
Feb	17	28	83	7	135
Mar	16	61	85	14	176
Apr	29	79	131	16	255
May	15	62	80	6	163
Total	417	371	602	90	1480
%	35.83	33.33	51.83	8.08	





REFERENCES

Agarwal S.C.(1990),Limnology , APH Publishing cooperation.New Delhi.pp150.

Ashtekar P.V.(1980) Studies on fresh water algae of Aurangabad District Ph.D.thesis Dr. BabasahebAmbedkarM.U.Aurangabad.

Desikacharya.T,V.(1959)Cyanophyta ISAR Monograph on Algae.New Delhi.686

Desikacharya.T,V.(1959)Cyanophyta ISAR Monograph on Algae.New Delhi.

Dixit S.C.(1936) The Myxophyceae of the Bombay presidency, India. *I proc.indian Acad.Sci.*3:93-106

Kamat N.D.(1963) The Algae of Kolhapur, India *Hydrobiologia.*(3-4):209-305

PrasadB.N. and PoonamKhanna (1987) The Cynophycean flora of Sikkim –i.Ocillatoriaceae. *j.Indian Bot.Soc.*66:253-260

Murugan and kundarkar(1998)Cladocera(The biology ,classification, Identification and Ecology). *Indian Asso.Aqu.Biologists.* (IAAB),Hydrabad publ. No.5.

Nandan S.N. and Patel R.G.(1983) Seasonal variation of phyto plankton in VishnupuriRver, Baroda.*All IndiaAppliedphycol.Con.* Kanpur.**18**:26 269.

Sarode P.T. and Kamat N.D.(1979) Studies on Diatoms of Marathwada (M.S.) *Phyocs.***18** :25-32.

Sarode P.T. and Kamat N.D.(1984) Fresh water Diatoms of Marathwada(M.S.) SaikrupaPrakashan Aurangabad.338 pp.

Shreeramalu and Ramanna(1994) Some aspects of limnology and fishery of vottiguddareservoir.**A.P.J. Eco boil.**6(2):81-88 .

Philipose M.T.(1967).Chlorococcales ,I ndian council of Agricultural Research, Neew Delhi.

Talekar S.M.(2009),Studies on Algal biodiversity of Manjara River and itsReservoirs in Beed District of Marathwada .Ph.D.thesis Dr. B.A.M.University Aurangabad.