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Algal flora of Darna river water, Nasik (M.S)

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Abstract:

Fresh water resources like River encompasses are different types of autotrophic phytoplanktons like algae. Algal floras are important biotic components of aquatic habitat. They do determine the tropic status and the quality of water of river and reservoirs. A definite interrelationship exists between various factors such as light, turbidity, nutrient level, planktons in relation to productivity of river. The presentresearch paper, quantitative analysis studies of four groups of algae namely Chlorophyceae, Cyanophyceae, Bacillariophyceae and Euglenophyceae were made for two years at six sampling sites at Darna River; Nashik.

Keyword: Algal flora, quantitative analysis, Darna River

Introduction:

The limnological studies can provide basic information on species diversity & richness, the frequency, dominance of biological species which is essential to understand differential changes in water quality.Masood and Krishnamurthy (1990). Simultaneously, the biological contamination can directly influence on the aquatic biota and affect the community structure; thus, it is considered as one of the most important parameters for water quality assessment.Limnology is an integrative discipline that encompasses spatial and temporal variations in physical, chemical, and biological properties; & the aquatic biota that is influenced by these properties Wetzel, 1990.Biological evaluations of fresh water ecosystems are involve the analysis data of aquatic organisms, characterizations of algal flora. The origin of Darna River is northern slopes of the Kulang hill, South great height, but broken by scores of small streams. Dam rises in the Kalasubai range in the southern part of the district. River Darnadrains regions of Nashik district like Igatpuri, Nashik and Niphad tahsils.

Material and Methods

Algal samples were collected at monthly intervals during the period of study i.e. January, 2015 to December, 2016. Simple conical plankton net, pumps and tubes were used to collect the water samples at desired water depth. For this purpose; synthetic plastic sunpet jars

(150ml) were used.Algal samples were kept preserved in 4% formalin for further taxonomic investigations. Identification of algae was made by relevant monographs and recent available literature. (Prescott, 1954, Pringsheim, 1956, Desikachary, 1959; Randhwa, 1959; Iyengar and Desikachary, 1981; Sarode and Kamat. 1984). Compound microscope as well as stereoscopic binocular research microscope with camera attachment was used for photograph of algal flora

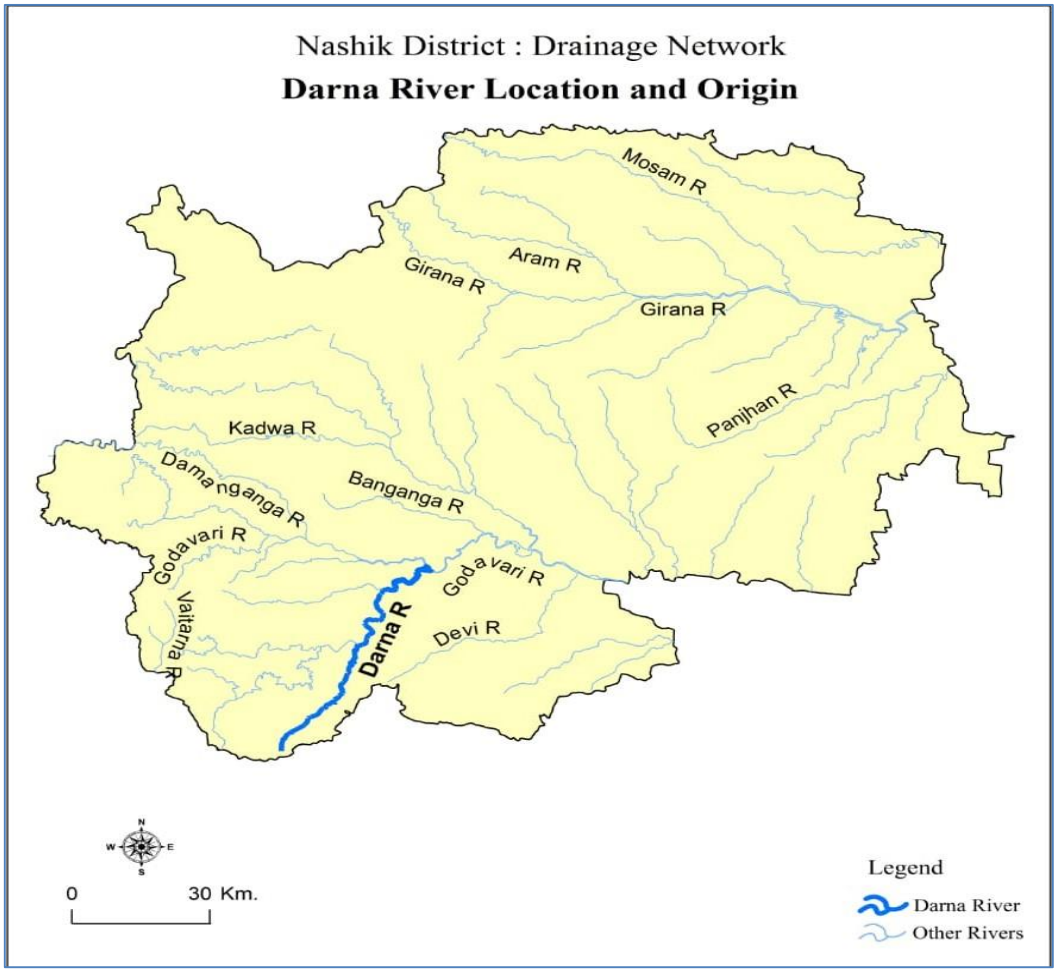

Fig.1 Location and origin of Darna River.

Result and discussion

The water samples had been collectedatmonthlyintervals.Collectedalgalformswereidentifiedanddescribedwiththehelpofstandardliteratureonalgaeasfaraspossibletothespecieslevel and obtain the quantitative and qualitative data of various algal populations. The obtained data in terms of taxonomic characters, density, and seasonal variation of the prominent algal genera belonging to the

Chlorophyceae, Cyanophyceae, Bacillarophyceae, and Euglenophyceae have been studied. . Total 85 algal species have been recorded from the selected sampling sites during the study periodwere dominated followed by Chlorophyceae, Bacillariophyceae and Euglenophyceae. Most of the algal members showed their maximum growth during monsoon & winter months and minimum during summer seasons for both the years of study. Occurrence of increasing number of algal population may also have caused an increase in theamount of dissolved oxygen. This was observed by Bharathi and Ramanibai (2002).The occurrence diatoms were rivers and this is in agreement with the findings of earlier workers (Venkateswarlu; 1981 and Manikya Reddy and Chandra Shaker, 2008).Temperature plays an important role in controlling the occurrence and abundance of algal population (Tarekeshwar et al. 2011).

Analysis of algal flora revealed that there are total 45 algal genera with 85 species belonging to the classes like Chlorophyceae (36% and 32%) , Cyanophyceae (40% and 42%), Bacillariophyceae (20% and 21%), and Euglenophyceae (4% and 5%) have been recorded during 2015 and 2016 respectively.Table 1 shows that average site wise occurrence of total algal genera and species found at six sampling sites at Darna River during January 2015 to December 2016

Summary

The comparatively large number of algal population has been recorded at sampling sites S1, S2, S3 and S5. Similarly; lowest number of algal members has been recorded from the sampling sites like S4 and S6. This could be due to the varying industrial and municipal discharges across these sites, low transparency and reduced illumination caused by occasional discharge of nearby industrial and municipal wastes (Ezra and Nwankwo 2001). The algal taxa Cyanophyceae were the maximum number of algal species has been recorded at sampling stations S1. Chlorophyceae; the maximum algal members have been recorded at sampling stations like S5 and S6. Bacillariophyceae, the maximum algal members have been recorded at sampling stations like S5 for the first year and S4 for the second year.

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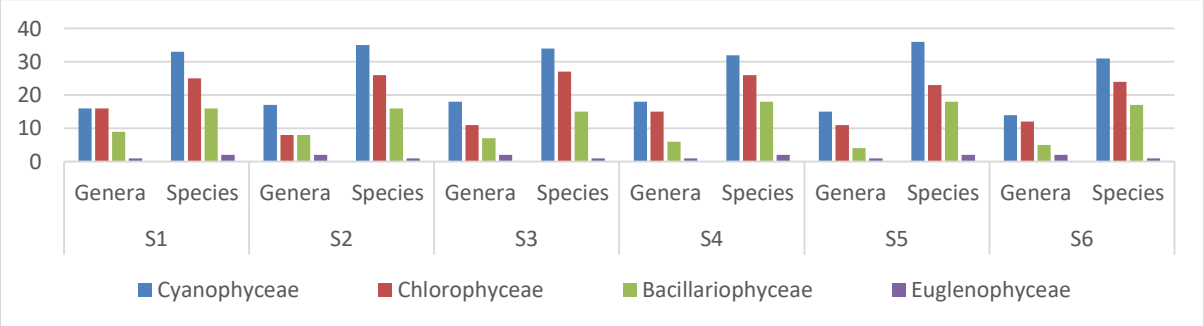
Table 1: Average site wise occurrence of total algal genera and species found at six sampling sites at Darna River during January 2015 to December 2016.

Class/ Sampling sites	S1		S2		S3		S4		S5		S6	
	Genera	Species	Genera	Species	Genera	Species	Genera	Species	Genera	Species	Genera	Species
Cyanophyceae	16	33	17	35	18	34	18	32	15	36	14	31
Chlorophyceae	16	25	08	26	11	27	15	26	11	23	12	24
Bacillariophyceae	09	16	08	16	07	15	06	18	04	18	05	17
Euglenophyceae	01	02	02	01	02	01	01	02	01	02	02	01
Total	**42**	**76**	**35**	**78**	**38**	**77**	**40**	**78**	**31**	**79**	**33**	**73**

Fig. 2: Average site wise occurrence of total algal genera and species found at six sampling sites at Darna River during January 2015 to December 2016.



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