

Algal Flora of Dang District of Gujarat State India

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ARTICLE INFO

Article History:

Accepted: 10 Sep 2023

Published: 17 Oct 2023

Publication Issue

Volume 10, Issue 5

September-October-2023

Page Number

502-511

ABSTRACT

Algae are pre dominantly aquatic and are mainly found in fresh or marine water. The rivers from Dang District are select for Taxonomy of Algae. The present study is a part of survey being conducted to study the algal flora of Dang which is situated at an altitude of 1200 meter south Gujarat. Lots of variety of Algal species are found in nature. Some of them are very useful in various fields. Lots of variety of Algal species were collected and identified along with their family. Total of 78 Species belonging to 27 genera and 10 orders of Green Algae have been so far recorded from the locality under present investigation.

Keywords : Taxonomy, Algal species

I. INTRODUCTION

The Dang district covers 1764 sq. km. The Dang is located 1500km from sea level. An extensive study was carried out and 87 species belonging to 43 genera of Cyanophyceae, Chlorophyceae, Xanthophyceae, Bacillariophyceae, Charophyceae, Odegoniaceae, Chaetophoraceae were reported from Dang district.

Main objective of selecting Algal flora survey as a research topic is due to its diverse applications. To study the local algal flora in Dang district, as many algae still need to be research and identify. A large number of species of Algae are used as a source of food by human beings. Algae increase the soil fertility by fixing atmospheric Nitrogen. Algae are also used as

Bio fertilizers and few algae are used for Biomass Utilization. Many algae contain a high percentage of iodine content and also contain Vitamin B12, thus they are used in medicines. The green algae Chlorella yield Antibiotics. Algae are economically important as a source of crude oil and also as oxygen producers.

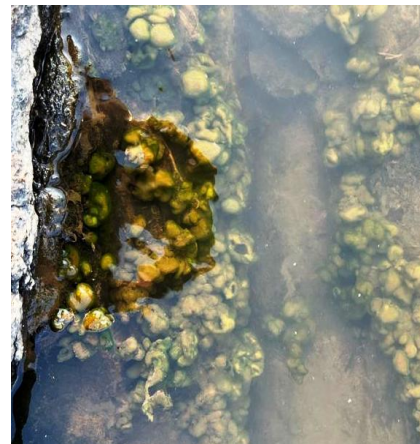
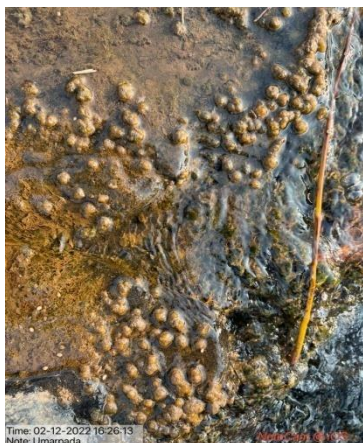
II. STUDY AREA

The Dang District is situated at Western state of Gujarat. The Dang District covers 1764 sq. km and its coordinates are Longitude 73.6899 degrees North and Latitude 20.7572 degrees East. The Dang District is bounded on the north by Tapi district, on the west by Navasari District and also on east and south by the State of Maharashtra. In the Dang district, mostly

tropical moist deciduous forests occurs..The Dang also known as mini Cherrapunji's of Gujarat with average annual rainfall exceeding covers 1200 mm and its major rivers like Ambika, Purna, Khapari, Dhodad and Gira. The Dang District covers 3 Talukas : Waghai, Ahwa and Subir.



III. METHODS AND MATERIAL



IV. Methodology

Choose site that is representative of the bulk water being assessed. Field visits to the research area in the selected interval of time. Samples should be collected in 500 ml plastic or glass sampling bottles. Collected algal samples by hand or scrapers / spatula. Samples should be washed with running tap water. Label sample bottles with waterproof Pen. Place the sample bottle in cool box with ice for transport to the analyzing Laboratory. Record the site name, sample name, Date & Time, sampler name and any general observation about the site. After collection of algae, sample identification is done. The sample identification mainly is to be done with the help of concerned literatures or with the help of the sample's external morphology and with compound microscope and light microscope. The objective used were 10x, 40x, 100X. The sample were Identified with the help of book : College Botany. Preservation of samples were done by standard preservatives like formalin

solution. Storage of the Algal samples in glass the present study are enlisted and described below. containers. The species collected and identified during

V. RESULTS

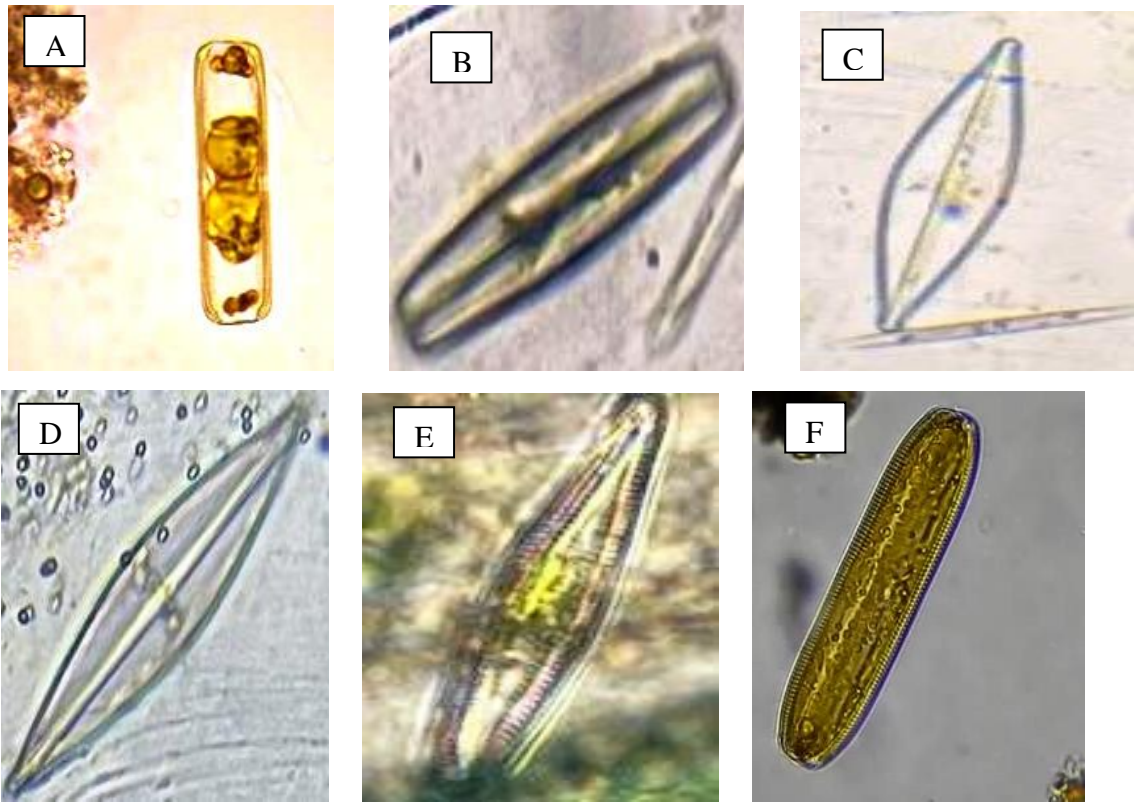
Serial No.	Class	Order	Family	Botanical Name	Type of Thallus	Uses
1	Chlorophyceae	Volvocales	Chlamydomonadaceae	<i>Chlamydomonas</i>	Colonial, biflagellate, small elliptical oval cells.	
2	Chlorophyceae	Volvocales	Volvocaceae	<i>Volvox Tetraspora</i>	Spherical hollow sphere of colony of algal cells.	
3	Chlorophyceae	Chlorococcales	oocystaceae	<i>Chlorella</i>		
4	Chlorophyceae	Sphaeropleales	Scendesmaceae	<i>Scendesmas</i> (Mayen,1829)	Non motile, colonial, unicellular	To study pollution, used in sewage treatment
5	Chlorophyceae	Sphaeropleales	Hydrodictyaceae	<i>Hydrodictyon reticulatum</i>	colonial, filamentous-pentagonal or hexagonal structure of colonies.	
6	Chlorophyceae	Sphaeropleales	Hydrodictyaceae	<i>Pediastrum angulosum, P. tetras</i>	colonial, unmistakable star shape.	
7	Chlorophyceae	Cheatophorales	Cheatophoraceae	<i>Stigeoclonium</i>	colonial branching patterns filaments (hair like)	Provides essential water for drinking and industry in desert region.
8	Chlorophyceae	Oedogoniales	oedogoniaceae	<i>Oedogonium</i>	Unbranched filamentous	Fixation of heavy metals in fresh water

						ecosystem
9	Chlorophyceae	Sphaeropleales	Scendesmaceae	<i>Tetrademus accuminatus</i>	Non fillamento us, colonial,u ni cellular	
10	Chlorophyceae	Sphaeropleales	Scendesmaceae	<i>Coelastrum reticulatum(Na geli,1899)</i>	colonial, non filamentou s	
11	Ulvophyceae	Cladophorales	Ulvophyceae	<i>Cladophora</i>	Unicells, colonies with flagella reticulated , filamentou s.	
12	Trebouxiophyceae	Chlorellales	Oocystaceae	<i>Oocystis</i> spp.	Non filamentou s	
13	Trebouxiophyceae	Chlorellales	Chlorellaceae	<i>Chlorella vugaris</i>	Single celled spherical green cell.	It contain vitamins,B ₁₂ , folate and iron.
14	Zygnematophyceae	Zygnematales	Zygnemataceae	<i>Spirogyra</i> spp.	Multicellu lar filamentou s	Antibiotic, anti oxidant, antiviral. used for treatment of Diabetes.
15	Zygnematophyceae	Zygnematales	Zygnemataceae	<i>Zygnima (C. agaris- 1897)</i>	Unbranch ed filaments with cylindrical cells.	
16	Zygnematophyceae	Desmidiiales	Closteriaceae	<i>Closterium</i>	Single celled crescent shaped, unicellular	
17	Charophyceae	Charales	Characeae	<i>Chara globularis</i>	Multicellu lar, small plant like branches.	It stabilizes bottom sediments provides food for small fishes.

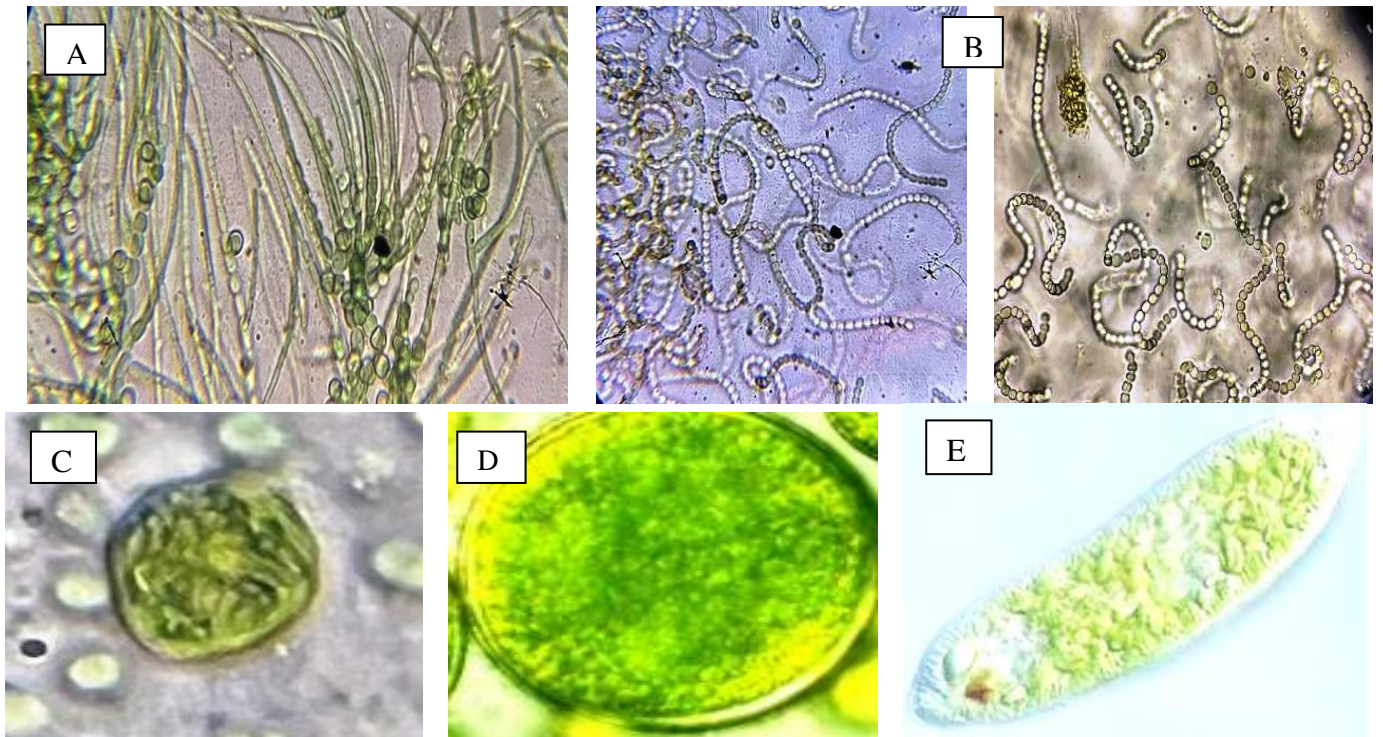
18	Euglenophyceae	Euglenales	Euglenaceae	<i>Euglena phacus</i>	Motile, spindle shaped single celled	It's important components of certain aquatic environment.
19	Cyanophyceae	Oscillatoniales	Oscillatoriaceae	<i>Oscillatoria curviceps, O. lilosa, O. princeps</i>	Filamentous trichomes	Fixing atmospheric N ₂ increase soil fertility used as bio fertilizer in paddy fields.
20	Cyanophyceae	Oscillatoniales	Oscillatoriaceae	<i>Lyngbya spp.</i>	Unicellular, long, unbranching filamentous.	
21	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Gloeocapsa Kutzing, 1843</i>	Unicellular, Non filamentous grouped in small family	
22	Cyanophyceae	Nostocales	Nostocaceae	<i>Anabaena</i>	colonial, filamentous	used for the Nitrogen fixation as bio fertilizer.
23	Cyanophyceae	Nostocales	Nostocaceae	<i>Nostoc</i>	colonial citis called fresh water graps cells.	used for the Nitrogen fixation as bio fertilizer.
24	Cyanophyceae	Nostocales	Rivulariaceae	<i>Rivularia</i>	colonial, trichomes	
25	Cyanophyceae	Nostocales	Scytonemataceae	<i>Scytonema spp.</i>	Filamentous	
26	Cyanophyceae	Synechococcales	Merismopediaceae	<i>Merismopedia (Meyen, 1839)</i>	Spherical shape unicellular organisms in colonial form.	
27	Cyanophyceae	Chroococcales	Chroococcaceae	<i>Chroococcus</i>	Unicellular, Ovoid shaped macroscopic colony	Richest source of chlorophyll used as pharmaceutical

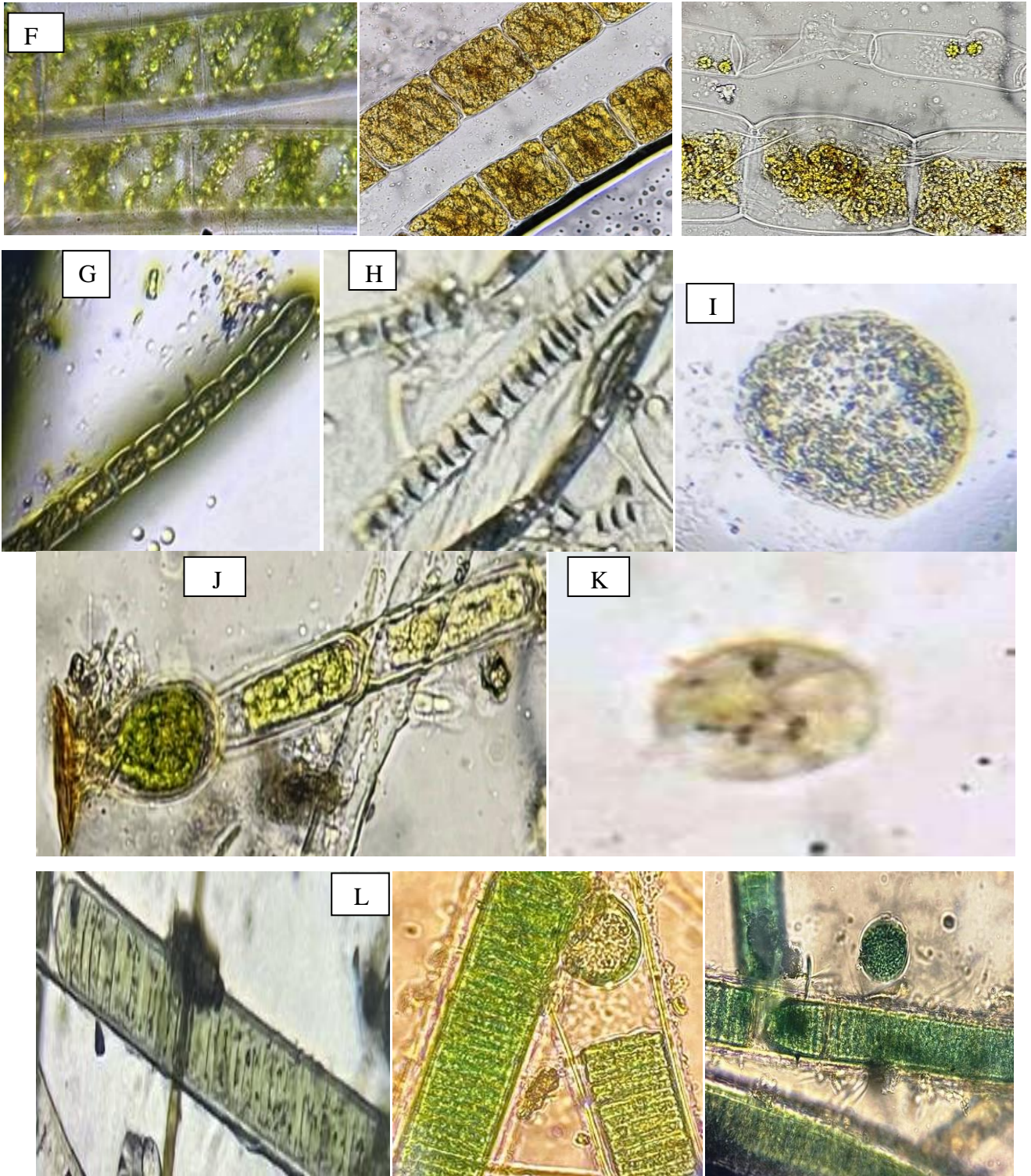
					with trichomes.	al and cosmetics industry.
28	Bacillariophyceae	Pennales	Bacillariophyceae	<i>Asterionella Hassall</i>	Frustules in girdle heteropolar, bone shaped	Filtration of oils and syrups, toothpaste. used as an insecticide
29	Bacillariophyceae	Pennales	Bacillariophyceae	<i>Synedra</i>	colonial, elongated needles shaped	used for formation of bio diesel.
30	Bacillariophyceae	Pennales	Bacillariophyceae	<i>Carticula cupsidata</i>	Elongated and rectangular colonial	Filtration of oils and syrups
31	Bacillariophyceae	Pennales	Bacillariophyceae	<i>Carticula ambigua</i>	Large, elongated needle shaped.	Filtration of oils and syrups
32	Bacillariophyceae	Pennales	Bacillariophyceae	<i>Nitzschia sigmoidea</i>	Spindle shapes	Filtration of oils and syrups
33	Bacillariophyceae	Pennales	Bacillariophyceae	<i>Cymbello cistula</i>	Elongated large stick like shaped	
34	Bacillariophyceae	Pennales	Bacillariophyceae	<i>Navicula cryptocephala</i>	Elongated in shape. They can divide bilaterally	
35	Bacillariophyceae	Pennales	Bacillariophyceae	<i>Stauronesis onceps</i>	Large, elongated needle shaped.	

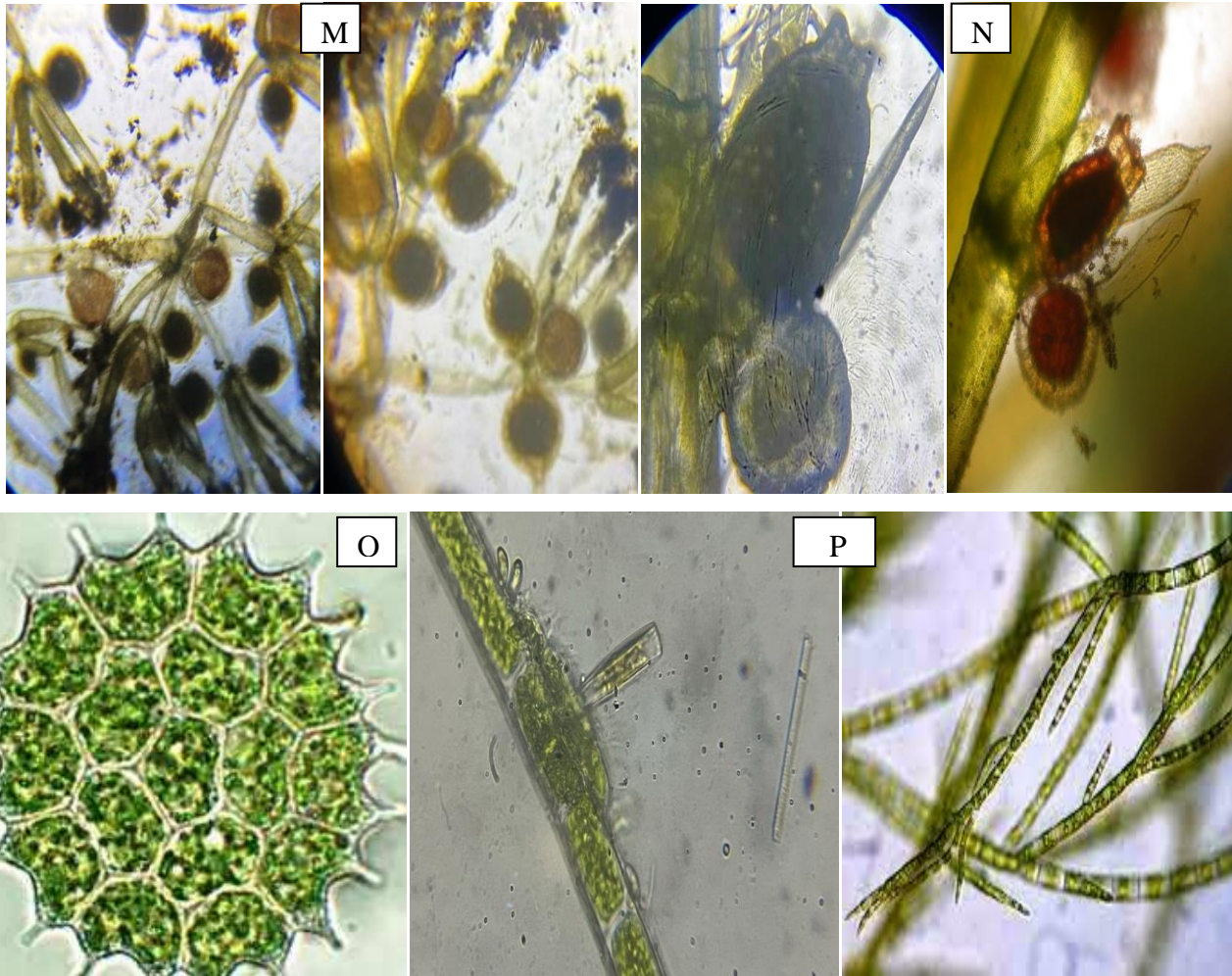
ACKNOWLEDGEMENT: The author is thankful to Dr. Takhtsinh G. Gohil and Jennifer vinodbhai Parmar B.K.M Science College, Valsad for their guidance and support.



Diatoms : BACILLARIOPHYCEAE:(A) *Aulocosiero thwaites*; (B) *Diatoma* spp.:(C) *Stauronrsis onceps*; (D) *Gyrosingma* spp; (E) *Navicula cryptocephala*; (F) *Pinnularia viridiformis*.







(A) Rivularia; (B) Nostoc.; (C) Chlorococcum; (D) Chlorella; (E) Euglena; (F) Spirogyra; (G) Cylindrospermum; (H) Zygnem; (I) Volvox; (J) ;Oedogonium; (K) Pandorina spp.; (L) Oscillatoria; (M) Nitella; (N) Chara; (O) Pediastrum; (P) Cladophora.

VI. CONCLUSION

This study will help to know the morphology of various Algae. This research work helps to Algae's Geographical distribution and Ecology of algae. This research work was carried out without harming other fauna and flora surrounding the research area. This study will help future researchers and biology students to know about morphology and ecology various algae. Collected information was used to inform the local community. The study will also help to know positive and negative effects of algae on water or environment.

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Cite this article as :

Bijubala A. Patel, Dilipkumar D. Patel, "Algal Flora of Dang District of Gujarat State India", *International Journal of Scientific Research in Science and Technology (IJSRST)*, Online ISSN : 2395-602X, Print ISSN : 2395-6011, Volume 10 Issue 5, pp. 502-511, September-October 2023. Available at doi : <https://doi.org/10.32628/IJSRST52310566>
Journal URL : <https://ijsrst.com/IJSRST52310566>