



‘TAXONOMIC ALGAL DIVERSITY OF FAMILIES GOMPHONEMATACEAE, NITZSCHIACEAE AND SURIRELLACEAE ORDER PINNELES IN DIMBHE DAM FROM AMBEGAON TEHSIL OF PUNE DISTRICT (MAHARASHTRA)’

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ABSTRACT:

The Ambegaon tehsil in Pune District situated in between 19°7'0" Northern 73°44'0" Eastern latitude on the northern part of Deccan Plateau & composed of undulating hills. Ambegaon tehsil covers the area from Bhimashankar to Lakhanpur. This tehsil has survived with the blessings of Kulguru Shree Khanderaiya of Bhimashankar. Agriculture is the main occupation of this region. Adivasi Tribes found in large number in this region. Periodical collections of algae from the study area were done from the Dimbhe dam as well as Rivers, Lake's, Puddles, Pulls etc. from Ambegaon Tehsil. Sampling stations were carried away. The samples were bringing to laboratory for identification; Identification were done with the help of Indian monographs other standard literature like Sarode and Kamat (1984). The collected algal forms had been preserved in 4% formalin. With the help of phytoplankton collected samples were investigated from September 2018 to October 2019. The present investigation is undertaken with keep in mind that to study the algal population from selected stations of study area. All algal plants were identified up to genus, species, variety as well as forma level. We visit all stations from Ambegaon Tehsil. Attempts have been undertaken to bring out the Algal flora of this region. There are 23 species, 18 varieties and 1 forma belonging to 5 genera of 3 families from 1 order of 1 class from 1 division. Family Nitzschiaceae includes 2 genera, 6 species and 6 varieties. Family Surirellaceae include only 2 genera and 7 species and 2 variates. While family Gomphonemataceae include only 1 genus and 10 species, 10 varieties and 1 forma While Gomphonema is more densely occur in Ambegaon tehsil. But Genus *Cymatopleura* include only 1 species occur in Ambegaon tehsil.

Key words: *Pinneles, Ambegaon, Pune, Gomphonemataceae, Nitzschiaceae, Surirellaceae, Dimbhe dam*

INTRODUCTION:

Filamentous algae were collected from mass growths by hand. Sub-aerial algae growing attached to tree barks, on damp walls or other such substrata were collected by scraping with a scalpel and then picked up with the help of a forceps. Hand collected samples were investigated from September 2018 to October 2019. The present investigation is undertaken with keep in mind that to study the algal population from selected stations of study area.

The samples were preserved in a mixture of 50 ml of 95% ethyl alcohol, 5 ml of glacial acetic acid, 10 ml of 40% commercial formalin and 35 ml of water. The specimens are observed under microscope for 10X, 40X, 100X and Photographs were taken with the help digital camera under appropriate magnifications. Identification of specimens was mostly based on the keys given in standard monographs & literatures. The Vaucher specimens have been deposited at Dept. of Botany, Hon. Baladaheb Jadhav College, Ale, Tal. Junnar, Dist. Pune.

MATERIALS AND METHODS:

Periodical collections of algae from the study area were done from the Dams as well

as Rivers, Lake's, Puddles, Pulls etc. from Ambegaon Tehsil. Sampling stations were carried away. The samples were bringing to laboratory for identification; Identification was done with the help of Indian monographs and other standard literature like Anand (1998) and Sarode and Kamat (1984). The collected algal forms had been preserved in 4% formalin.

Algal samples were collected from various freshwater biotopes *viz.* ditches, puddles, pools, ponds, reservoirs, waterfalls, streams, rivers, paddy fields, moist soil, swamps and marshes of Study area. Phytoplanktons were collected by using phytoplankton net from surface waters of impoundments.

SUMMARY AND CONCLUSION:

Since the dawn of civilization, water has been the most important raw material for civilization. It is one of the vital sources of all kinds of life on the earth. Economically, culturally and biologically water is most useful natural resource on the earth. We use water for drinking, bathing, cooking, cooling, irrigation, transportation, energy power and recreation. Thus, water is nature's gift to the living world including human race. Our biosphere consists of 71 % of water out of which fresh water environment occupied only 2.6 %. For the usable purpose only 0.62 % water from lakes, streams, rivers and other resources are available for the living organisms.

In India most of the cities, towns, villages and industries are situated at the bank of rivers and lakes. Due to uncontrolled population, the huge quantity of untreated sewage is being added every day in these different water reservoirs. Besides these, industrial wastes, residues of insecticides, pesticides, excess agricultural fertilizers also

added in these fresh water eco-systems causing pollution and creates health hazards.

Present study is on the taxonomic data of algal species were collected from Dimbhe Dam, It is located on Ghod River at Dimbhe 11 kms away from Ghodegaon in Ambegaon Tehsil.

Water samples were collected periodically from Dimbhe dam. For qualitative analysis, water samples were collected separately in the bottles. Collections were done from streams, rivers, ponds, puddles, and impoundments during and after monsoon season from Ambegaon Tehsil of Pune District. Algae of different habitats were collected from these localities such as - planktonic, benthic, epiphytic, terrestrial, epiphyllous and from tree-trunk.

Planktonic algal collection was made by using plankton net of blotting silk cloth 25 meshes/linear inch and analyzed qualitatively. Phytoplanktons were collected by using phytoplankton net from surface waters of impoundments. Quantitative estimation was done for phytoplankton by Lackey's drop method (Lackey, 1938). Algal identification was carried out by using standard literature and monographs. Microphotographs of algal plants encountered during investigation period were taken.

I have collected 42 algal specimens. These are from single orders of 1 class and 1 division. In which all 42 specimens planktonic specimens

The present investigation shows 1 order, 3 families, 5 genus, 23 species, 18 varieties and 1 forma from 1 division and 1 class. Present investigation shows dominance of Family Gomphonemataceae represented by 21 species while family Surirellaceae represented by 9 species.

CONCLUSIONS:

- ❖ This research work helps us to know type of algal flora of the study area.
- ❖ The data gathered serves as base line data for planning utilization and conservation strategies of algae.
- ❖ Phytoplankton studies helps us to know primary producers (Qualitatively and quantitatively) of the study area.
- ❖ This research work may help all the phycological students to study the algal vegetation in Ambegaon.

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Sr. No.	Name of Algal Specimen
Family	Nitzschiaceae
Genus	<i>Hantzschia</i>
1	<i>Hantzschia amphioxys</i> (Ehrenb.) Grunow. v. <i>capitata</i> O. Mull
2	<i>Hantzschia amphioxys</i> (Ehr.) Grun. v. <i>densestriata</i> (Font.) A. Cl.
3	<i>Hantzschia amphioxys</i> (Ehr.) Grun. v. <i>mugadensis</i> Gandhi
Genus	<i>Nitzschia</i>
1	<i>Nitzschia apiculata</i> (Gorg.) Grun.
2	<i>Nitzschia closterium</i> W. Smith
3	<i>Nitzschia heufleriana</i> Grun.
4	<i>Nitzschia heufleriana</i> Grun. v. <i>elongatea</i> Pant.
5	<i>Nitzschia hungarica</i> Grun.
6	<i>Nitzschia jugata</i> Gandhi
7	<i>Nitzschia obtusa</i> W. Smith v. <i>scalpelliformis</i> Grun.
8	<i>Nitzschia palea</i> (Kuetz.) W. Smith
9	<i>Nitzschia theramalis</i> kuetz. v. <i>minor</i> Hilse
Family	Surirellaceae
Genus	<i>Surirella</i>
1	<i>Surirella apiculata</i> W. Smith
2	<i>Surirella biseriata</i> Breb.
3	<i>Surirella carponii</i> Breg
4	<i>Surirella ovata</i> Kuetz
5	<i>Surirella ovata</i> Kuetz. v. <i>pinnata</i> (W. Smith) Hustedt
6	<i>Surirella obusta</i> Ehr.
7	<i>Surirella spiralis</i> Kuetzing
8	<i>Surirella tenera</i> Greg. v. <i>nervosa</i> A. S.
Genus	<i>Cymatopleura</i>
1	<i>Cymatopleura solea</i> (Breb) W. Smith
Family	Gomphonemataceae
Genus	<i>Gomphonema</i>
1	<i>Gomphonema aequatoriale</i> Hustedt
2	<i>Gomphonema clavetoides</i> Gandhi v. <i>valida</i> Gandhi
3	<i>Gomphonema constrictum</i> Ehr. v. <i>capitata</i> (Ehr.) Cleve
4	<i>Gomphonema constrictum</i> Ehr. v. <i>indica</i> Gandhi
5	<i>Gomphonema gracile</i> Ehr.
6	<i>Gomphonema gracile</i> Ehr. f. <i>turris</i> Hustedt
7	<i>Gomphonema gracile</i> Ehr. v. <i>auritum</i> A. Br.
8	<i>Gomphonema gracile</i> Ehr. v. <i>intricatiforme</i> Mayer
9	<i>Gomphonema gracile</i> Ehr. v. <i>lanceolate</i> (Kuetz.) Cleve
10	<i>Gomphonema herbidense</i> (Greg.) Ehr.
11	<i>Gomphonema intricatum</i> Kuetz v. <i>fossile</i> Pant
12	<i>Gomphonema lacus-rankala</i> Gandhi v. <i>robusta</i> Gandhi
13	<i>Gomphonema lancoelatum</i> Ehr.
14	<i>Gomphonema monantum</i> Schum. v. <i>acuminatum</i> Mayer
15	<i>Gomphonema moniliforme</i> Gandhi
16	<i>Gomphonema olivaceum</i> (Lyng.) Kuetz.
17	<i>Gomphonema olivaceoides</i> Hustedt.
18	<i>Gomphonema parvulum</i> (Kuetz.) Grun.
19	<i>Gomphonema parvulum</i> (Kuetz.) Grun. v. <i>micropus</i> (Kuetz) Cleve
20	<i>Gomphonema sphaerophorum</i> Ehr.
21	<i>Gomphonema subapicatum</i> Fritsch et Rich

Plate 1

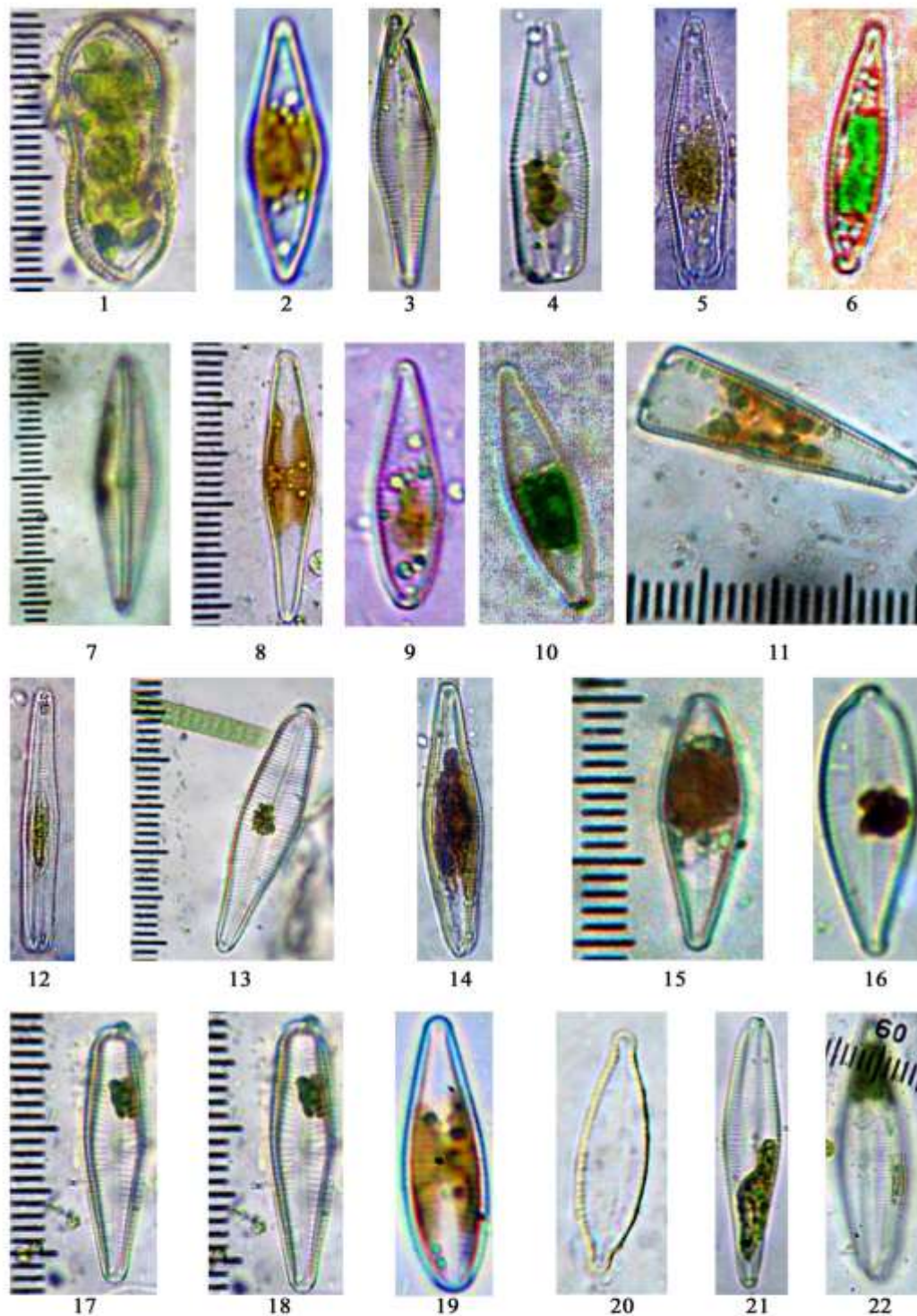


Fig. 1) *Cymatopleura solea*, 2) *Gomphonema aequatoriale*, 3) *Gomphonema clavatoides* v. *valida*, 4) *Gomphonema constrictum* v. *capitata*, 5) *Gomphonema constrictum* v. *indica*, 6) *Gomphonema gracile* f. *turris*, 7) *Gomphonema gracile* v. *auritum*, 8) *Gomphonema gracile* v. *intricatiforme*, 9) *Gomphonema gracile* v. *lanceolata*, 10) *Gomphonema gracile*, 11) *Gomphonema hebridense*, 12) *Gomphonema intricatum* v. *fossile*, 13) *Gomphonema lacusrankala* v. *robusta*, 14) *Gomphonema lanceolatum*, 15) *Gomphonema monantum* v. *acuminatum*, 16) *Gomphonema moniliforme*, 17) *Gomphonema olivacenum*, 18) *Gomphonema parvulum* v. *micropus*, 19) *Gomphonema parvulum*, 20) *Gomphonema sphaerophorum*, 21) *Gomphonema subapicatum*, 22) *Gomphonema subapicatum* v. *okamurae*

Plate 2

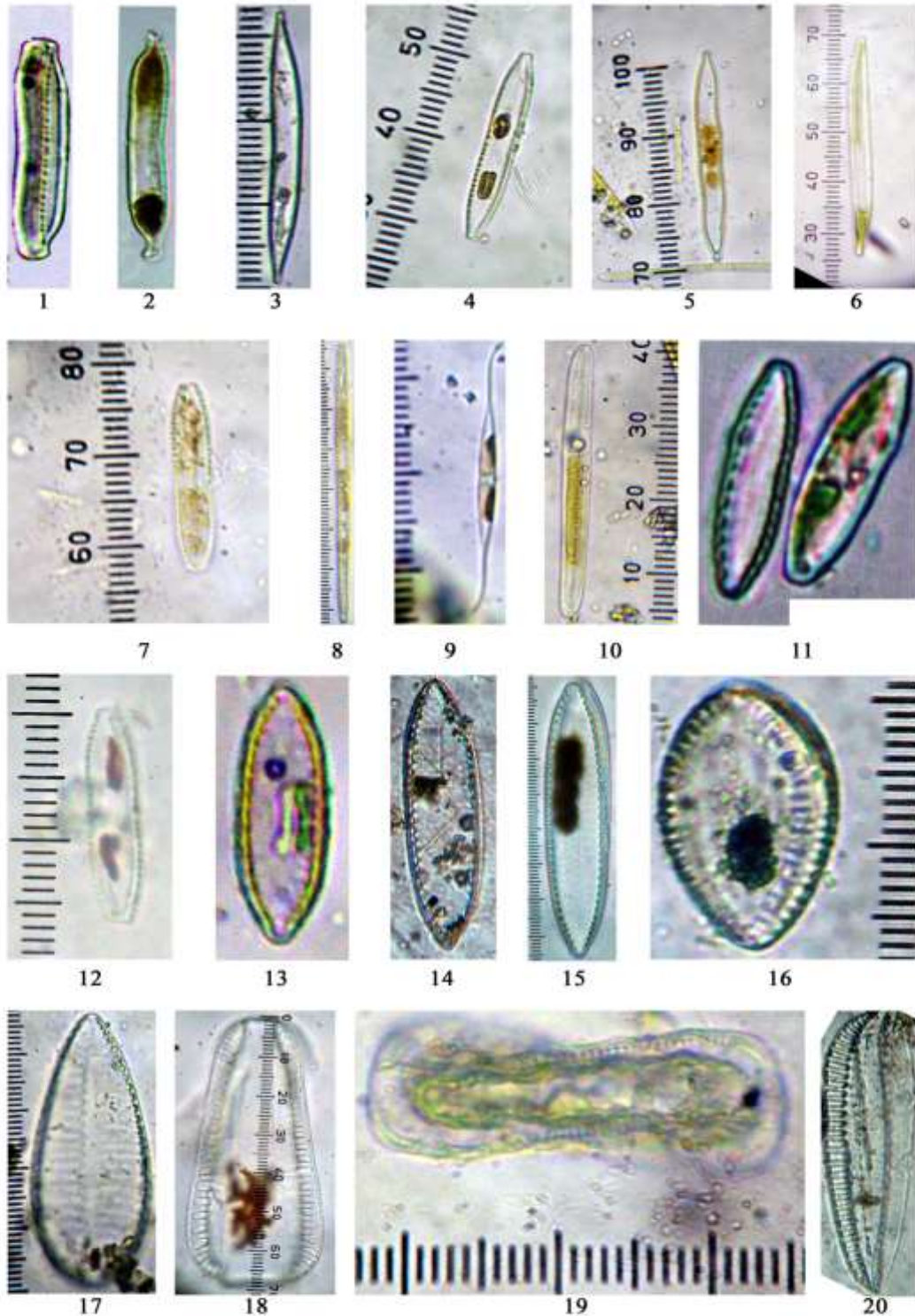


Fig. 1) *Hantzschia amphioxys* v. *capitata*, 2) *Hantzschia amphioxys* v. *densestriata*, 3) *Hantzschia amphioxys* v. *mugadensis*, 4) *Nitzschia apiculata*, 5) *Nitzschia closterrium*, 6) *Nitzschia heufferiana*, 7) *Nitzschia heufferiana* v. *elongata*, 8) *Nitzschia hungarica*, 9) *Nitzschia jugata*, 10) *Nitzschia obtusa* v. *scalpelliformis*, 11) *Nitzschia palea*, 12) *Nitzschia thermalis* v. *minor*, 13) *Surirella apiculata*, 14) *Surirella biseriata*, 15) *Surirella capronii*, 16) *Surirella ovata*, 17) *Surirella ovata* v. *pinnata*, 18) *Surirella robusta*, 19) *Surirella spiralis*, 20) *Surirella tenera* v. *nervosa*