PROTOZOA DIVERSITY OF GORJA LAKE OF BHADRAWATI, DISTRICT CHANDRAPUR (M.S.), INDIA

Zoology
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ABSTRACT
The Gorja Lake is principal fresh water body located in Gorja village of Bhadrawati talsil in Chandrapur district of Maharashtra state. Bhadrawati is a talsil place and it is 25 km north side of Chandrapur and 125 km south east side from Nagpur. It is situated at about 211 m above the mean sea level. Present Protozoa in the Gorja Lake near Bhadrawati town was studied from June 2014 to May 2016 during total 32 species of Protozoa were recorded in three sites of Gorja Lake.

KEYWORDS
Gorja lake, Protozoa diversity.

INTRODUCTION:
Protozoa are the smallest planktons in size and essentially an important food sources food chain in an aquatic micro-invertebrate.

Gorja lake is 10 km south side from Bhadrawati Talasil at about 198 m above mean sea level and is at 79°05’48"E longitude and 20°05’59"N latitude. Gorja Lake receives the water from the surrounding catchment areas during the monsoon period. The area of Gorja Lake is spread over 300 acres. The depth of water is 35 feet during the monsoon and 12 feet during the summer season. The water of this lake is primary used for washing, bathing, fishing activities, agriculture and other domestic purpose but now it is at a transitional state with respect to degradation.

MATERIAL AND METHOD:
Sample for planktonic study were collected monthly from three sites of lake. The samples were collected in the morning hours from 8.30 a.m. to 10.30 a.m. 50 Lt. of water sample was filtrated through the plankton net made of bolting silk number 25 with mesh size 64 lime the collected samples were allowed to settle down by adding Lugol’s Iodine. Normally sedimentation requires 24 hrs. after which supernatant was removed and concentrate was made up to 50 ml. depending the number of plankton and preserved in 5% formalin for further studies.

For the quantitative study the concentrated sample was shaken and immediately one drop of sample was taken on a clear micro slide with the help of standard dropper the whole drop was then carefully covered with the cover glass and observed. Plankton identification up to genera level. Present Protozoa in the Gorja Lake near Bhadrawati town was studied from June 2014 to May 2016 during total 32 species of Protozoa were recorded in three sites of Gorja Lake.

RESULT AND DISCUSSION:

In the present investigation, Protozoa species shows little variations as per sampling sites of A the lake In site, Protozoa is represented by 32 species in 2014-15 and 30 species in 2015-16, in site B, Protozoa is represented by 30 species in 2014-15 and 29 species in 2015-16 and in site C, Protozoa is represented by 31 species in 2014-15 and 30 species in 2015-16.

In site A, during 2014-15, 32 species were recorded among which Amoeba proteus (51 no./lit) is dominant followed by Actinophrys sol (39 no./lit), Diffuglia lobostoma (37 no./lit), Diffuglia lebes (31 no./lit), Amphilieptus clareparedi (21 no./lit), Chrysoameba radianis (21 no./lit), Diffuglia alveolata (21 no./lit), Arcella vulgaris (20 no./lit), Chilodonella sp. (18 no./lit), Nassaula ornate (18 no./lit), Paramecium caudatum (17 no./lit), Spathidium spathula (17 no./lit), Urocentrum turbo (16 no./lit), Centropyxis arecelloides (15 no./lit), Diffuglia, corona (15 no./lit), Arcella discoideas (14 no./lit), Bryometopus spheni (14 no./lit), Campanella umbellaria (14 no./lit), Homalozoön vernicularis (14 no./lit), Diffuglia pyriformis (13 no./lit), Actinospemium sp. (12 no./lit), Lionotus fasciola (12 no./lit), Pseudoblepharisma crassum (11 no./lit), Epistylis plicatilis (10 no./lit), Euplotes (10 no./lit), Centropyxis hemisphaerica(9 no./lit), Centropyxis aculeata (7 no./lit), Holophrya similex (7 no./lit), Paramecium bursaria (6 no./lit), Stentor roseci (3 no./lit) and Vorticella campanula (2 no./lit).

In site B, during 2015-16, 30 species were recorded among which Amoeba proteus (45 no./lit) is dominant followed by Actinophrys sol (36 no./lit), Diffuglia lebes (32 no./lit), Diffuglia lobostoma (32 no./lit), Amphilieptus clareparedi (20 no./lit), Chrysoameba radianis (20 no./lit), Aarcella vulgaris (19 no./lit), Diffuglia alveolata (19 no./lit), Pelomyxa palustris (18 no./lit), Homalozoön vernicularis (17 no./lit), Nassaula ornate (17 no./lit), Chilodonella sp. (16 no./lit), Paramecium caudatum (16 no./lit), Spathidium spatula (16 no./lit), Arcella discoideas (15 no./lit), Campanella umbellaria (15 no./lit), Diffuglia corona (14 no./lit), Diffuglia pyriformis (14 no./lit), Actinospemium sp. (12 no./lit), Trachelophyllum apiculum (12 no./lit), Bryometopus spheni (11 no./lit), Centropyxis arecelloides (11 no./lit), Pseudoblepharisma crassum (10 no./lit), Centropyxis hemisphaerica (8 no./lit), Epistylis plicatilis (8 no./lit), Euplotes sp. (7 no./lit), Holophrya simplex (6 no./lit), Paramecium bursaria (5 no./lit),
In site B, during 2015-16, 30 species were recorded among which Actinophrys sol (44 no./lit), Difflugia alveolata (9 no./lit), Vorticella campanula (5 no./lit), Difflugia lobostoma (29 no./lit), Difflugia pyriformis (11 no./lit), Arcella discoides (11 no./lit), Actinophrys radians (7 no./lit), Homalozoon vermiculare (12 no./lit), Centropyxis hemisphaerica (7 no./lit), and Vorticella companula (3 no./lit).

In site C, during 2014-15, 28 species were recorded among which Actinophrys sol (44 no./lit) was dominant followed by Trachelophyllum apiculatum (20 no./lit), Chilodonella sp. (17 no./lit), Holophrya simplx (11 no./lit), Actinophrys radians (9 no./lit), Actinosphaerium sp. (9 no./lit), Centropyxis aculeate (8 no./lit), and Difflugia lebes (6 no./lit).

In site C, during 2014-15, 31 species were recorded among which Amoeba proteus (44 no./lit) was dominant followed by Actinosphaerium sp., Difflugia lobostoma, Actinophrys sol, Difflugia lebes, Amphileptus clapedarei and Chrysamoeba radians.

In the present investigation, seasonally maximum Protozoa was recorded in the summer season and minimum during the monsoon season. Kedar, (2002) observed minimum population of Protozoa during the rainy season at Rishi lake in Karanja (Lad) of Maharashtra. Patil, (2008) reported peak of Protozoa population during the summer season and low count during the rainy season. Bhagat, et al. (2010) observed maximum Protozoa in the winter season and minimum during the monsoon season in Ambadi irrigation dam of District Akola.

In the present study, the dilution of water caused by rain water which results in minimum population of Protozoan in monsoon season. The maximum population of protozoa during in summer season indicates a positive relation with temperature and also may be due to lower DO contents in this season and abundance of sulphates and phosphates to this site.

CONCLUSION:
In the present investigation, the maximum Protozoa during the summer season is probably due to availability of suitable food and favorable temperature and minimum density in monsoon season which could be due to dilution of water resulting in fewer nutrients and due to reduction of transparency and dissolved oxygen.

REFERENCES:
16. Shashikant Sitre, (2014) reported that the peak of Protozoa population of in summer months and their count remains low during monsoon period in Naik lake of Nagpur city (M.S.).

Table 1: Yearly variation of Protozoa from sites of Gorja Lake during year 2014-15

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Parameters</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Protozoa</td>
<td>44.58 ± 25.68</td>
<td>38.92 ± 22.98</td>
<td>36.92 ± 22.87</td>
<td>40.14 ± 1.30</td>
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</table>

Table 2: Yearly variation of Protozoa from sites of Gorja Lake during year 2015-16

<table>
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<tr>
<th>S.N.</th>
<th>Parameters</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>Protozoa</td>
<td>39.67 ± 22.45</td>
<td>35.92 ± 22.71</td>
<td>33.83 ± 20.56</td>
<td>36.47 ± 0.96</td>
</tr>
</tbody>
</table>

Table 3: Yearly variation of Protozoa from sites of Gorja Lake during year 2014-16


