

Algal Flora of Jagadishpur Tal, Kapilvastu, Nepal

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Abstract

Algal flora of Jagadishpur reservoir has been studied in the year 2015-16. A total 124 algae belonging to 58 genera and 9 classes were enumerated. Out of these, 35 algae were reported as new to Nepal. Genus *Cosmarium* has maximum number of species as usual. The rare but interesting algae reported from this reservoir were *Bambusina brebissonii*, *Crucigenia apiculata*, *Dinobryon divergens*, *Encyonema silesiacum*, *Lemmermanniella* cf. *uliginosa*, *Quadrigula chodatii*, *Rhabdogloea linearis*, *Schroederia indica*, *Stenopterobia intermedia*, *Teilingia granulata* and *Triplastrum abbreviatum*. Algal flora of Jagadishpur reservoir is rich and diverse. It needs further studies to update algal documentation and conservation.

Keywords: *Cyanobacteria*, *Diatoms*, *Green algae*, *New to Nepal*, *Quadrigula chodatii*

Introduction

Literature revealed that algal studies in Nepal have been carried out by various workers from different places in different time though extensive exploration is still incomplete. Most of the workers were confined in and around Kathmandu valley and the Himalayan regions. Western parts of the country is least studied. Algae of various lakes and reservoirs of Nepal have been studied: Phewa and Begnas Lakes (Hickel, 1973; Nakanishi, 1986), Rara lake (Watanabe, 1995; Jüttner et al., 2018), Taudaha Lake (Bhatta et al., 1999), Mai Pokhari Lake (Rai, 2005, 2009), Koshi Tappu (Simkhada et al., 2006, Rai & Mishra, 2008; Jha & Kargupta, 2012; Rai, 2013a), Bees Hazar Lake (Rai et al., 2008; Rai, 2013b), Betna Pond (Rai, 2011), Chimdi Lake (Rai & Rai, 2012), Gokyo Lake (Rai et al., 2012; Mohan et al., 2018), Panch Pokhari (Krstić et al., 2013), Rajarani Lake, Dhankuta (Shrestha & Rai, 2017), Baghjoda Pond (Rajopadhyaya et al., 2017), Hasina Wetland (Rai & Rai, 2018), Raja-Rani Lake, Letang (Godar & Rai, 2018). According to Baral (1999), only 687 taxa of algae belonging to 150 genera and 50 families are enumerated in Nepal. The extensive exploration throughout the nation is still to be carried out. Now, the total alga reported from Nepal is 995 (Prasad, 2011).

Algal flora of Jagadishpur reservoir has not been studied before. Thus, it is the preliminary work on algae for this reservoir.

Materials and Methods

Study area

Jagadishpur reservoir (27°37'N and 83°06'E, alt. 197 m msl) lies in the Kapilvastu Municipality 9, Kapilvastu District, Lumbini zone, Central Nepal; about 10 km north from Taulihawa, the district headquarters. The reservoir was declared as a Ramsar site in 2003 (MFSC, 2014). It was constructed in the early 1970s over the Jakhira Lake for irrigation purposes. It is the largest man-made irrigation reservoir in Nepal, with a core area of 157 h, has the capacity to store 4.75 cubic million litres of water and irrigate 350 h agricultural lands. The water depth varies from a maximum of 5-7 m to a minimum of 2-3 m (Shah et al., 2010). The water in the reservoir is fed from the nearby Banganga River, which has a catchment area in the Chure hills.

The area is characterized by the tropical monsoon climate with hot and rainy summer and cool and dry winter (DNPWC & IUCN, 2003). The average annual temperature ranges from 16°-26°C with a maximum of 43°C in the summer to a minimum

of 4.5°C in the winter. Its average annual rainfall is 1,850 mm, about 80% of which falls during the

monsoon season, from mid-June to mid-September.

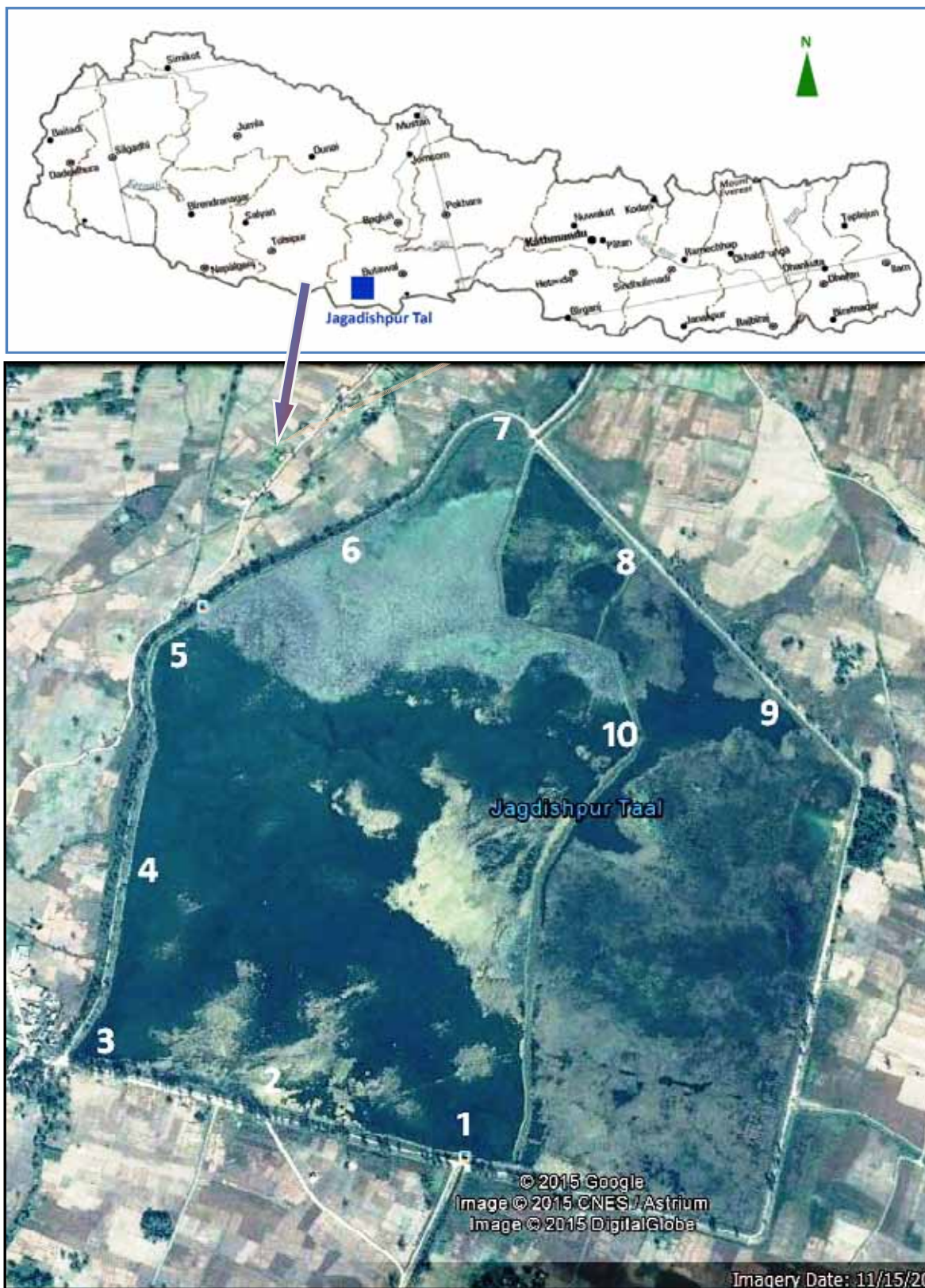


Figure 1: Jagadishpur reservoir showing algae sampling sites

Algae collection and identification

Algal samples were collected from 10 peripheral sites of the reservoir, three times (August, November, February) at an interval of three months in the year 2015-16. Algal were collected by using plankton net (mesh size 20 µm) for planktonic forms and squeezing submerged leaves and roots of aquatic macrophytes for epiphytic forms. The materials were preserved in 4% formaldehyde solution in air tight polylab bottles with proper tagging and labeling then brought to the laboratory for further examination.

Samples were screened then microphotography was done for each species under 40X and 100X objectives using Olympus Ch20i microscope. Taxa were identified consulting various articles, literatures and monographs (Prescott, 1951; Desikachary, 1959; Scott & Prescott, 1961; Philipose, 1967; Croasdale

et al., 1994; Bey & Ector, 2013; Karthik et al., 2013; McGregor, 2013; Krizmanic et al., 2015). All the collected materials have been deposited in the Phycology Research Lab, Department of Botany, P.G. Campus Biratnagar.

Results and Discussion

A total 124 algae belonging to 58 genera, 36 families, 22 orders and 9 classes have been reported from Jagadishpur Reservoir, Kapilvastu, Nepal (Table 1). Among these, 35 species were new to Nepal.

Among the classes, about half of algal species reported are belonged to Conjugatophyceae and is followed by Chlorophyceae, Cyanophyceae, Bacillariophyceae, Trebouxiophyceae and so on (Fig. 2). Glaucophyceae and Chrysophyceae were represented by single taxa each.

Table 1: List of freshwater algae reported from Jagadishpur Reservoir (classification is based on Guiry & Guiry, 2018)

Algae	Family	Order	Class	Phylum
1. <i>Aphanocapsa elegans</i>	Merismopediaceae	Synechococcales	Cyanophyceae	Cyanobacteria
2. <i>Merismopedia elegans</i>				
3. <i>Lemmermanniella</i> cf. <i>uliginosa</i> ^{*,+}	Synechococcaceae			
4. <i>Rhabdogloea linearis</i>				
5. <i>Woronichinia</i> cf. <i>tropicalis</i> [*]	Coelosphaeriaceae			
6. <i>Chroococcus minutus</i>	Chroococcaceae	Chroococcales		
7. <i>Gomphosphaeria aponina</i>	Gomphosphaeriaceae			
8. <i>Cyanothece</i> sp. [*]	Cyanothecaceae	Oscillatoriales		
9. <i>Oscillatoria amoena</i>	Oscillatoriaceae			
10. <i>O. chlorine</i>				
11. <i>O. limosa</i>				
12. <i>O. princeps</i>				
13. <i>Lyngbya majuscula</i>				
14. <i>Spirulina subsalsa</i>	Spirulinaceae	Spirulinales		
15. <i>Cylindrospermum muscicola</i> v. <i>longisporum</i> [*]	Nostocaceae	Nostocales		
16. <i>Anabaena unisporea</i> v. <i>crassa</i> [*]				
17. <i>Gloeotrichia raciborskii</i> v. <i>kashiensis</i>	Gloeotrichiaceae			
18. <i>G. raciborskii</i> v. <i>longispora</i> [*]				
19. <i>Scytonema bohneri</i> [*]	Scytonemataceae			
20. <i>Pandorina morum</i>	Volvocaceae	Chlamydomonadales	Chlorophyceae	Chlorophyta
21. <i>Eudorina elegans</i>				
22. <i>Sphaerocystis schroeteri</i>	Sphaerocystidaceae			
23. <i>Oedogonium abbreviatum</i> [*]	Oedogoniaceae	Oedogoniales		
24. <i>O. decipiens</i> [*]				
25. <i>Schroederia indica</i> ^{*,+}	Schroederiaceae	Sphaeropleales		
26. <i>Pediastrum tetras</i> v. <i>tetraodon</i>	Hydrodictyaceae			
27. <i>Tetraedron tumidulum</i> [*]				
28. <i>Ankistrodesmus falcatus</i>	Selenastraceae			
29. <i>A. spiralis</i>				
30. <i>Quadrigula chodatii</i> ⁺				

Algae	Family	Order	Class	Phylum		
31. <i>Kirchneriella lunaris</i>	Scenedesmaceae					
32. <i>K. obese</i>						
33. <i>Coelastrum cambricum</i>						
34. <i>Scenedesmus abundans</i>						
35. <i>S. acuminatus</i>						
36. <i>S. acutiformis</i>						
37. <i>S. arcuatus</i> v. <i>platydiscus</i>						
38. <i>S. bijugatus</i> v. <i>alternans</i>						
39. <i>S. bijugatus</i> v. <i>gravenitzii</i>						
40. <i>Crucigenia apiculata</i>	Trebouxiophyceae incertae sedis	Trebouxiophyceae ordo incertae sedis	Trebouxiophyceae			
41. <i>Zoochlorella parasitica</i> *	Chlorellaceae	Chlorellales				
42. <i>Gloeotaenium loitlesbergerianum</i>	Oocystaceae					
43. <i>Oocystis elliptica</i> *						
44. <i>O. eremosphaeria</i>						
45. <i>O. lacustris</i>						
46. <i>O. macrospora</i>						
47. <i>Nephrocytium agardhianum</i>						
48. <i>N. lunatum</i> West						
49. <i>Glaucocystis nostochinearum</i> *	Glaucocystaceae	Glaucocystales	Glaucophyceae	Glaucophyta		
50. <i>Closterium diana</i> e	Closteriaceae	Desmidiales	Conjugatophyceae (Zygnematophyceae)	Charophyta		
51. <i>C. ehrenbergii</i>						
52. <i>C. kuetzingii</i>	Desmidiaceae					
53. <i>C. rectimarginatum</i>						
54. <i>Pleurotaenium trabecula</i>						
55. <i>Triplastrum abbreviatum</i>						
56. <i>Euastrum bidentatum</i>						
57. <i>E. elegans</i>						
58. <i>E. spinulosum</i>						
59. <i>Micrasterias pinnatifida</i>						
60. <i>Actinotaenium cucurbitinum</i> *						
61. <i>A. diplosporum</i>						
62. <i>A. cf turgidum</i>						
63. <i>A. wollei</i>						
64. <i>Cosmarium bengalense</i> *						
65. <i>C. connatum</i>						
66. <i>C. contractum</i> v. <i>pachydermum</i>						
67. <i>C. dorsitruncatum</i>						
68. <i>C. granatum</i>						
69. <i>C. impressulum</i>						
70. <i>C. lundellii</i>						
71. <i>C. lundellii</i> v. <i>circularis</i>						
72. <i>C. maculatifforme</i>						
73. <i>C. cf margaritatum</i>						
74. <i>C. obliquum</i> *						
75. <i>C. obtusatum</i>						
76. <i>C. portianum</i>						
77. <i>C. cf pseudoornatum</i> *						
78. <i>C. pseudoretusum</i>						
79. <i>C. punctulatum</i> v. <i>subpunctulatum</i>						
80. <i>C. quadratum</i>						
81. <i>C. quadrum</i>						
82. <i>C. reniforme</i> *						

Algae	Family	Order	Class	Phylum
83. <i>C. seelyanum</i>				
84. <i>C. sportella</i> *				
85. <i>C. subcrenatum</i>				
86. <i>C. subprotumidum</i> v. <i>gregoryi</i>				
87. <i>C. subquadratum</i> *				
88. <i>C. subspeciosum</i> v. <i>validius</i>				
89. <i>C. venustum</i> v. <i>basichondrum</i> *				
90. <i>C. venustum</i> v. <i>induratum</i> *				
91. <i>Staurodesmus convergens</i> v. <i>convergens</i>				
92. <i>S. cuspidatus</i>				
93. <i>S. cuspidatus</i> v. <i>divergens</i> *				
94. <i>S. dejectus</i> v. <i>dejectus</i>				
95. <i>S. dickiei</i>				
96. <i>S. unicornis</i> v. <i>unicornis</i> *				
97. <i>Staurostrum avicula</i> v. <i>avicula</i>				
98. <i>S. cyrtocerum</i> v. <i>inflexum</i> *				
99. <i>S. disputatum</i> v. <i>sinense</i>				
100. <i>S. lapponicum</i> *				
101. <i>S. manfeldtii</i>				
102. <i>S. orbiculare</i>				
103. <i>S. setigerum</i>				
104. <i>S. cf. tetracerum</i>				
105. <i>S. tohopekaligense</i> v. <i>tohopekaligense</i> f. <i>minu</i>				
106. <i>Teilingia granulata</i>				
107. <i>Desmidium swartzii</i>				
108. <i>Bambusina brebissonii</i>				
109. <i>Mougeotia sphaerocarpa</i> *	Zygnemataceae	Zygnematales		
110. <i>Euglena polymorpha</i> *	Euglenaceae	Euglenales	Euglenophyceae	Euglenophyta
111. <i>E. sanguinea</i>				
112. <i>Glenodinium borgei</i>	Glenodiniaceae	Peridinales	Dinophyceae	Miozoa
113. <i>G. pulvisculus</i> *				
114. <i>Dinobryon divergens</i>	Dinobryaceae	Chromulinales	Chrysophyceae	Ochrophyta
115. <i>Eunotia camelus</i> *	Eunotiaceae	Eunotiales		
116. <i>E. flexuosa</i> *				
117. <i>Cocconeis placentula</i>	Cocconeidaceae	Cocconeidales		
118. <i>Navicula radiosa</i>	Naviculaceae	Naviculales		
119. <i>Pinnularia acrosphaeria</i>	Pinnulariaceae			
120. <i>Cymbella</i> cf <i>lange-bertalotii</i> *	Cymbellaceae	Cymbellales		
121. <i>Encyonema silesiacum</i> *	Gomphonemataceae			
122. <i>Epithemia adnata</i>	Rhopalodiaceae	Rhopalodiales		
123. <i>Rhopalodia gibba</i>				
124. <i>Stenopterobia intermedia</i> *+	Surirellaceae	Surirellales		

(* new record for Nepal, + species occurs rarely in the study area)

Among the classes, about half of algal species reported are belonged to Conjugatophyceae and is followed by Chlorophyceae, Cyanophyceae, Bacillariophyceae, Trebouxiophyceae and so on (Fig. 2). Glaucophyceae and Chrysophyceae were represented by single taxa each.

Among the identified genera, *Cosmarium* has maximum species as usual (Rajopadhyaya et al., 2017; Rai & Rai, 2018; Godar & Rai, 2018), representing by 27 taxa (Table 1). Similarly, genera *Staurostrum* is represented by 9 taxa followed by *Scenedesmus* and *Staurodesmus* (6 each); *Actinotaenium*, *Closterium*, *Oscillatoria* and

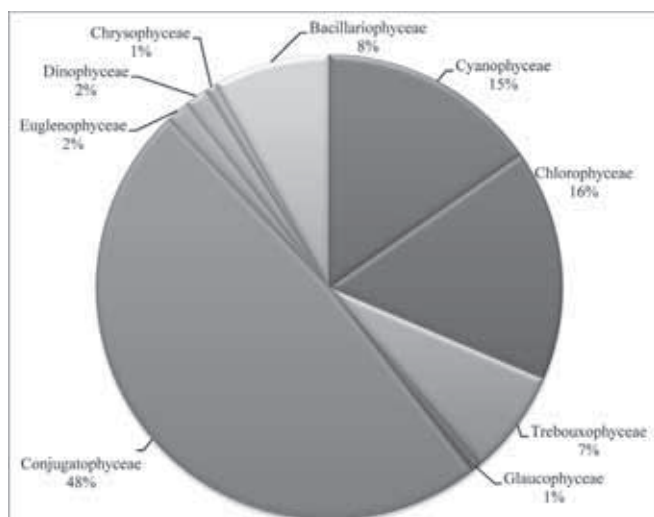


Figure 2: Class-wise representation of total algal taxa of Jagadishpur reservoir

Oocystis (4 each); and *Euastrum* (3). Genera representing by single species are *Anabaena*, *Aphanocapsa*, *Bambusina*, *Chroococcus*, *Cocconeis*, *Coelastrum*, *Crucigenia*, *Cyanothece*, *Cylindrospermum*, *Cymbella*, *Desmidium*, *Dinobryon*, *Encyonema*, *Epithemia*, *Eudorina*, *Glaucocystis*, *Gloeotaenium*, *Gomphosphaeria*, *Lemmermanniella*, *Lyngbya*, *Merismopedia*, *Micrasterias*, *Mougetia*, *Navicula*, *Pandorina*, *Pediastrum*, *Pinnularia*, *Pleurotaenium*, *Quadrigula*, *Rhabdogloea*, *Rhopalodia*, *Schroederia*, *Scytonema*, *Sphaerocystis*, *Spirulina*, *Stenopterobia*, *Teilinga*, *Tetraedron*, *Triplastrum*, *Woronichinia*, and *Zoochlorella* (Table 1).

In the resent study, maximum algae (41 genera) were reported during second (November) and third (February) collections than in the first (August) (33 genera). It shows that algae occurs more requently in the pre and post winter than in the flooding summer. The seasonal change may influence the algal growth.

The common genera found in all three collections were *Anabaena*, *Ankistrodesmus*, *Aphanocapsa*, *Chroococcus*, *Closterium*, *Coelastrum*, *Cosmarium*, *Cymbella*, *Desmidium*, *Euastrum*, *Eunotia*, *Glaucocystis*, *Gloeotaenium*, *Merismopedia*, *Navicula*, *Oscillatoria*, *Pediastrum*, *Scenedesmus*, *Staurodesmus*, *Triplastrum* and *Woronichinia*. Algal genera reported only in first collection were

Bambusina, *Crucigenia*, *Gomphosphaeria*, *Lyngbya*, *Staurodesmus*, *Stenopterobia* and *Teilinga*; only in second collection were *Actinotaenium*, *Cylindrospermum*, *Encyonema*, *Nephrocystium*, *Quadrigula*, *Rhabdogloea*, *Spirulina* and *Tetraedron*; and only in third collection were *Cocconeis*, *Cyanothece*, *Dinobryon*, *Epithemia*, *Glenodinium*, *Gloeotrichia*, *Lemmermanniella*, *Oedogonium*, *Pandorina* and *Spirogyra*. Genera *Eudorina*, *Kirchneriella* and *Pinnularia* were found both in first and second collections but not in third collection. Similarly, *Mougeotia*, *Oocystis*, *Pleurotaenium*, *Rhopalodia*, *Schroederia*, *Scytonema*, *Sphaerocystis* and *Zoochlorella* were found in both second and third collections but not in first collection. *Euglena* was absent in second collection but found in first and third collections.

The dominant genera in first collection were *Anabaena* and *Desmidium*; in second collection were *Navicula*, *Desmidium* and *Cymbella*; and in third collection were *Cymbella*, *Cosmarium* and *Navicula*.

The genera distributed in all 10 sites were *Navicula* in first collection; *Cosmarium*, *Cymbella*, *Navicula* and *Rhopalodia* in second collection; and *Chroococcus*, *Cosmarium*, *Merismopedia*, *Navicula*, *Rhopalodia*, and *Scenedesmus* in third collection.

In first collection, site 3 was richest site representing a total 21 genera and site 1 was poorest with only 8 genera. Similarly, in second collection, site 6 was richest site representing a total 24 genera and site 10 was poorest with only 8 genera. In third collection, site 7 was richest site representing a total 23 genera and site 4 was poorest with 16 genera (Figure 3).

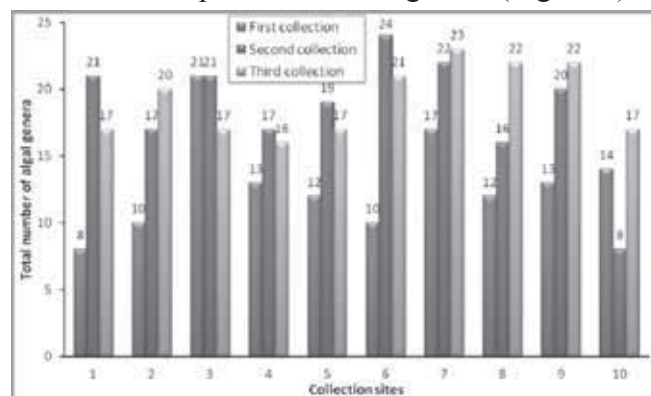


Figure 3: Site-wise algal genera reported in different collections

Distribution was maximum of Conjugatophyceae during first and second collections, Cyanophyceae during second and third collections, and Chlorophyceae during second collection (Figure 4). Euglenophyceae were absent in second collection, and Dinophyceae and Chrysophyceae were absent in first and second collections.

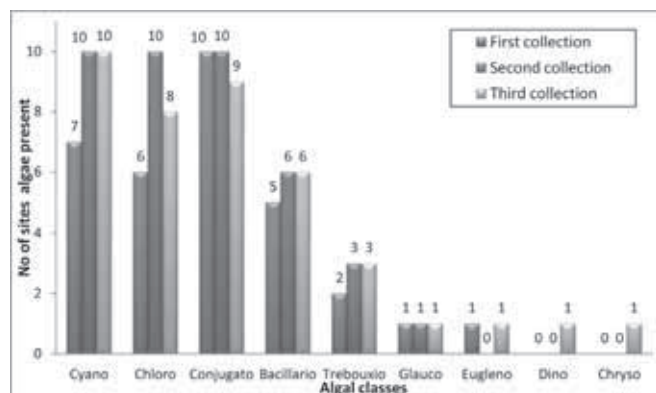


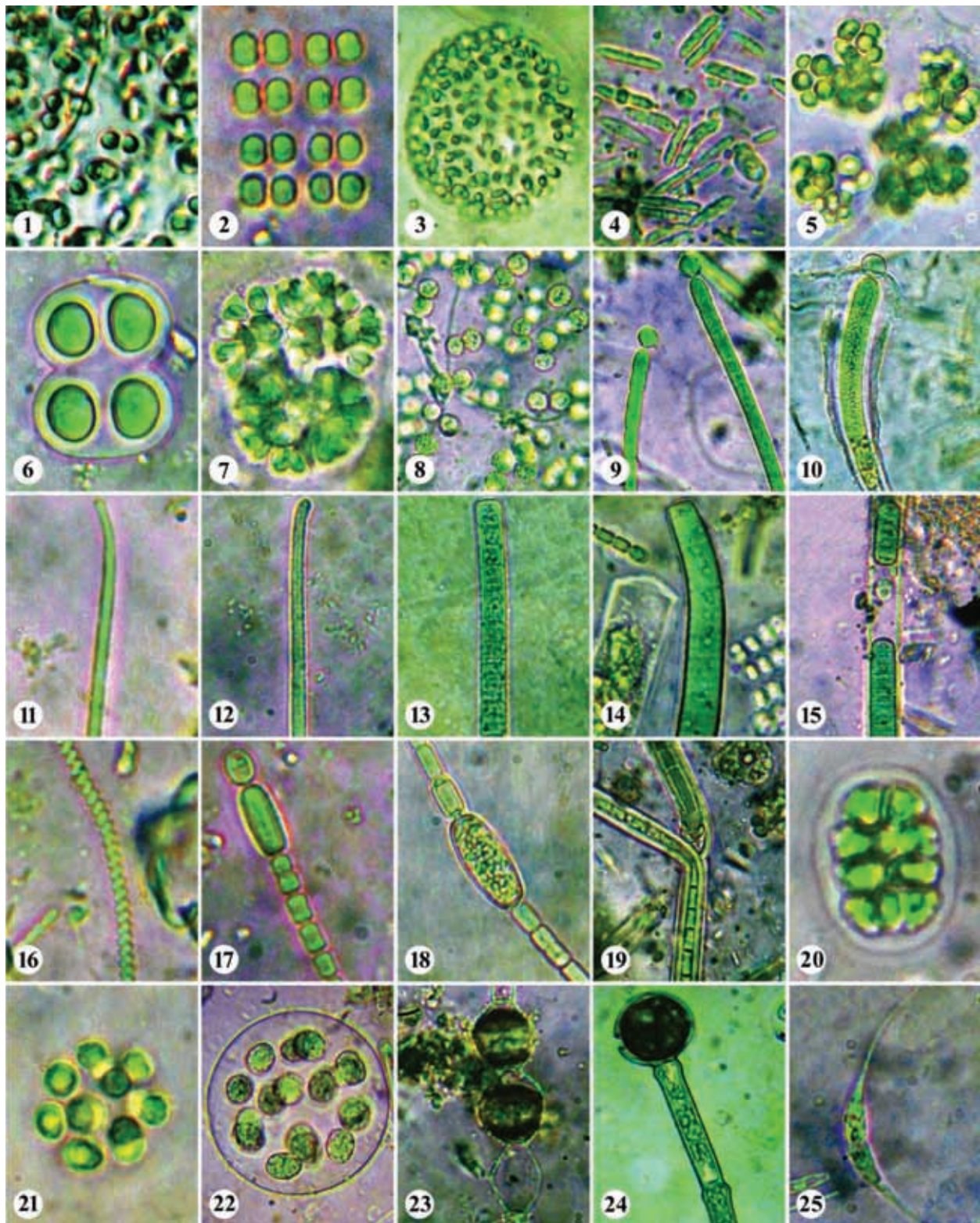
Figure 4: Class-wise algal genera reported in different collections

Class Conjugatophyceae were found in maximum sites during first and second collections, Cyanophyceae were found in maximum sites during second and third collections, and Chlorophyceae were found in maximum sites during second collection (Figure 4). Euglenophyceae were absent in second collection, and Dinophyceae and Chrysophyceae were absent in first and second collections.

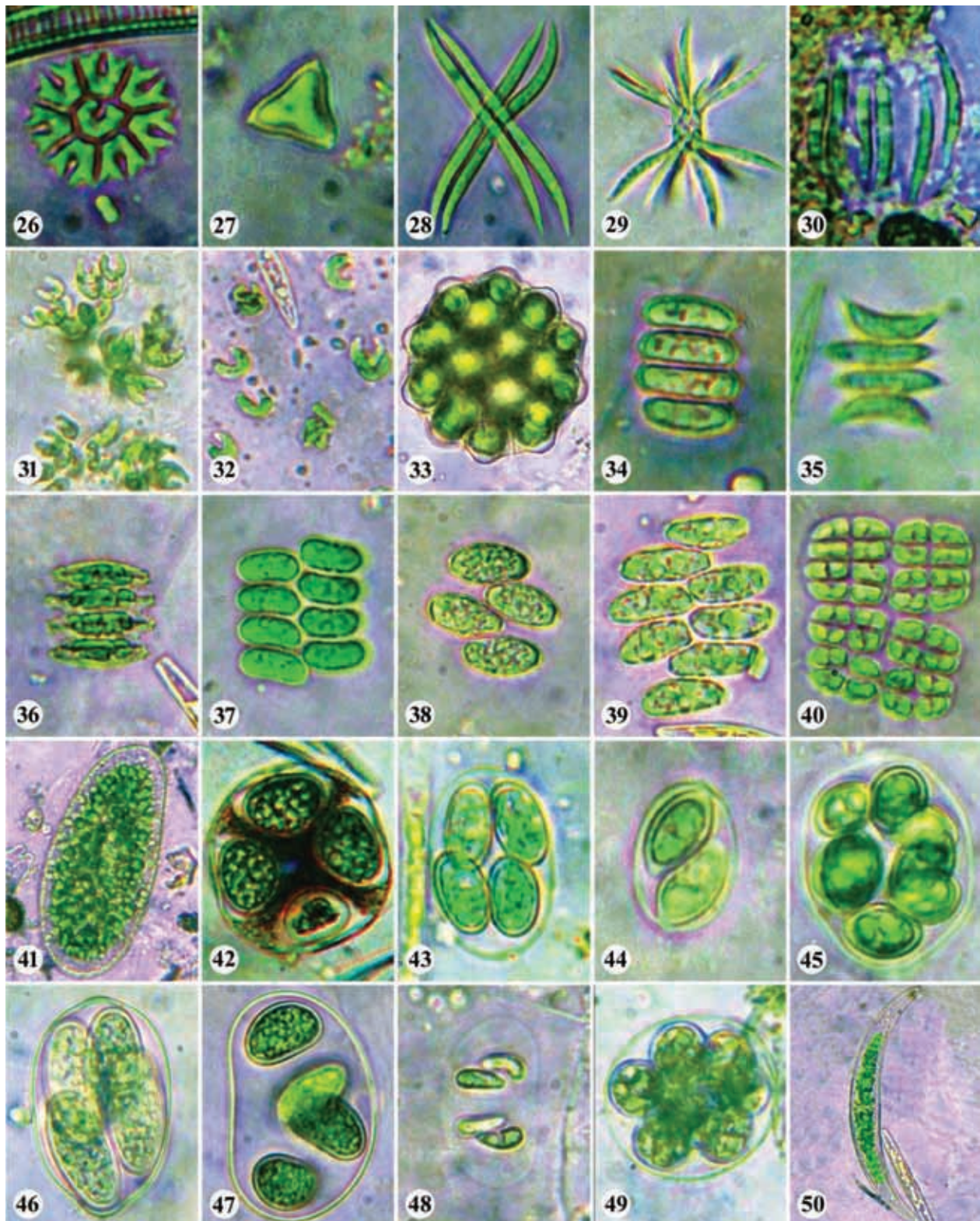
The rare but interesting algae reported from this reservoir were *Bambusina brebissonii*, *Crucigenia*

apiculata, *Dinobryon divergens*, *Encyonema silesiacum*, *Lemmermanniella* cf. *uliginosa*, *Quadrigula chodatii*, *Rhabdogloea linearis*, *Schroederia indica*, *Stenopterobia intermedia*, *Teilingia granulata* and *Triplastrum abbreviatum*. These species have peculiar morphology and were reported little from few habitats only throughout my previous studies.

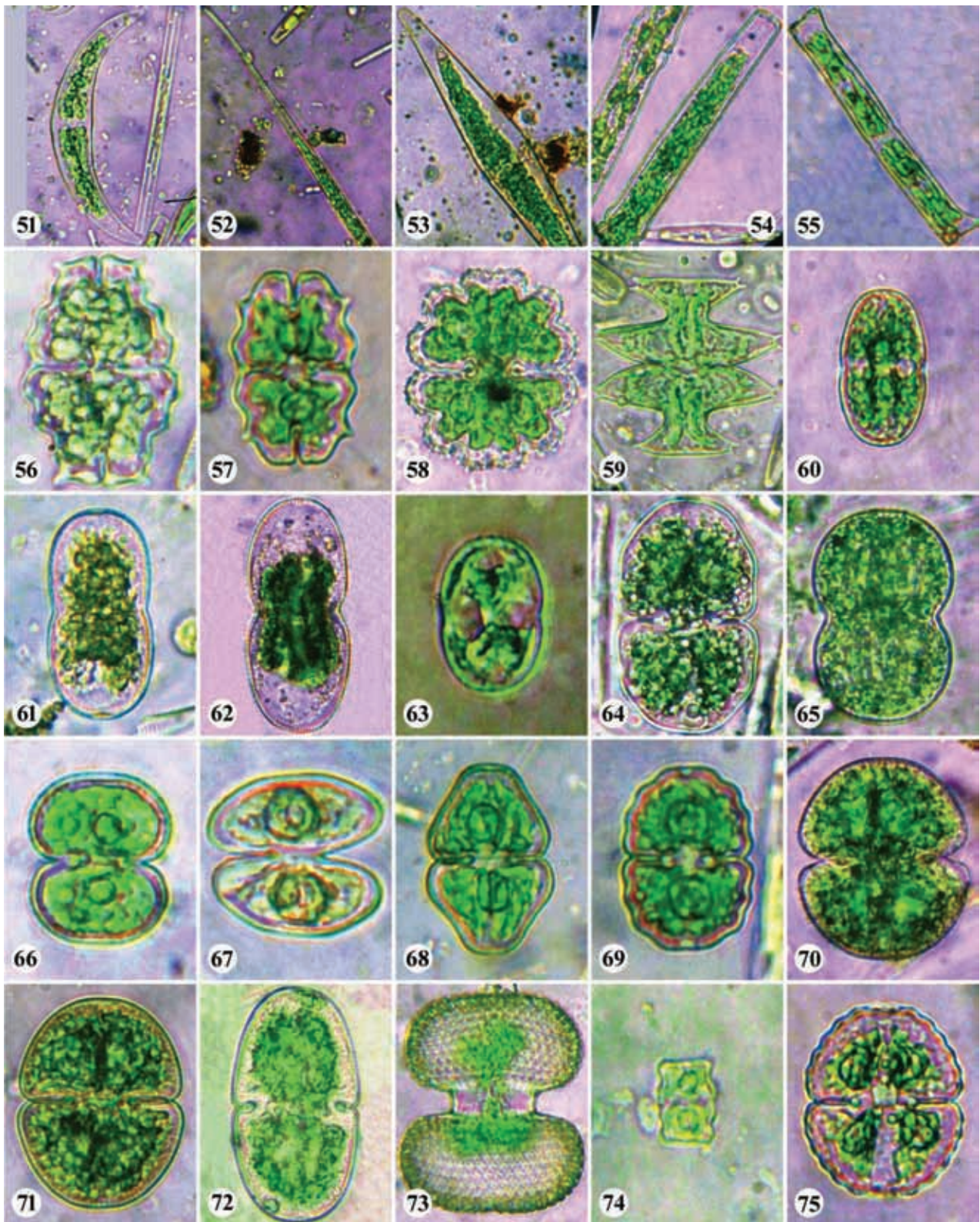
A total 35 algae have been reported as new to Nepal from Jagadishpur Reservoir. They were *Lemmermanniella* cf. *uliginosa*, *Woronichinia* cf. *tropicalis*, *Cyanothece* sp., *Gloeotrichia raciborskii* var. *longispora*, *Cylindrospermum muscicola* var. *longispora*, *Anabaena unisporea* var. *crassa*, *Scytonema bohneri*, *Oedogonium abbreviatum*, *O. decipiens*, *Schroederia indica*, *Tetraedron tumidulum*, *Zoochlorella parasitica*, *Oocystis elliptica*, *Glaucocystis nostochinearum*, *Actinotaenium cucurbitinum*, *Cosmarium bengalense*, *C. obliquum*, *C. cf pseudoornatum*, *C. reniforme*, *C. sportella*, *C. subquadratum*, *C. venustum* var. *basichondrum*, *C. venustum* var. *induratum*, *Staurodesmus cuspidatus* var. *divergens*, *S. unicornis* var. *unicornis*, *Staurostrum cyrtocentrum* var. *inflexum*, *S. lapponicum*, *Mougeotia sphaerocarpa*, *Euglena polymorpha*, *Glenodinium pulvisculus*, *Eunotia camelus*, *E. flexuosa*, *Cymbella* cf. *lange-bertalotii*, *Encyonema silesiacum*, *Stenopterobia intermedia*.



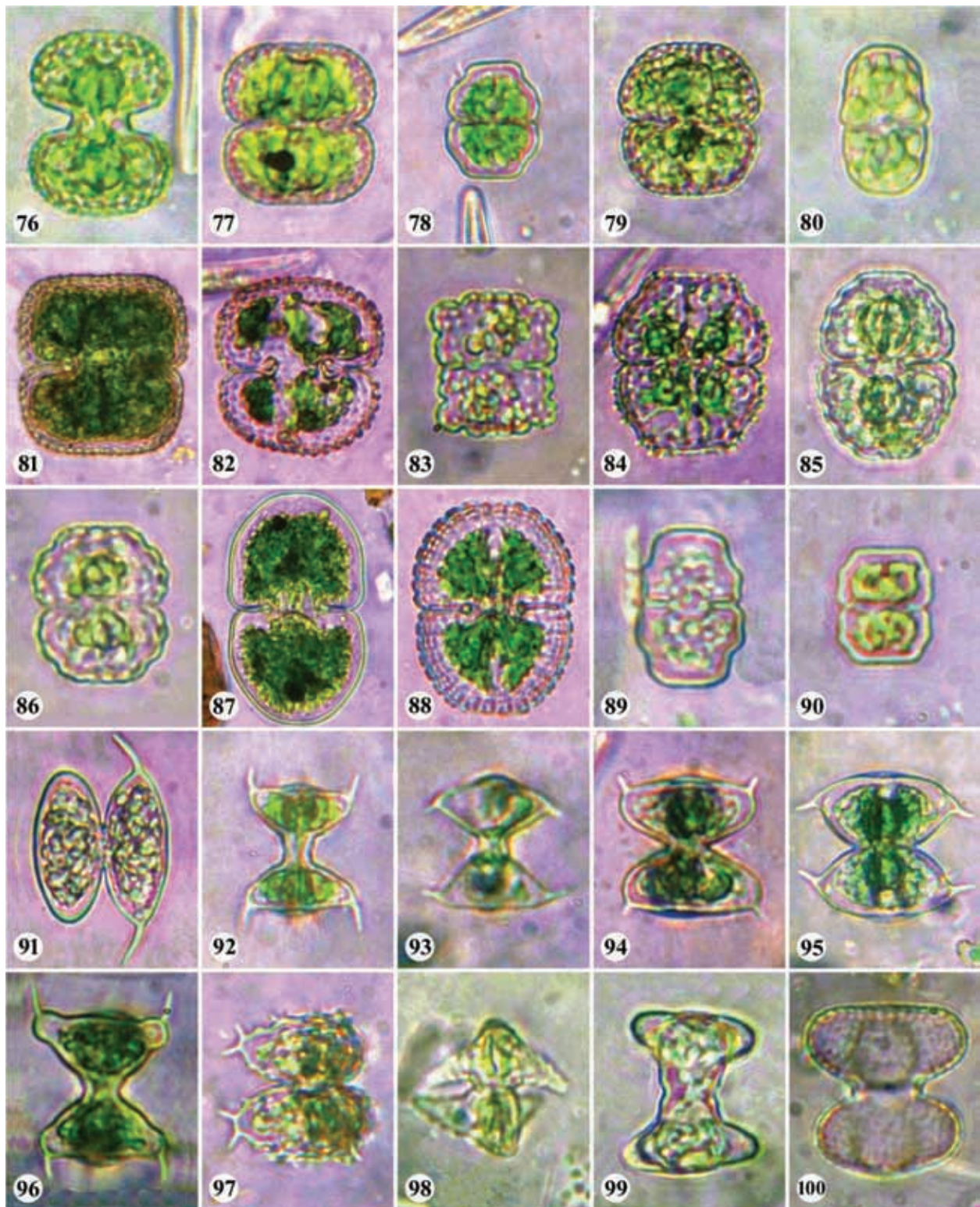
Figures 5: 1. *Aphanocapsa elegans* 2. *Merismopedia elegans* 3. *Lemmermanniella* cf. *uliginosa* 4. *Rhabdogloea linearis* 5. *Woronichinia* cf. *tropicalis* 6. *Chroococcus minutus* 7. *Gomphosphaeria aponina* 8. *Cyanothece* sp 9. *Gloeotrichia raciborskii* var. *kashiensis* 10. *G. raciborskii* var. *longispora* 11. *Oscillatoria amoena* 12. *O. chlorine* 13. *O. limosa* 14. *O. princeps* 15. *Lyngbya majuscula* 16. *Spirulina subsalsa* 17. *Cylindrospermum muscicola* var. *longispora* 18. *Anabaena unisporea* var. *crassa* 19. *Scytonema bohneri* 20. *Pandorina morum* 21. *Eudorina elegans* 22. *Sphaerocystis schroeteri* 23. *Oedogonium abbreviatum* 24. *O. decipiens* 25. *Schroederia indica*



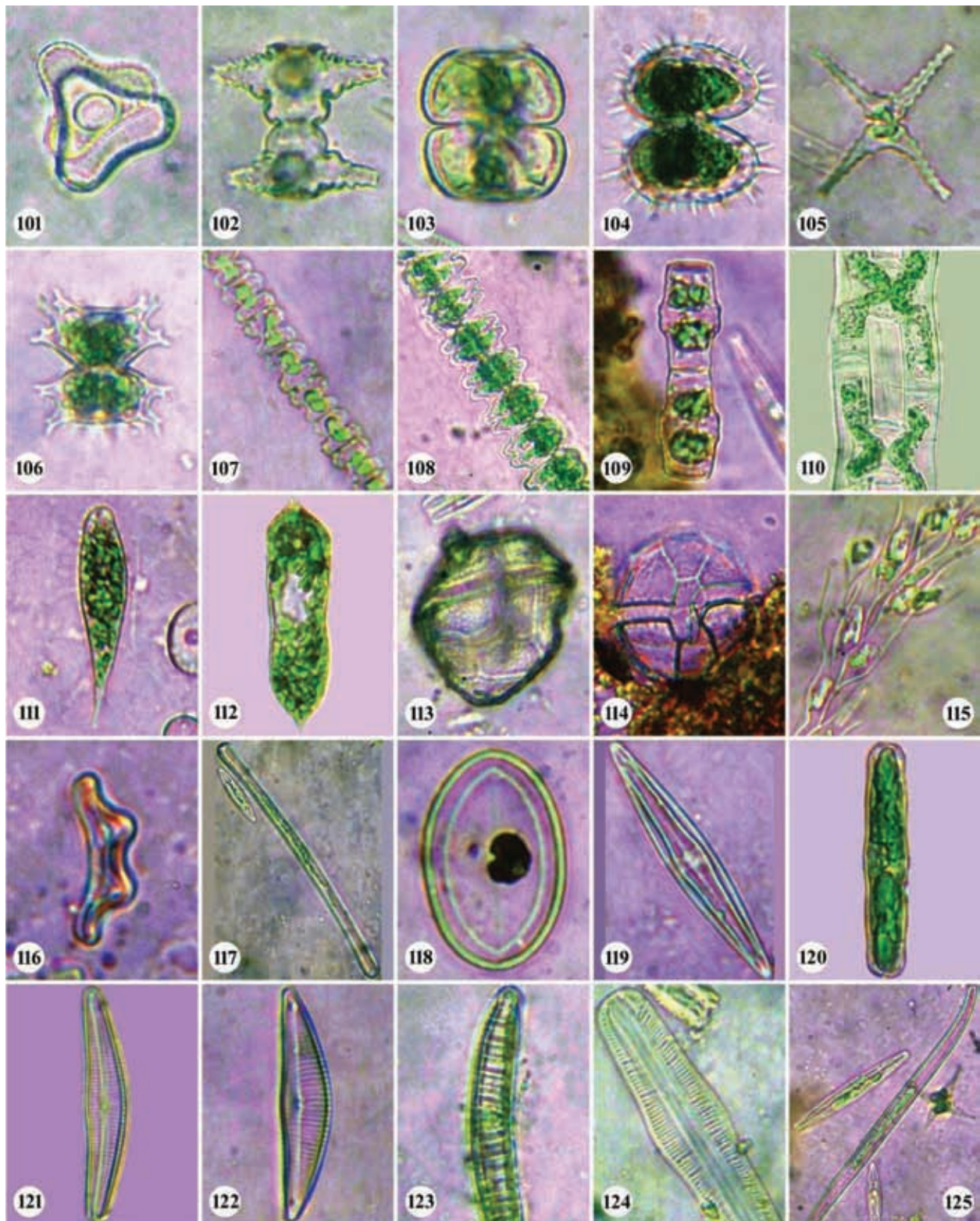
Figures 6: 26. *Pediastrum tetras* var. *tetraodon* 27. *Tetraedron tumidulum* 28. *Ankistrodesmus falcatus* 29. *A. spiralis* 30. *Quadrigula chodatii* 31. *Kirchneriella lunaris* 32. *K. obesa* 33. *Coelastrum cambricum* 34. *Scenedesmus abundans* 35. *S. acuminatus* 36. *S. acutiformis* 37. *S. arcuatus* var. *platydiscus* 38. *S. bijugatus* var. *alternans* 39. *S. bijugatus* var. *gravenitzii* 40. *Crucigenia apiculata* 41. *Zoochlorella parasitica* 42. *Gloeotaenium loitlesbergereanum* 43. *Oocystis elliptica* 44. *O. eremosphaeria* 45. *O. lacustris* 46. *O. macrospora* 47. *Nephrocystium agardhianum* 48. *N. lunatum* 49. *Glaucocystis nostochinearum* 50. *Closterium diana*



Figures 7: 51. *Closterium ehrenbergii* 52. *C. kuetzingii* var. *kuetzingii* 53. *C. rectimarginatum* 54. *Pleurotaenium trabecula* 55. *Triplastrum abbreviatum* 56. *Euastrum bidentatum* 57. *E. elegans* 58. *E. spinulosum* 59. *Microasterias pinnatifida* 60. *Actinotaenium cucurbitinum* 61. *A. diplosporum* 62. *A. cf turgidum* 63. *A. wollei* 64. *Cosmarium bengalense* 65. *C. connatum* 66. *C. contractum* var. *pachydermum* 67. *C. dorsitruncatum* 68. *C. granatum* 69. *C. impressulum* 70. *C. lundellii* 71. *C. lundellii* var. *circularis* 72. *C. maculatifforme* 73. *C. cf margaritatum* 74. *C. obliquum* 75. *C. obtusatum*



Figures 8 : 76. *Cosmarium portianum* 77. *C. cf pseudoornatum* 78. *C. pseudoretusum* 79. *C. punctulatum* var. *subpunctulatum* 80. *C. quadratum* 81. *C. quadrum* var. *quadrum* 82. *C. reniforme* var. *reniforme* 83. *C. seelyanum* 84. *C. sportella* 85. *C. subcrenatum* 86. *C. subprotumidum* var. *gregoryi* 87. *C. subquadratum* var. *subquadratum* 88. *C. subspeciosum* var. *validius* 89. *C. venustum* var. *basichondrum* 90. *C. venustum* var. *induratum* 91. *Staurodesmus convergens* var. *convergens* 92. *S. cuspidatus* var. *divergens* 93. *S. cuspidatus* 94. *S. dejectus* var. *dejectus* 95. *S. dickiei* var. *dickiei* 96. *S. unicornis* var. *unicornis* 97. *Staurastrum avicula* var. *avicula* 98. *S. cyrtocentrum* var. *inflexum* 99. *S. disputatum* var. *sinense* 100. *S. lapponicum*



Figures 9 : 101. *Staurostrum lapponicum* 102. *S. manfeldtii* 103. *S. orbiculare* 104. *S. setigerum* 105. *S. cf. tetracerum* 106. *S. tohopekaligense* var. *tohopekaligense* f. *minus* 107. *Teilingia granulata* 108. *Desmidium swartzii* 109. *Bambusina brebissonii* 110. *Mougeotia sphaerocarpa* 111. *Euglena polymorpha* 112. *E. sanguinea* 113. *Glenodinium borgei* 114. *G. pulvisculus* 115. *Dinobryon divergens* 116. *Eunotia camelus* 117. *E. flexuosa* 118. *Cocconeis placentula* 119. *Navicula radiosa* 120. *Pinnularia acrosphaeria* 121. *Cymbella lange-bertalotii* 122. *Encyonema silesiacum* 123. *Epithemia adnata* 124. *Rhopalodia gibba* 125. *Stenopterobia intermedia*

Conclusion

A total 124 algae have been reported from Jagadishpur reservoir out of which 35 algae were new record for Nepal. The reservoir was dominated by the genus *Cosmarium* with 27 species. Algae were rich during the month of November and February. The common algae present throughout the study period were *Anabaena*, *Ankistrodesmus*, *Aphanocapsa*, *Chroococcus*, *Closterium*, *Coelastrum*, *Cosmarium*, *Cymbella*, *Desmidium*, *Euastrum*, *Eunotia*, *Glaucocystis*, *Gloeotaenium*, *Merismopedia*, *Navicula*, *Oscillatoria*, *Pediastrum*, *Scenedesmus*, *Staurostrum*, *Tripastrum* and *Woronichinia*. The dominant algae of this reservoir were *Anabaena* and *Desmidium* (August); *Navicula*, *Desmidium* and *Cymbella* (November); and *Cymbella*, *Cosmarium* and *Navicula* (February). The rare but interesting algae of this reservoir were *Bambusina brebissonii*, *Crucigenia apiculata*, *Dinobryon divergens*, *Encyonema silesiacum*, *Lemmermanniella* cf. *uliginosa*, *Quadrigula chodatii*, *Rhabdogloea linearis*, *Schroederia indica*, *Stenopterobia intermedia*, *Tellingia granulata* and *Triplastrum abbreviatum*. Algal flora of Jagadishpur reservoir is rich and diverse. It needs further extensive exploration to document and conserve the algal flora.

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