

SOME DESMIDS FOUND IN MYITKYINA

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Abstract

The occurrence of algae in three locations of Myitkyina was studied during March to November 2019. Algal samples were collected from Palana Quarter (Location I), Nankway stream (Location II) and Manhkring Quarter (Location III). In this study 3 species of *Arthrodesmus*, 5 species of *Closterium*, 9 species of *Cosmerium*, 3 species of *Euastrum*, 3 species of *Micrasterias*, 1 species of *Onychonema*, 2 species of *Pleurotaenium*, 2 species of *Staurastrum* and 1 species of *Triplocerus*, 1 species of *Xanthidium* to have been identified and described. In present study, 30 species of Desmidiaceae were observed with colourful photograph records. Among them, *Cosmarium* was mostly found in all locations. *Arthrodesmus*, *Euastrum*, *Micrasterias*, *Onychonema*, *Pleurotaenium*, *Staurastrum*, *Triplocerus* and *Xanthidium* were rarely found in the study area.

Key words: Algae, desmids

INTRODUCTION

The desmids are a group of micro green algae that are characterized by conjugation as a means of sexual reproduction, and by cells that are formed of two symmetrical semicells. They have a cosmopolitan distribution, occurring in periphyton, metaphyton, and plankton of almost freshwater environments (Meesters & Coesel, 2007). Desmids are almost exclusively algae confined in their distribution to natural waters characterized by low salinities and hence low specific conductivities (Brook, 1981).

Myitkyina is located in Kachin State, Northern Myanmar. It is situated between North Latitude from 25°20'-25°30', East longitude from 97°15'-97°30' and the elevation is 155.3 m above sea level. Three locations of study area, are Palana Quarter (Location-I), Nankway stream (Location-II) and Mankhring Quarter (Location-III). The present study deals with the morphology of Desmidiaceae

The aims of this study are to observe the occurrence and identify of the species and to provide the information of the valuable indicator of Desmidiaceae were reported.

Materials and Methods

The study area is located in Myitkyina, Kachin State. It is situated between North Latitude from 25° 20' - 25°30', East longitude from 97° 15' - 97°30' and the elevation is 155.3 m above sea level. The altitude and locations were measured by GPS (Global positioning system). The water temperature and pH value were measured by thermometer and pH meter. The specimens were collected during March to December 2019.

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Fig. 1. Locations map of the study area

Taxonomic study

The algae samples were taken from the upper surface, shallow area of ponds, margins of stream and ditches. Others were collected from moist soil. The fresh algae specimens were studied under the light microscope in laboratory, Department of Botany, were identified, recorded as the photographs by digital camera. Identification was made from fresh specimens and taxonomic description and nomenclature were employed by Smith (1950), Prescott (1962), Hoek (1995) and Dillard (1989-2000).

Results

The algal samples were collected from three locations in Myitkyina. Only one division of Chlorophyta was described. Algal specimens were found totally 30 species, 10 genera of family Desmidiaceae were identified in the present study. 3 species of *Arthrodesmus*, 5 species of *Closterium*, 9 species of *Cosmarium*, 3 species of *Euastrum*, 3 species of *Micrasterias*, 1 species of *Onychonema*, 2 species of *Pleurotaenum*, 2 species of *Staurastrum*, 1 species of *Triploceras* and 1 species of *Xanthidium* had been in this study. The results were shown in table. 1.

Table.1 Classification of Desmidiaceae found in Myitkyina

Division	Class	Family	Genus	Species			
Chlorophyta	Chlorophyta	Desmidiaceae	<i>Arthrodesmus</i>	<i>A.bulnheimii</i> Rociborski var.			
				<i>A.subincus</i> West & West			
				<i>A.curvatus</i> (Turner) Thomasso			
						<i>Closterium</i>	<i>A.longispinus</i> Borge
					<i>C.dianae</i> Ralfs		
					<i>C.didymotocum</i> (Corda) Ralfs		
					<i>C.jenneris</i> Ralfs		
					<i>C.moniliferum</i> (Bory) Ehrenberg		
					<i>Cosmarium</i>	<i>C.tumidum</i> Johnson	
						<i>C.naplesiense</i> Scott & Groenblad	
						<i>C.phaseolus</i> forma <i>minus</i> Boltd	
					<i>Euastrum</i>	<i>C.polonicum</i> Raciborski	
						<i>C.punctulatum</i> Raciborski	
						<i>C.punctulatum</i> var.	
						<i>subpunctulatum</i> (Nordestedt)	
						<i>C.quadrifarium</i> Lundell	
						<i>C.ralfsii</i> var. <i>montanum</i>	
						Raciborski	
					<i>C.taxichondrum</i> var. <i>ellipticum</i>		
					Foerster		
		<i>C.transitorium</i> (Heimel) Ducellier					
		<i>Euastrum</i>	<i>E.crameri</i> Raciborski				
			<i>E.hypochondrum</i> Nordstedt				
			<i>E.spinulosum</i> var. <i>lindae</i>				

	Groenblad & Scott
<i>Micrasterias</i>	<i>M.johnsonii</i> forma <i>bispinata</i> Prescott <i>M.mahabuleshwariensis</i> var. <i>surculifera</i> Lagerheim <i>M.pinnatifida</i> (Kuetzing) Ralf
<i>Onychonema</i>	<i>O.laeve</i> var. <i>micranthum</i> Nordstedt.
<i>Pleurotaenum</i>	<i>P.coronatum</i> var. <i>fluctuatum</i> West <i>P.nodosum</i> (Baley) Lundell
<i>Staurastrum</i>	<i>S.ornatum</i> var. <i>osperum</i> (Perty) Schmidle <i>S.johnsonii</i> West and West
<i>Triploceras</i>	<i>T.gracile</i> Bailey
<i>Xanthidium</i>	<i>X.antilopaecum</i> var. <i>canadense</i> Joshua

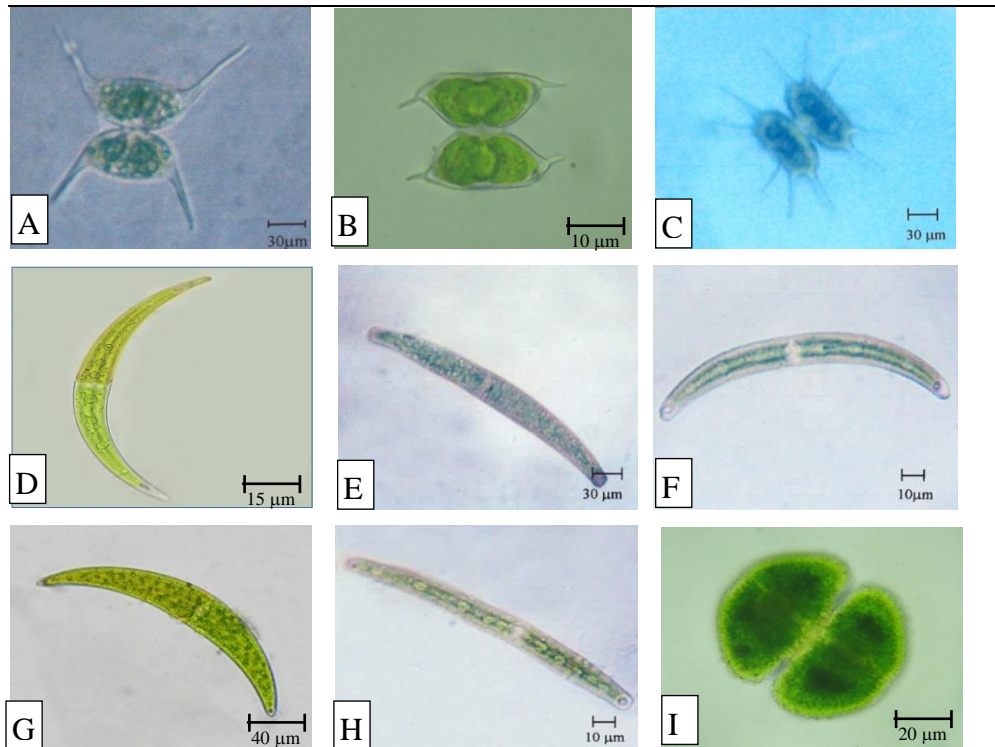


Fig. 3 A. *Arthrodesmus bulnheimii* Rociborski var. *subincus* West and West
 B. *Arthrodesmus curvatus* Turner
 C. *Arthrodesmus longispinus* Borge
 D. *Closterium diana* Ralfs
 E. *Closterium didymotocum* (Corda) Ralfs
 F. *Closterium jenneris* Ralfs
 G. *Closterium moniliferum* (Bory) Ehrenberg
 H. *Closterium tumidum* Johnson
 I. *Cosmarium naplesiense* Socott and Groenblad

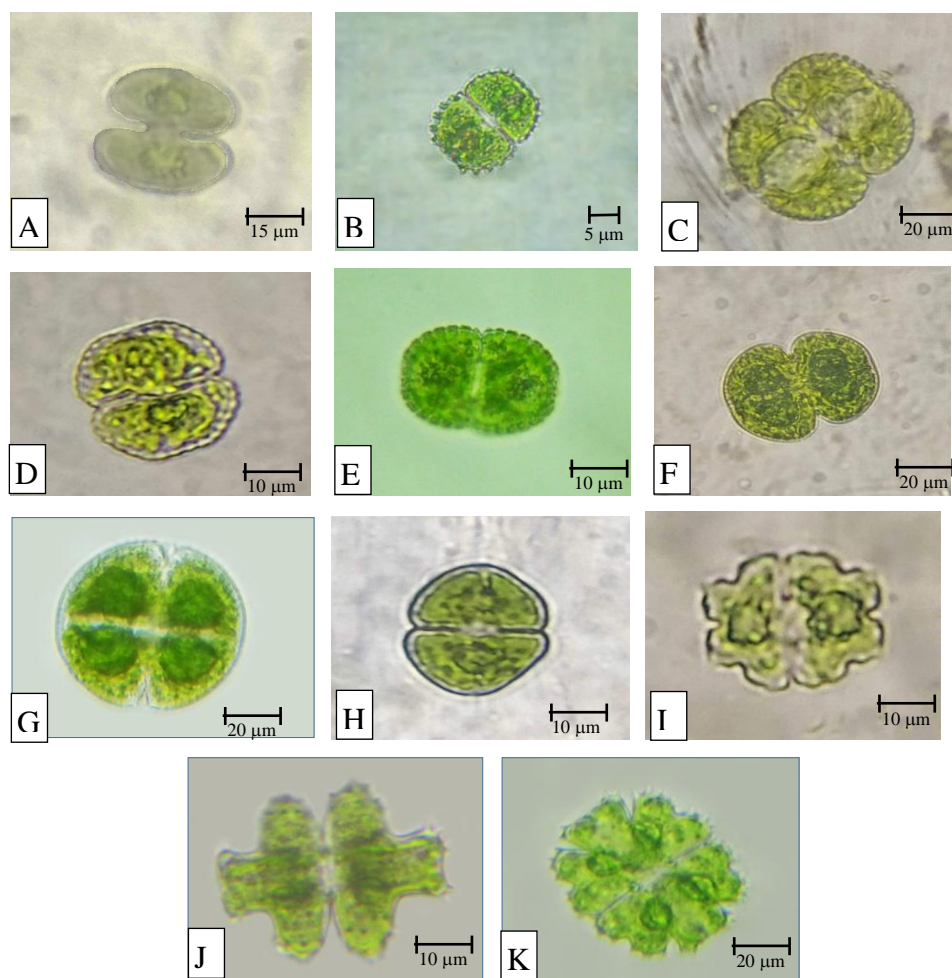


Fig. 4 A. *Cosmarium phaseolus* forma *minus* Boltd
 B. *Cosmarium polonicum* Raciborski
 C. *Cosmarium punctulatum* Brebisson
 D. *Cosmarium punctulatum* var. *subpunctulatum* (Nordestedt) Boergesen
 E. *Cosmarium quadrifarium* Lundell
 F. *Cosmarium ralfsii* var. *montanum* Raciborski.
 G. *Cosmarium taxichondrum* var. *ellipticum* Foerster
 H. *Cosmarium transitorium* (Heimerl) Ducellier
 I. *Euastrum crameri* Raciborski.
 J. *Euastrum hypochondrum* Nordstedt
 K. *Euastrum spinulosum* var. *lindae* Groenblad & Scott

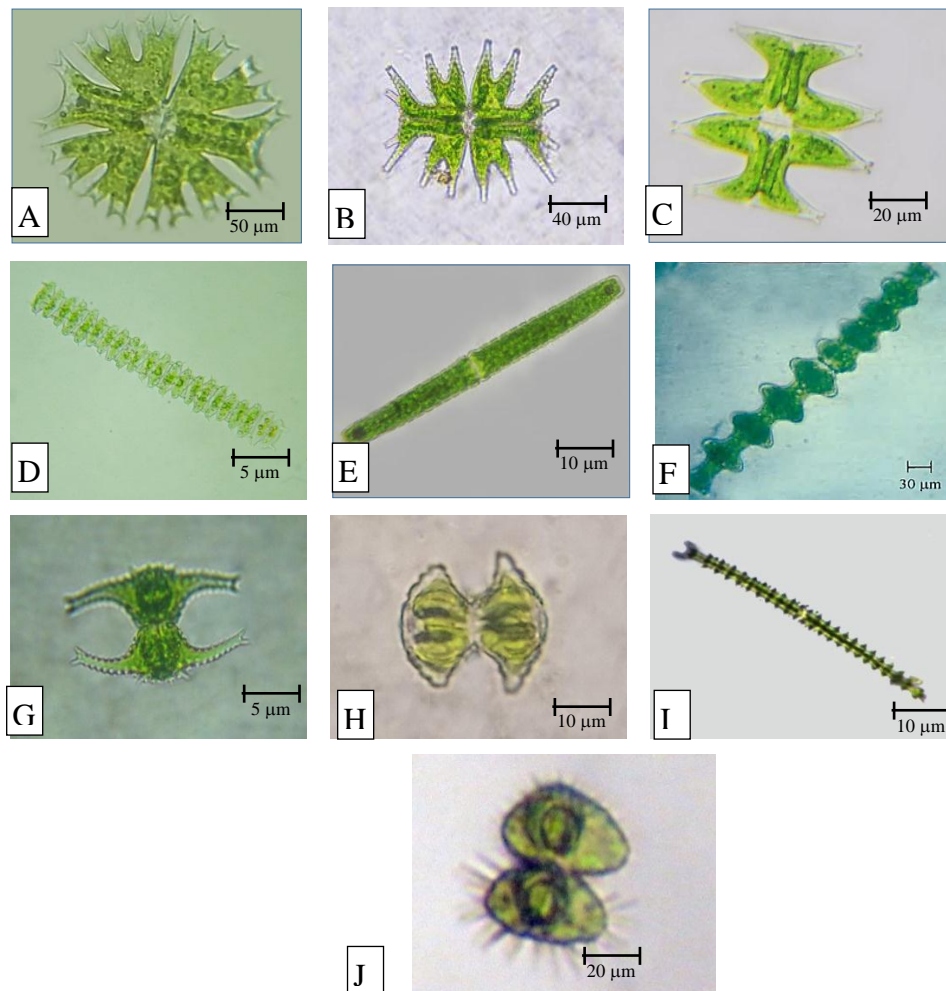


Fig. 5 A. *Micrasterias johnsonii* forma *bispinata* Prescott
 B. *Micrasterias mahabuleshwariensis* var. *surculifera* Lagerheim
 C. *Micrasteria pinnatifida* (Kutzing) Ralfs)
 D. *Onychonema laeve* var. *micranthum* Nordstedt
 E. *Pleurotaenium coronatum* var. *fluctuatum* West
 F. *Pleurotaenium nodosum* (Bailey) Lundell
 G. *Staurastrum johnsonii* West and West
 H. *Staurastrum ornatum* var. *osperum* (Perty) Schmidle
 I. *Triploceras gracile* Bailey
 J. *Xanthidium antilapaecum* var. *canadense* Joshua

Discussion and Conclusion

The algal specimens were collected from three locations of Myitkyina during March to December 2019. Palana Quarter is location I, Nankway stream is location II and Manhkring Quarter is location III. The algae grow abundantly in ditches, pools, ponds, stagnant water and margins of stream in the study area.

In the present study, 30 species belonging to 10 genera of Desmidiaceae have been described. 3 species of *Arthrodesmus*, 5 species of *Closterium*, 9 species of *Cosmarium*, 3 species of *Eurastrum*, 3 species of *Micrasterias*, 1 species of *Onychonema*, 2 species of *Pleurotaenium*, 2 species of *Staurastrum*, 1 species of *Triploceras* and 1 species of *Xanthidium* have been described.

Hoek (1995) stated that most species of Desmidiaceae were benthic and lived on or between higher plants around the margins of the water body. According to

Graham and Wilcox (2000), *Cosmarium* are cosmopolitan and exhibit high diversity in different environmental scenarios, being common in oligotrophic and mesotrophic aquatic system.

Desmids are freshwater algae often considered as indicator of oligotrophic environment for water bodies. There are examples of works done by various workers throughout the world (Yasmin *et al.*, 2011).

In the present study, desmids species were sparsely found in free-floating. They were commonly found in margins of ditches, pools and stream in all locations. Thus, these observations are in agreement with Hoek (1995).

Arthrodesmus were only found in winter. *Pleurotaenium Triploeras* were commonly during the rainy season and winter. *Closterium*, *Cosmarium* and *Eurastrum* were found in both seasons. *Micrasterias* were abundantly occurred in rainy season. *Onychonema*, *Pleurotaenium* and *Xanthidium* were commonly occurred in rainy season.

Arthrodesmus, *Closterium*, *Eurastrum*, *Sturastrum*, *Triploeras* were occurred in ditches and pools of Palana Quarter (location- I). *Cosmarium* were abundantly found in all locations. *Onychonema*, *Pleurotaenium* and *Xanthidium* were mostly occurred in location I and rarely found in other locations. *Closterium* and *Eurastrum* were commonly found in location I and III. *Micrasterias* were commonly found in location I. They were mostly occurred in ditches.

From the results of present study, pH was ranging from 6.8 to 7.2 and water temperature was 19° C to 25° C in the study area. Members of Desmidiaceae were abundantly found in all of three locations. In the present work, *Cosmarium* species were abundantly in the study area.

It was concluded that the water of this area may be oligotrophic or poor nutrients due to the abundance of Desmids were found. These results provide the information on the distribution of Desmidiaceae and to give the information for the other researchers who are working in the fields of Phycology.

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