

DATA ON FRESHWATER ALGAE AT DIOXIN AREA OF MADA REGION, DONG NAI PROVINCE, VIETNAM

Nguyen Thuy Lien, Dang Thi Sy, Tran Van Thuy

Faculty of Biology, Hanoi College of Science, VNU-Hanoi

Abstract

Algae are producer organisms which are used to appreciate water environment. So analyzing algal community is an effective method. After analyzing samples, 250 species, 92 variants which belong to 82 genera, 32 families, 19 orders of 7 divisions are recorded in Ma Da area. The species ratio of divisions are similar to this of Vietnam. The distribution of algae was also different in different water bodies. There were 186 species and subspecies at still water, Desmidiaceae was the greatest part. 131 species and subspecies were found at moving water, the majority was Bacillariophyta. In order to find out the effective of herbicide on algae here, more deeply research should be done.

Introduction

Ecosystems in the freshwater environment are as complex and varied as those on land. There is a major division between still and moving waters; between lakes, ponds and marsh on the one hand, and rivers and streams on the other. Each of these contains a number of distinct habitats which depend on factors as depth, speed and chemical composition of the water.

Freshwater organisms in general and algae in particular depend wholly on the water, so the conditions of water define the distribution and composition of algae. Algae are producer organisms which are used to appreciate water environment. So analyzing algal community is an effective method.

Materials and Methods

All samples were collected 6 times from year 2003 to 2006. Algal samples were collected by phytoplankton net No 64, kept in 4% formaldehyde solution and analyzed at the laboratory of Department of Botany and Microscope Laboratory, Faculty of Biology, Hanoi University of Science.

Results and discussion

After analyzing samples, 255 species, 92 variants which belong to 82 genera, 32 families, 19 orders of 7 divisions are recorded in Ma Da area: Euglenophyta (22 species and 6 variants), Chlorophyta (160 species, 71 variants), Bacillariophyta (42 species, 11 variants), Chrysophyta (1 species), Dinophyta (6

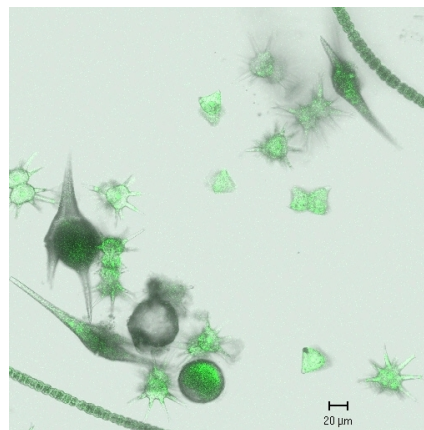


Figure 1. Algal population at Tri An lake

species and subspecies), Rhodophyta (2 species) and Cyanobacteriophyta (20 species and 2 variants) (Table 1). The species ratio of divisions are similar to this of Vietnam.

The distribution of algae was also different in different water bodies. Comparing the composition of algae among water bodies we can see that: the number of species at still water is much more than this number at moving water.

There were 186 species and subspecies at still water, Desmidiaceae was the greatest part. 131 species and subspecies were found at moving water, the majority was Bacillariophyta. At these water bodies, divisions like Euglenophyta, Dinophyta were poor but Bacillariophyta (*Navicula* spp., *Pinnularia* spp. etc.) was rich. *Euglena* and *Phacus* (Euglenophyta) were popular genera at still water but not exist at moving water of Ma Da area. While species of genus *Batrachospermum* (Rhodophyta) just be seen at slowly moving shallow stream with stone bottom. Genus *Staurastrum* with many arms which could not be found in the North of Vietnam were popular at Ma Da still water. Some genera and species could be found at both water divisions like: *Pediastrum duplex* Meyen var. *duplex*, *Pediastrum duplex* var. *reticulatum* Lagerh, *Scenedesmus acuminatus* (Lagerh.) Chod. var. *acuminatus*, *Scenedesmus quadricauda* (Turp.) Bréb, 1835 var. *quadricauda*, *Comarium* spp., *Pleurotaenium* spp., *Dinobryon setularia* Ehr. etc.

Table 1. Number of Algae species and subspecies at Ma Da area

Divisions/ Orders	Families	Genus	Number of species and subspecies
Cyanobacteriophyta			
Nostocales	Oscillatoriaceae	<i>Oscillatoria</i>	9
		<i>Phormidium</i>	1
		<i>Lyngbya</i>	2
		<i>Spirulina</i>	1
	Nostocaceae	<i>Anabaena</i>	2
	Rivulariaceae	<i>Gloeotrichia</i>	1
Chroococcales	Chroococcaceae	<i>Merismopedia</i>	3
		<i>Microcystis</i>	3
Rhodophyta			
Batrachospermales	Batrachospermaceae	<i>Batrachospermum</i>	2
Dinophyta			
Peridinales	Peridiniaceae	<i>Peridinium</i>	3
		<i>Sphaerodinium</i>	1
		<i>Glenodinium</i>	1
	Ceratiaceae	<i>Ceratium</i>	1
Chrysophyta			
Chryomonadales	Ochromonadaceae	<i>Dinobryon</i>	1
Euglenophyta			
Euglenales	Euglenaceae	<i>Euglena</i>	6
		<i>Lepocinclis</i>	1

		<i>Phacus</i>	9
		<i>Strombomonas</i>	1
		<i>Trachelomonas</i>	11
Bacillariophyta			
Araphales	Fragilariaceae	<i>Fragilaria</i>	2
		<i>Synedra</i>	2
Diraphinales	Naviculaceae	<i>Amphora</i>	1
		<i>Caloneis</i>	1
		<i>Cymbella</i>	4
		<i>Frustulia</i>	1
		<i>Gomphonema</i>	7
		<i>Gyrosigma</i>	2
		<i>Navicula</i>	8
		<i>Pinnularia</i>	9
		<i>Stauroneis</i>	1
Raphidinales	Eunotiaceae	<i>Eunotia</i>	4
Aulonoraphales	Surirellaceae	<i>Surirella</i>	3
	Nitzchiaceae	<i>Nitzschia</i>	3
		<i>Hantzschia</i>	1
Monoraphinales	Achnanthaceae	<i>Cocconeis</i>	1
Discales	Melosiraceae	<i>Melosira</i>	2
	Coscinodiscaceae	<i>Coscinodiscus</i>	1
Chlorophyta			
Chlamydomonadales	Chlamydomonadaceae	<i>Carteria</i>	1
Chlorococcales	Oocystaceae	<i>Chlorella</i>	1
	Characiaceae	<i>Characium</i>	1
	Hydrodictyaceae	<i>Sorastrum</i>	1
		<i>Pediastrum</i>	9
		<i>Tetra dron</i>	7
	Dictyosphaeriaceae	<i>Dimorphococcus</i>	1
		<i>Dictyosphaerium</i>	1
	Ankistrodesmaceae	<i>Ankistrodesmus</i>	7
		<i>Hyaloraphidium</i>	1
		<i>Kirchneriella</i>	2
	Coelastraceae	<i>Coelastrum</i>	3
	Scenedesmaceae	<i>Actinastrum</i>	1
		<i>Crucigenia</i>	5
		<i>Tetrallanthos</i>	1
		<i>Scenedesmus</i>	23
		<i>Tetrastrum</i>	2
	Botryococcaceae	<i>Botryococcus</i>	1
Oedogoniales	Oedogoniaceae	<i>Oedogonium</i>	4
		<i>Bulbochaete</i>	2

Chaetophorales	Chaetophoraceae	<i>Chaetophora</i>	2
Desmidiatales	Mesotaeniaceae	<i>Netrium</i>	1
		<i>Actinotaenium</i>	3
	Desmidiaceae	<i>Arthrodesmus</i>	2
		<i>Closterium</i>	17
		<i>Cosmarium</i>	42
		<i>Desmidium</i>	4
		<i>Euastrum</i>	12
		<i>Hyalotheca</i>	1
		<i>Micrasterias</i>	6
		<i>Onychonema</i>	1
		<i>Penium</i>	2
		<i>Pleurotaenium</i>	12
		<i>Spondylosium</i>	2
		<i>Staurastrum</i>	28
		<i>Stauroidesmus</i>	5
		<i>Streptonema</i>	1
<i>Triploceras</i>	1		
<i>Xanthidium</i>	6		
		<i>Groenbladia</i>	1
Zygnematales	Zygnemataceae	<i>Spirogyra</i>	7
		<i>Zygnema</i>	2
		<i>Mougeotia</i>	1
Charales	Characeae	<i>Chara</i>	2

References

1. Nguyen Van Tuyen, 1979, *Data on freshwater algae of the North of Vietnam*. PhD thesis in Biology.
2. Nguyen Van Tuyen, 2003, *Algal biodiversity of the inland aquatic habitats of Vietnam- Prospects and Challenges*. Agricultural Publishing House, Hochiminh City.
3. Dang Thi Sy, 2005, *Phycology*. Ha Noi National University Publishing House.
4. Harold C. Bold, Michael J. Wynne, 1978, *Introduction to the algae (structure and reproduction)*, Prentice- Hall, INC., Englewood Cliffs, New Jersey 07632.
5. Shirota, 1966, *The plankton of south Vietnam. Fresh water and marine plankton*. Oversea technical Cooperation Agency, Japan.
6. R.Fitter & R.Manuel, 1995, *Lakes, rivers, streams & ponds of Britain & North-West Europe*. HarperCollins Publishers Hong Kong.
7. Nguyen Thuy Lien, Dang Thi Sy, 11/2005, *National Conference in Life Science, Hanoi*; 221: 224.
8. Nguyen Thuy Lien, Dang Thi Sy, 2005, *Journal of Science, VNUH, T.XXXI, No4AP*; 113: 117.
9. J.R.B.Alfred, S.Kaur và M.P.Thapa, 1978, *International conference on water pollution control in developing countries, Bangkok, Thailand*; 133: 139