

The background of the slide is a grayscale microscopic image of diatoms, showing various chains and individual cells with intricate silica-based structures.

## PROGRESS OF WORK UNDERTAKEN

FROM July 09, 2001 To February 14, 2017

By

**PRATIBHA GUPTA**

Scientist 'E'

**Botanical Survey of India**

MOEF & CC, Govt. of India, AJCBIBG, CNH Building  
B. Garden, HOWRAH - 711 103, W.B.

**Title of The Ph.D. Thesis : Bio-pollution Study of Algae  
of Ganga Water**

**Capacity (Research Scholar/ JRF) : Junior Research  
Fellow**

**Project Title : Biological Studies of Ganga Ecosystem  
between Kannauj and Shuklaganj**

**Sponsored by : Ganga Authority Project, Ministry of  
Environment and Forests,  
Government of India, New Delhi**

**Institution : Bio-pollution Study Centre, Christ Church  
College, Kanpur**



# WORK UNDERTAKEN

**A. Scientific Projects of India & Antarctica**

**B. Administrative**

**C. Other Assignments & Service Extended for :**

- Reviewed Book, Research Projects & Research Papers
- Edited Articles Published in Vanaspati Vani and for Vigyan Sammelan
- Translation work of Plant Discoveries in Hindi
- Edited Plant Discovery
- Edited and Translated BSI Calendar 2011
- Prepared Specification of different Microscopes including SEM and others for floating tender
- Prepared Comparative Statement of different make of SEM and for other Microscopes
- Demonstrations of SEM(s), Compound Microscope(s), Stereo zoom Microscope(s), Projectors, GPS, etc. Attended
- Prepared Format for Indenting the Microscope

Contd.....

**Contd.....**

- **Prepared and submitted Inventory of Instruments/ Apparatus/ Devices with Accessories / Computers, Printer, Scanner, etc. available in whole CNH Building in possession with CBL / CNH / IBG/ Cryptogamy / Ecology / Plant Chemistry / Pharmacognosy Section / Library, etc. of BSI and submitted**
- **Condemnation of items of Ecology Section**
- **Co-Judge for :**  
**Sit & Draw and Debate Competition in WED, AJCBIBG, Competitive Events held in BSI Hqr., AJCBIBG & CBL during Hindi Pakhwara**
- **Committee Member and Member Secretary for :**  
**Science Quiz Questions, DPC Meeting, Library Committee, Joint Committee and Sub-Committee Member of BSI & ZSI for Utilization of Special Grant, Senior Purchase Committee, Tender for Translation of BSI Publication Committee, Evaluation of AICOPTAX Projects of ZSI and Women Sexual Harassment**

#### **D. Development Work :**

- **Prepared and submitted and resubmitted 4 times Computerized Plans for Molecular Biology and Phycology Lab with isolation and culture facility**

#### **E Promotion of Raj Bhasha Hindi**



# **A. SCIENTIFIC PROJECTS**

## **INDIA :**

- 1. Preparation of Checklist of Cyanophyceae of India**
- 2. Taxonomic Studies of Cyanophyceae of India: I<sup>st</sup> Phase, Maldah District, West Bengal**
- 3. Preparation of Checklist of Dinophyceae of India**
- 4. Microalgae on & around Lodoicea maldivica (J.E.Gmel.)Pres. (Double Coconut Plant) in AJCBIBG**

Contd.....

Contd.....

## **SCIENTIFIC PROJECTS**

- 5. Epiphytic Algal Flora of AJC Bose IBG, Howrah**
- 6. Study of Microalgae and monitoring of the water Quality of Leram Lake of AJCBIBG, Howrah (New)**

### **OTHER**

- 7. Restoration of BSI Building Indian Museum Campus at Kolkata**

### **ANTARCTICA**

- 8. Study of Algal Diversity of Larsemann Hills, Antarctica**



# PREPARATION OF CHECKLIST OF CYANOPHYCEAE OF INDIA

Visited various Scientific Institutions/  
Organisations/Universities like NBRI, CDRI, ITRC, CIMAP,  
BSIP, IARI, INSDOC, NISCAIR, BHU, Lucknow Univ. and  
Delhi Univ. and Collected Scientific Information / Data  
published during last 51 years from various sources like :

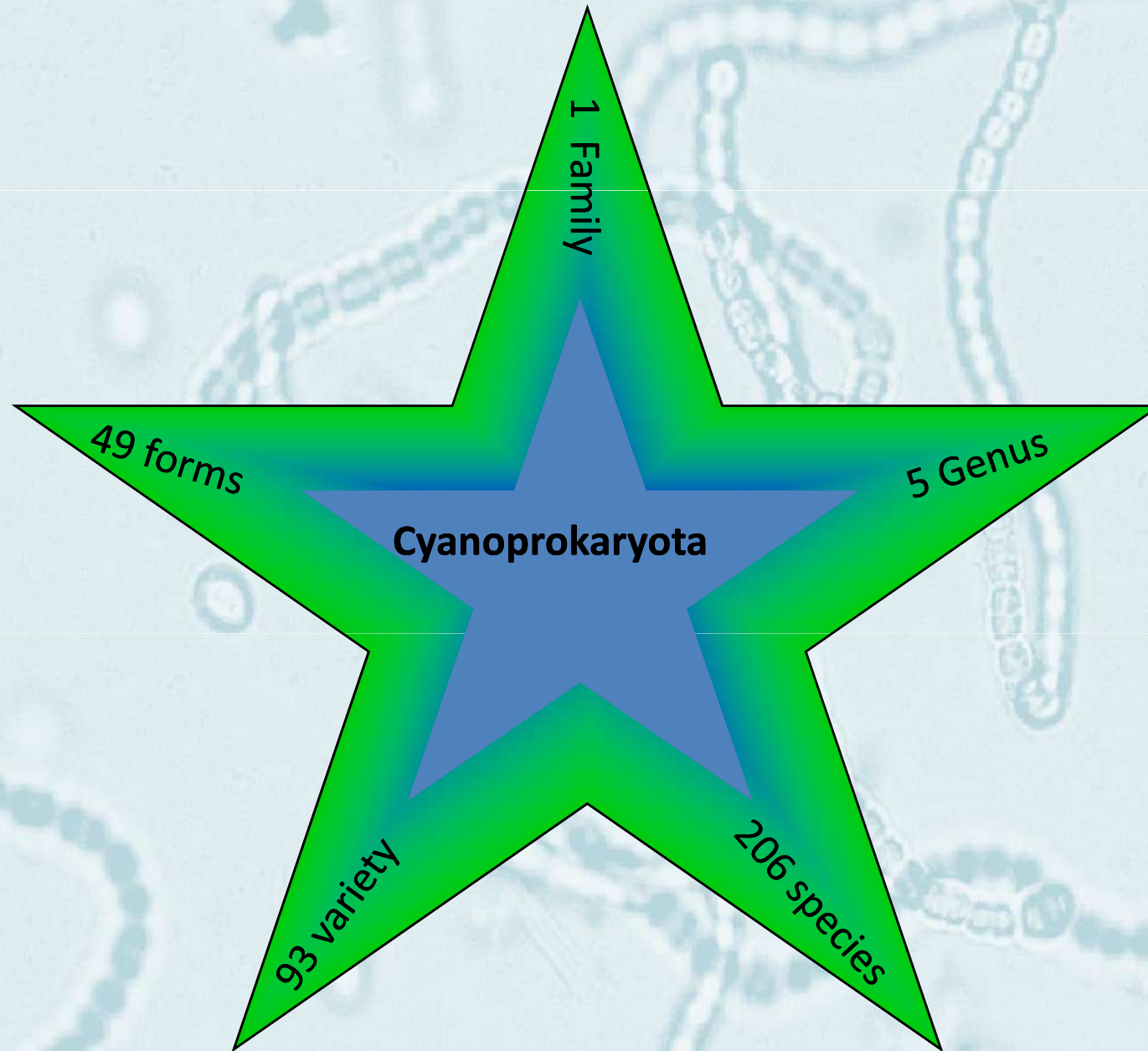
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<b>Proceedings</b>	<b>: 02</b>
<b>Books</b>	<b>: 23</b>
<b>Reference Books</b>	<b>: 16</b>

**Table 1. NUMBER OF CYANOPROKARYOTES REPORTED FROM INDIA SINCE 1849**

<b>S. No.</b>	<b>Order</b>	<b>Family</b>	<b>Genus</b>	<b>Species</b>	<b>variety</b>	<b>forms</b>
<b>1</b>	<b>Chroococcales</b>	<b>02</b>	<b>20</b>	<b>181</b>	<b>32</b>	<b>03</b>
<b>2</b>	<b>Chamaesiphonales</b>	<b>03</b>	<b>04</b>	<b>22</b>	<b>04</b>	<b>-</b>
<b>3</b>	<b>Pleurocapsales</b>	<b>02</b>	<b>05</b>	<b>11</b>	<b>-</b>	<b>-</b>
<b>4</b>	<b>Nostocales</b>	<b>05</b>	<b>45</b>	<b>678</b>	<b>166</b>	<b>81</b>
<b>5</b>	<b>Stigonematales</b>	<b>06</b>	<b>16</b>	<b>47</b>	<b>05</b>	<b>02</b>
<b>Total</b>		<b>18</b>	<b>90</b>	<b>939</b>	<b>207</b>	<b>86</b>



# NEW ADDITION OF SCIENTIFIC INFORMATION IN CHECKLIST



# **TAXONOMIC STUDIES OF CYANOPHYCEAE OF INDIA : 1<sup>ST</sup> PHASE - MALDAH DISTRICT, WEST BENGAL**

- **Surveyed whole Maldah District and as compared to 11 targeted water bodies samples/specimens from 55 water bodies were collected.**
- **During the study, the specimens identified belonging to 03 Order, 5 Families, 22 Genera and 105 species (comprising 93 species, 09 variety and 03 forms)**
- **There are 43 new records from West Bengal among which 09 species have been reported for the first time from India.**
- **Project Completed and Manuscript submitted for. Publication in the form of Book.**

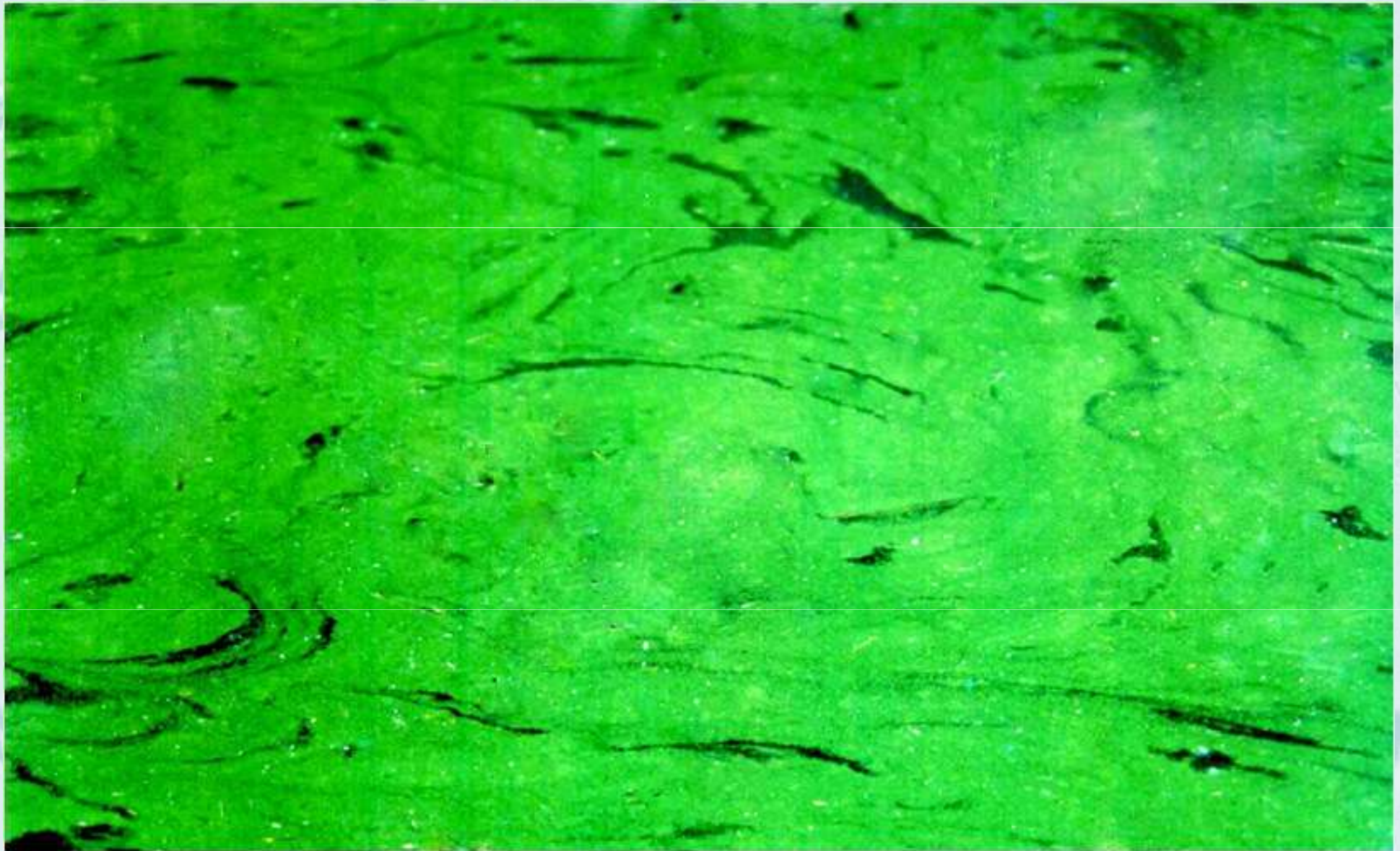


# Cyanophycean forms recorded from Maldah District

S. No.	Order	Family	Genera	species	variety	form
1	Chroococcales	01	09	27	01	-
2	Pleurocapsales	01	01	02	-	-
3	Nostocales	03	12	64	08	03
<b>Total</b>		<b>05</b>	<b>22</b>	<b>93</b>	<b>09</b>	<b>03</b>



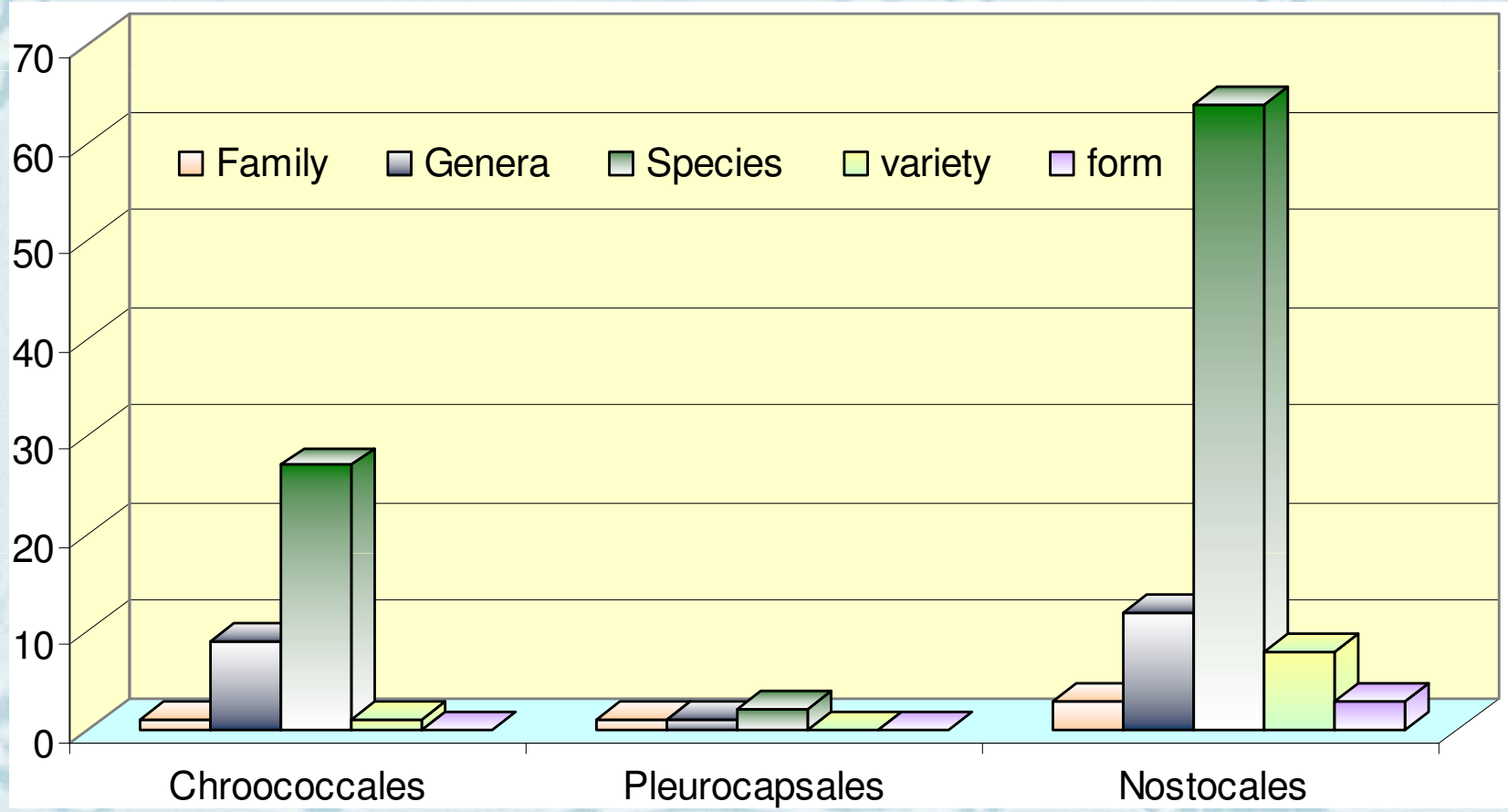








# Cyanophyceean forms recorded from Maldah District



# PREPARATION OF CHECKLIST OF DINOPHYCEAE OF INDIA

Visited various Scientific Institutions/  
Organisations/Universities like IARI, NISCAIR, New Delhi,  
Delhi University (DU) and Banaras Hindu University  
(BHU) and Collected Scientific Information / Data published  
during last 48 years from various sources like :

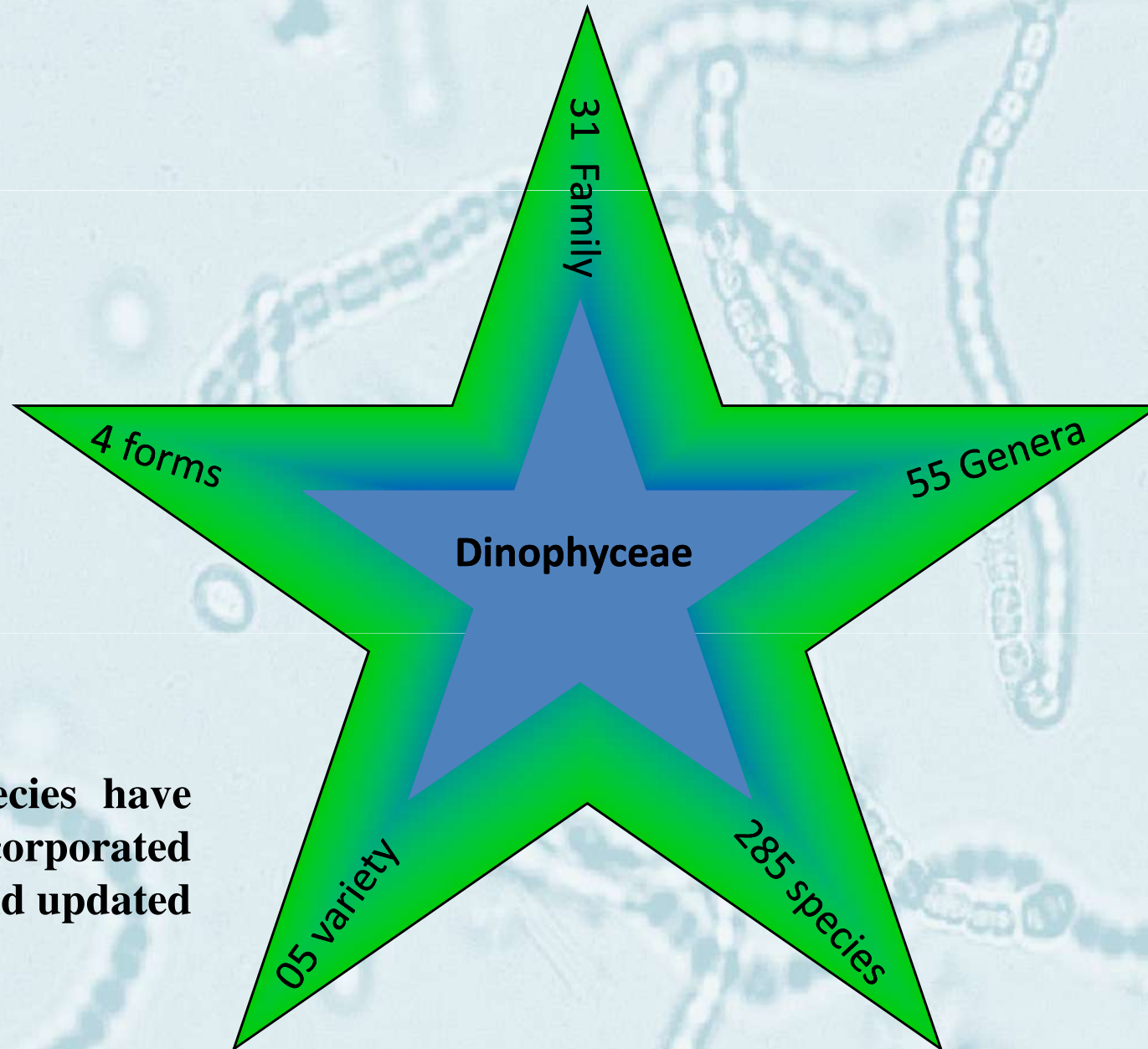
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<b>Journals</b>	<b>: 35</b>
<b>Proceedings</b>	<b>: 02</b>
<b>Books</b>	<b>: 12</b>
<b>Reference Books</b>	<b>: 16</b>



## NUMBER OF DINOPHYCEAE REPORTED FROM INDIA SINCE 1900

S.No.	Order	Family	Genus	Species	Variety	Forma
1	<a href="#">Actiniscales</a> Sournia	01	01	04	-	-
2	<a href="#">Brachidiniales</a> A.R.Loeb. ex Sournia	01	02	03	-	-
3	<a href="#">Dinophysiales</a> Kof.	03	05	25	-	-
4	<a href="#">Gonyaulacales</a> F.J.R.Taylor	05	11	90	04	02
5	<a href="#">Gymnodiniales</a> Apstein	04	09	30	-	-
6	<a href="#">Peridiniales</a> Haeckel	08	15	96	01	02
7	<a href="#">Phytodiniales</a> T.Chr.	01	01	01	-	-
8	<a href="#">Prorocentrales</a> Lemmerm.	02	03	21	-	-
9	<a href="#">Pyrocystales</a> Apstein	01	02	06	-	-
10	<a href="#">Thoracosphaerales</a> Tangen	02	03	04	-	-
11	Noctilucales Haeckel	03	03	05	-	-
<b>Total</b>		31	55	285	05	04

# SCIENTIFIC INFORMATION IN CHECKLIST



**192 new species have been incorporated after 1968 and updated since 1900**



## **Microalgae recorded from on and around *Lodoicea maldivica* (J.E.Gmel.) Pres. (Double Coconut) in AJCBIBG, Howrah**

- **Surveyed Large Palm House of AJCBIBG, Howrah.**
- **During the study, the specimens identified belonging to 6 Classes of Algae.**
- **38 species recorded from nature.**
- **09 species observed in culture.**
- **This is the world record.**
- **04 new record of Microalgae**
- **Project Completed and Report submitted.**



विशाल ताड़ गृह  
LARGE PALM HOUSE





















**Microalgae growing in Culture of the part of the tree trunk of *Lodoicea maldivica* (J.E.Gmel.) Pres.**

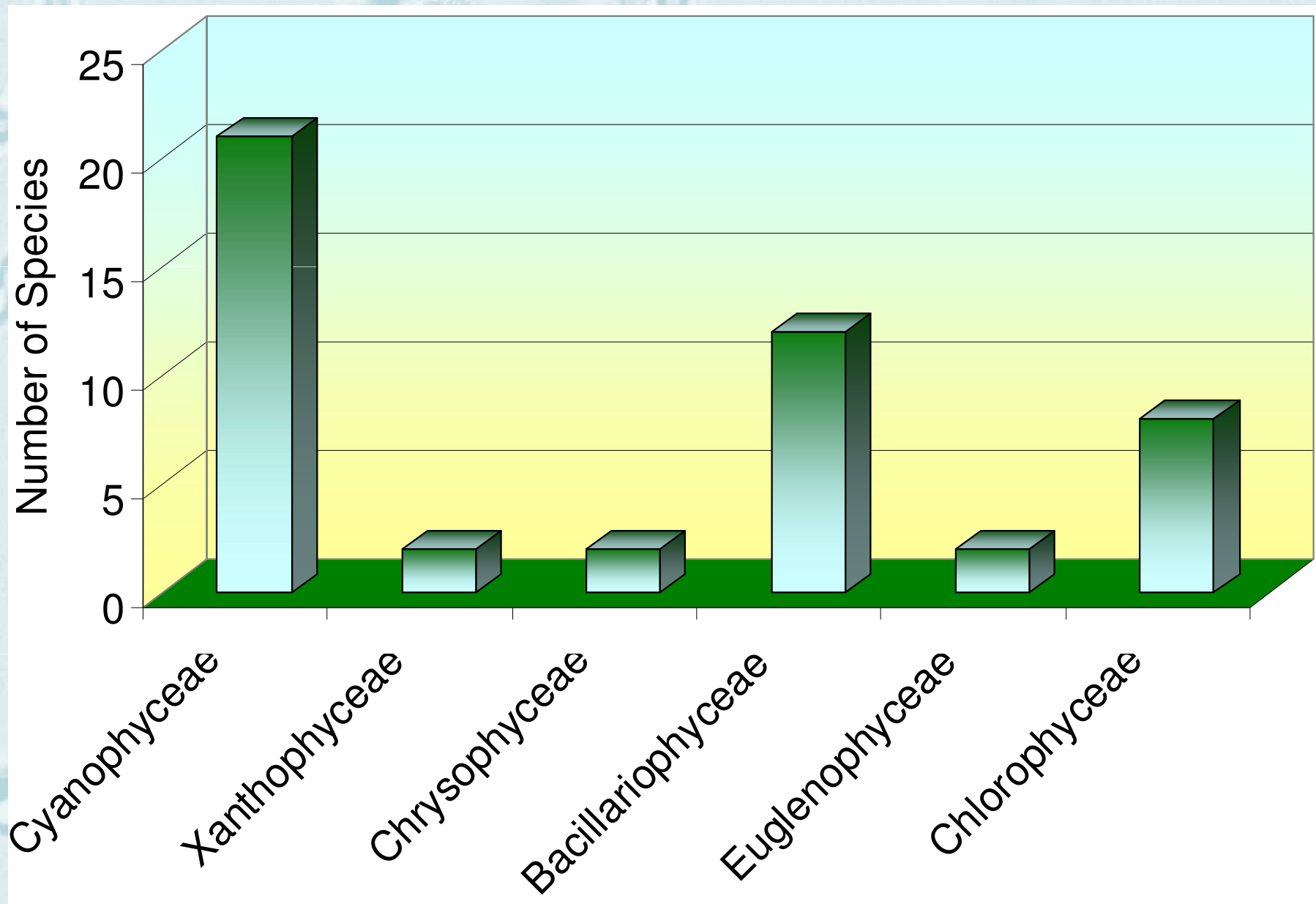


**Microalgae growing in Soil Culture, taken soil existing around *L. maldivica* (J.E.Gmel.) Pres.**

**Microalgae recorded from *Lodoicea maldivica* (J.E.Gmel.) Pres. (Double Coconut) in AJCBIBG, Howrah**

S. No.	Class	Order	Family	Genus	species	subsp.	Var.
1.	Cyanophyceae	2	3	6	18	0	3
2.	Xanthophyceae	1	1	1	2	0	0
3	Chrysophyceae	2	2	2	2	0	0
4.	Bacillariophyceae	5	7	8	10	1	1
5.	Euglenophyceae	1	1	1	1	0	1
6.	Chlorophyceae	3	5	6	8	0	0





Number of Microalgae Recorded from Different Classes

## NEW RECORDS FROM INDIA

Name of the Species	Class	Family	Habitat
<b>Monallantus brevicylindrus Pascher</b>	<b>Xanthophyceae</b>	<b>Pleurochloridaceae</b>	<b>Upper part of the tree trunk</b>
<b>Trachelomonas volvocina var. compressa</b>	<b>Euglenophyceae</b>	<b>Euglenaceae</b>	<b>Upper part of the tree trunk</b>
<b>Apistonema expansum Geitler</b>	<b>Chrysophyceae</b>	<b>Phaeothamniaceae</b>	<b>From Leaf Petiole</b>
<b>Synura splendida Korshikov</b>		<b>Synuraceae</b>	<b>Lower Part of the tree trunk and from soil around the tree</b>



# MEDICINAL PROPERTY OF ALGAE

Name of Algae	Active Compound / Metabolites	Effect	References
<b>Phormidium tenue</b> Gomont	Sulpholipid	Anti HIV activity	Gustafson et al., 1989, Falch et al., 1995
<b>Scytonema ocellatum</b> Lyngbye ex Bornet & Flahault	Phytoalexin	Fungicidal	Patterson and Bolis, 1997
<b>Oscillatoria tenuis</b> C.Agardh ex Gomont	Antimicrobial compound	Against Staphylococcus aureas, Bacillus subtilis and Micrococcus flavus	Kreitlow et al.,1999
<b>Chlorella vulgaris</b> Beyerinck (Beijerinck)	Chlorellin	Inhibitory activity against both Gram+ and Gram- bacteria	Pratt et al.,1944

## **Epiphytic Algal Flora of AJC Bose IBG, Howrah**

- **Surveyed AJCBIBG, Howrah 24 times and samples were collected**
- **656 Numbers of field photographs were taken**
- **During the study, 51 number of species were identified**
- **Further work is in progress**
- **After completion of the work manuscript will be complied**



# GRANDER TECHNOLOGY

**Johann Grander, an Austrian naturalist, created a method of re-energizing the water Bodies.**

## **User Benefits :**

- **Inhibit Bacterial Growth**
- **Enhanced freshness as a result of altered microbiology**
- **Improved quality of the water**
- **Degenerate sewage material and improve aquatic environment**
- **Able to regenerate biologically dead water bodies**

## **Installation of Grander Unit in Garden Lake**

- **Three Grander unit – Grander, LWS Double Cylinder Energy Rod Model Brdz (S.No. 82803383, 82803384 and WTV 70059) have been successfully installed in different places of Leram Lake in submerged position by Mr. Kallol Chatterjee, Marin Engineer, Envirotech, 10B Bhabanath Sent Street, Kolkata on 03.01.2017.**
- **Before installation water samples were collected in the sterilised bottles and properly sealed and sent in Laboratory for proper analysis of all Physico-chemical and biological parameters.**















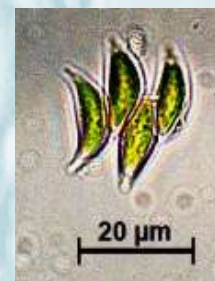
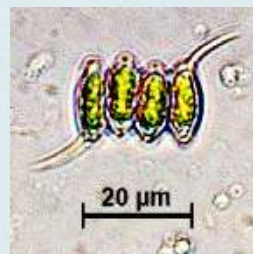
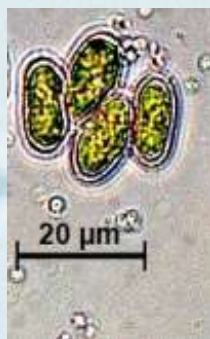
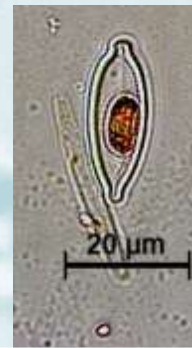
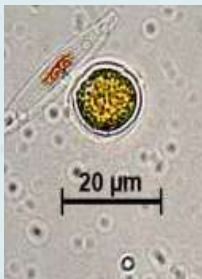
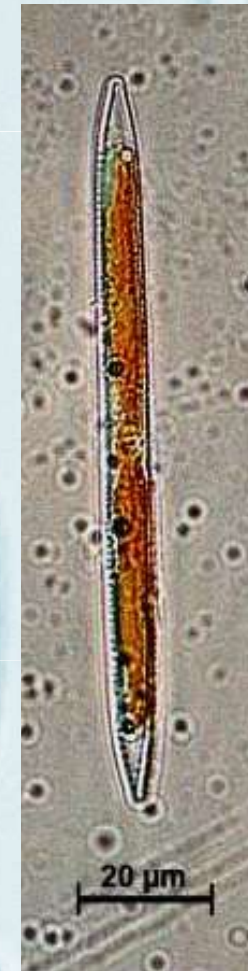
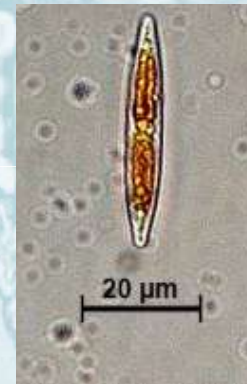
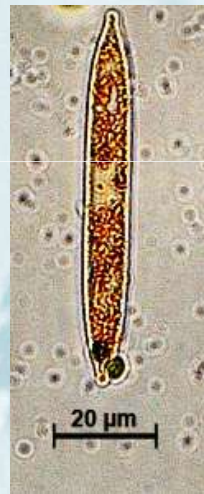
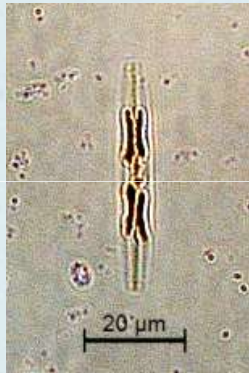




# **Study of Microalgae and monitoring of the water Quality of Leram Lake of AJCBIBG, Howrah (New)**

**Before installation of Grander Technology Units water samples were collected from Leram Lake to study the Microalgae and after periodic intervals nature of the microalgae will be studied to find out the changes in the aquatic environment of the lake after installation of the Grander Technology units**

# Microalgae from Leram Lake of AJCBIBG



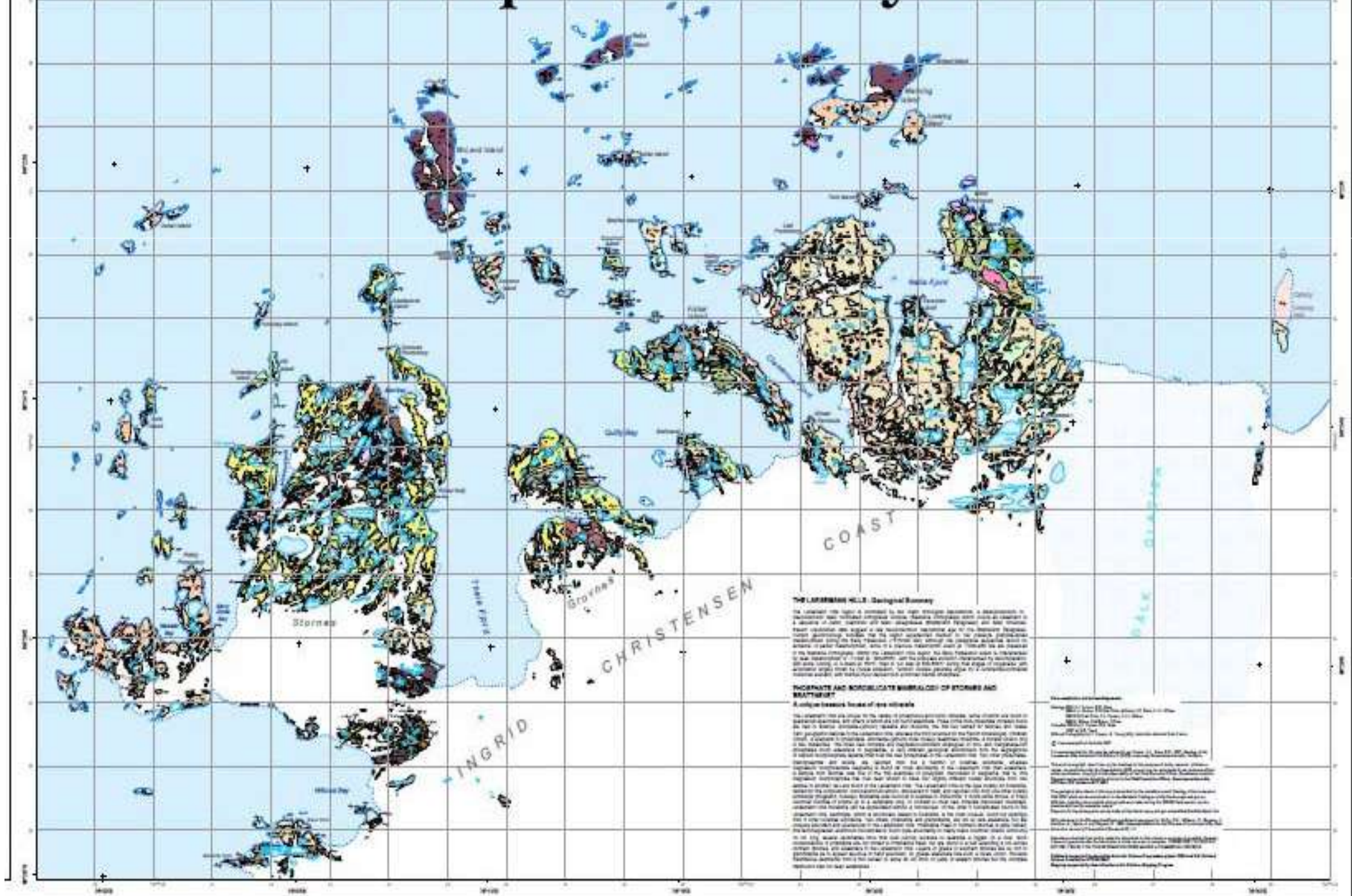


# **Study of Algal Diversity of Larsemann Hills, Antarctica**

- **Covered almost all the area except Stornes Peninsula due to Antarctica Specially Protected Area (ASPA) restriction.**
- **During Survey Covered 04 Peninsulas and 07 Islands of Larsemann Hills.**
- **The Target was for 40% completion of the survey and collection work during this austral summer. I achieved more than 75% which is much higher than target.**
- **Samples received from NCAOR, Goa by courier after returned back to India.**
- **Microscopic observation and Identification work is in progress.**



# Location Map of the Study Area Covered



**THE LARSENEN HILLS, Geological Summary**

The coastline of the hills is defined by the high mountain ranges, a characteristic of the region. The hills are composed of a variety of rock types, including igneous, sedimentary, and metamorphic rocks. The igneous rocks are primarily gabbro and diorite, which are thought to be related to the formation of the Larsen Sea. The sedimentary rocks are primarily sandstone and shale, which are thought to be related to the deposition of sediments in the Larsen Sea. The metamorphic rocks are primarily schist and gneiss, which are thought to be related to the burial and metamorphism of the sedimentary rocks.

**ISOPHASES AND ISOBATHS OF TEMPERATURE AND SALINITY**

A major feature of the study area is the presence of isophases and isobaths of temperature and salinity. The isophases are lines of equal salinity, and the isobaths are lines of equal temperature. The isophases and isobaths are closely related, and their distribution is controlled by the circulation of the water masses in the study area. The isophases and isobaths are shown on the map as solid lines, and their values are indicated by the numbers along the lines.

**REFERENCES**

Admiralty Hydrographic Office, 1950. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.

Admiralty Hydrographic Office, 1955. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.

Admiralty Hydrographic Office, 1960. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.

Admiralty Hydrographic Office, 1965. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.

Admiralty Hydrographic Office, 1970. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.

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Admiralty Hydrographic Office, 1980. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.

Admiralty Hydrographic Office, 1985. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.

Admiralty Hydrographic Office, 1990. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.

Admiralty Hydrographic Office, 1995. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.

Admiralty Hydrographic Office, 2000. *Chart 1000, Antarctica*. London: Admiralty Hydrographic Office.



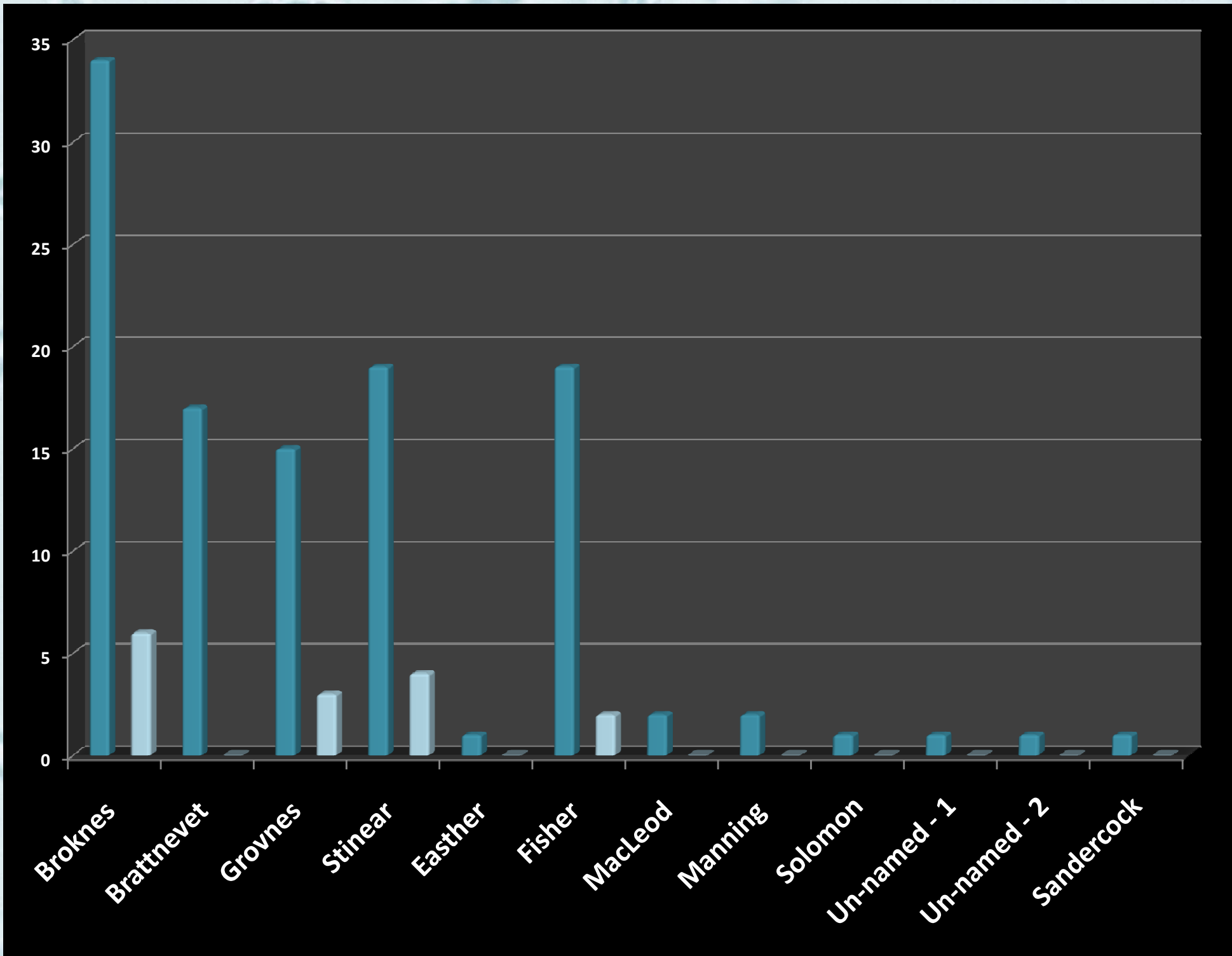
# Peninsula and Island Surveyed

## Peninsulas

1. Broknes
2. Brattnevet
3. Grovnes
4. Stinear

## Islands

5. Easter Island
6. Fisher
7. MacLeod
8. Manning
9. Solomon
10. Between Solomon and Breadloaf Island and
11. Sandercock Island











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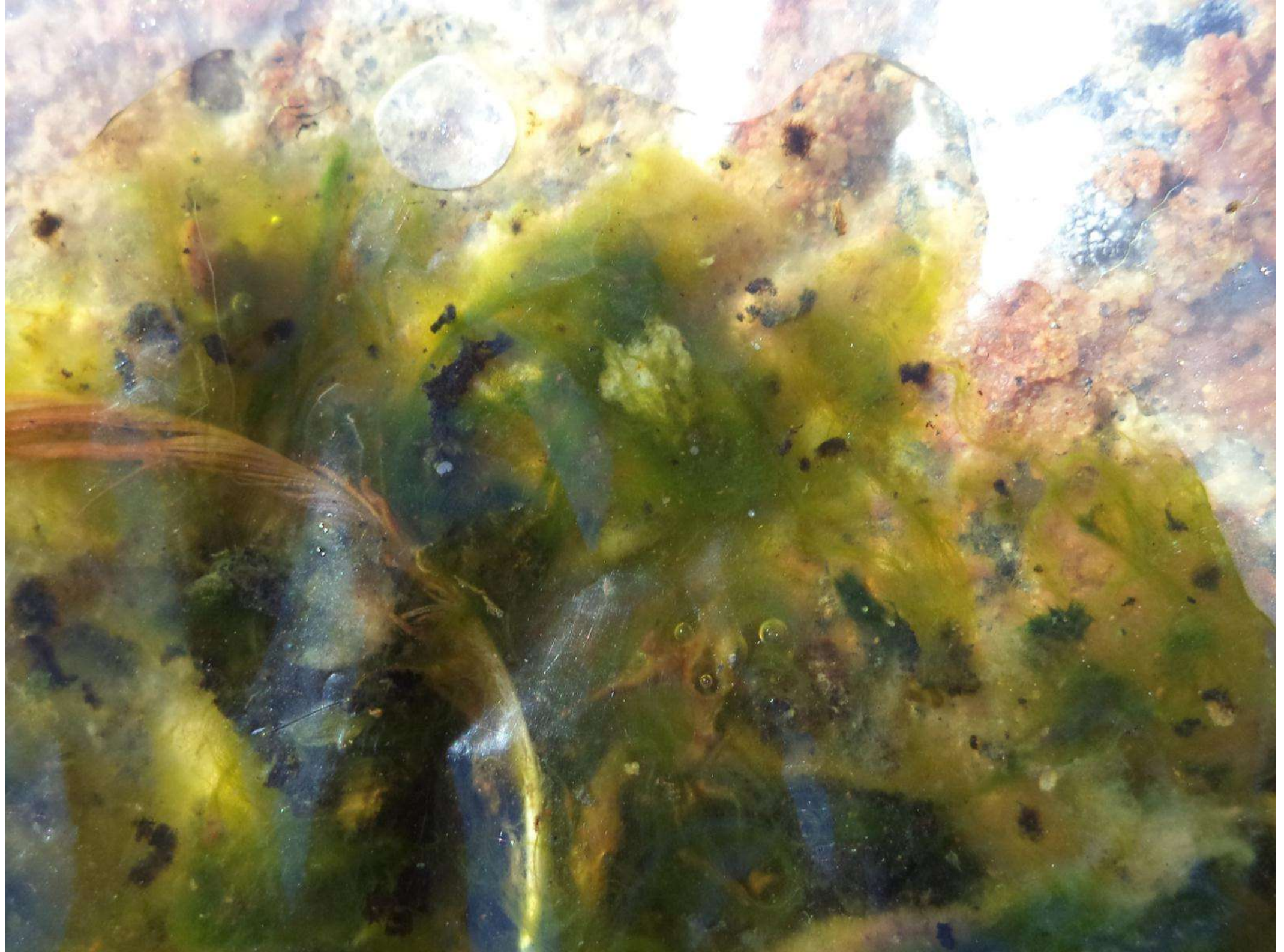


































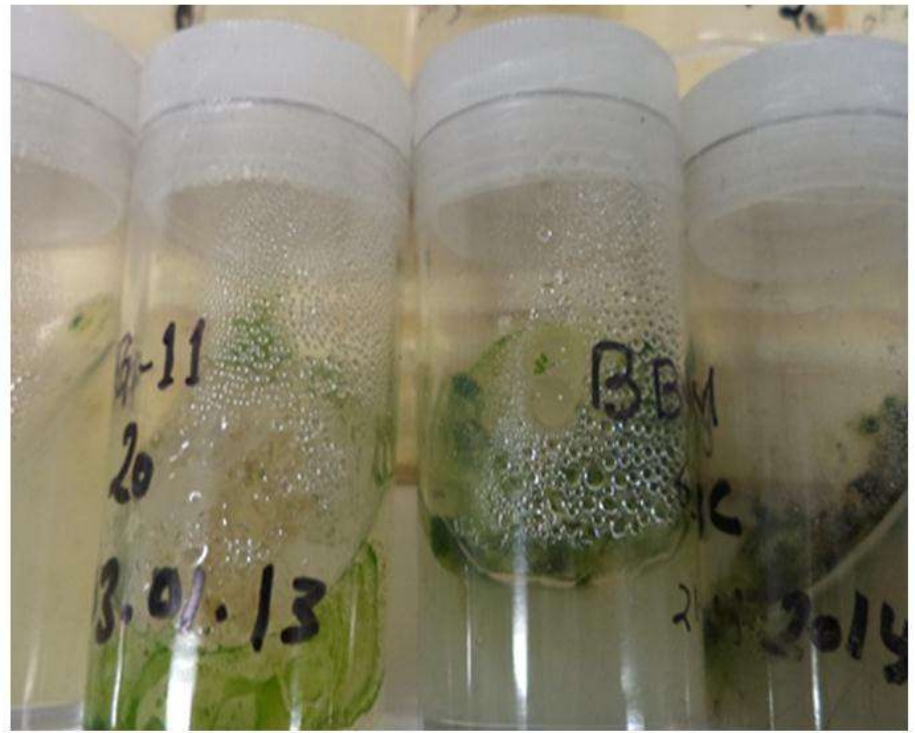
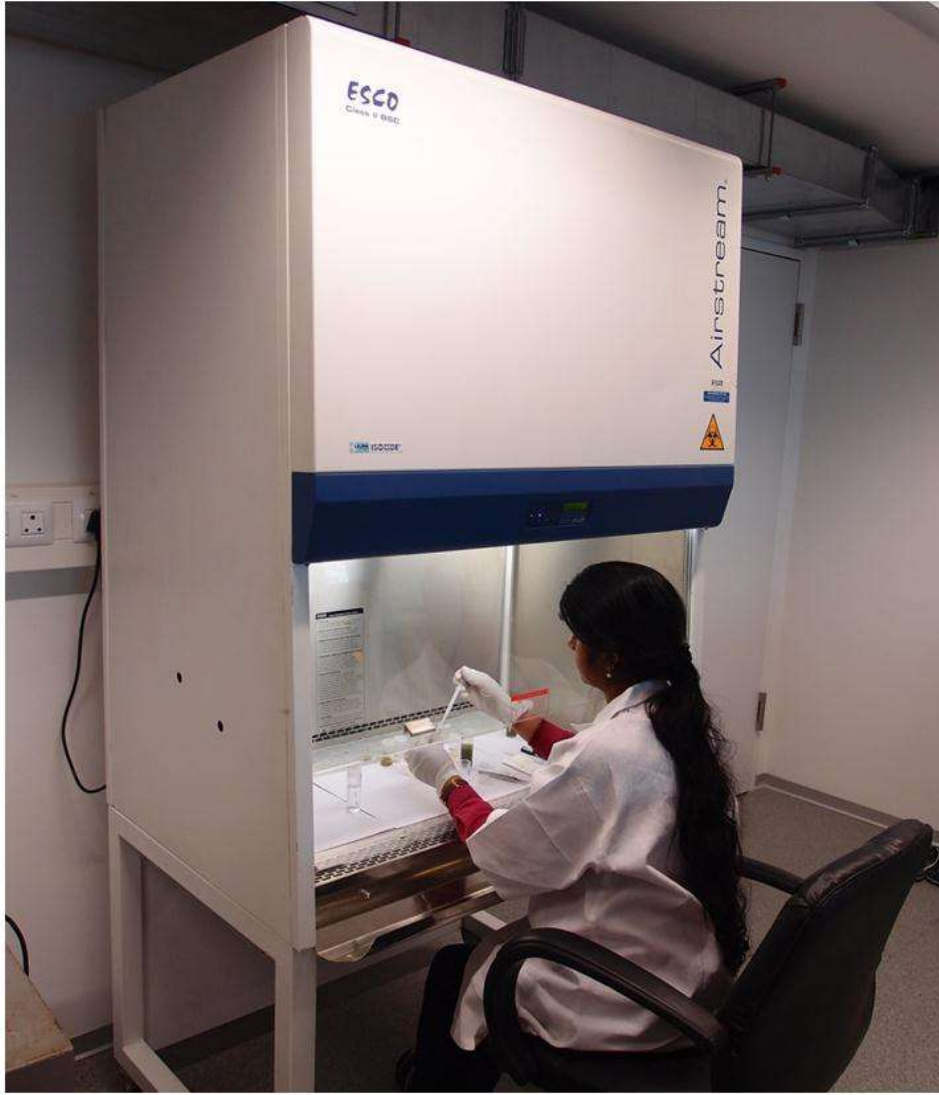
**GOVERNMENT OF INDIA**  
**MINISTRY OF ENVIRONMENT AND FORESTS**  
**BOTANICAL SURVEY OF INDIA**  
**33<sup>rd</sup> INDIAN SCIENTIFIC ANTARCTIC EXPEDITION**  
**2013 - 14**





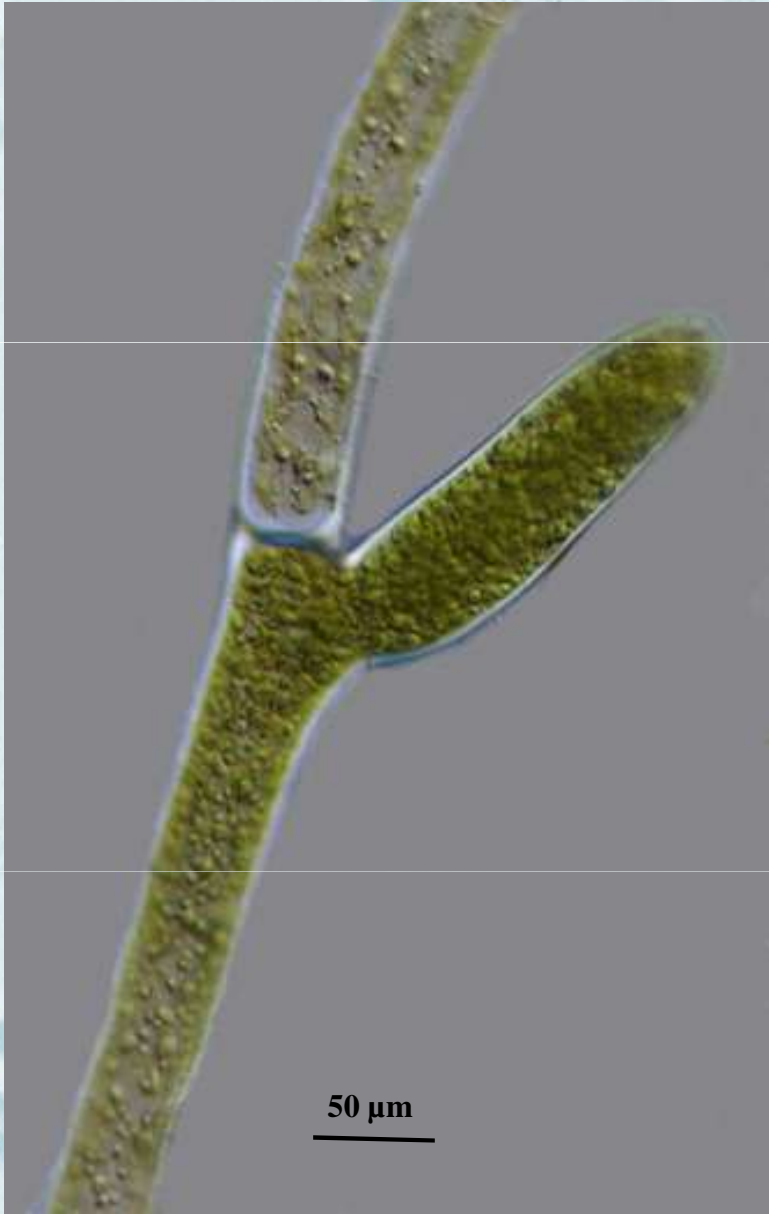




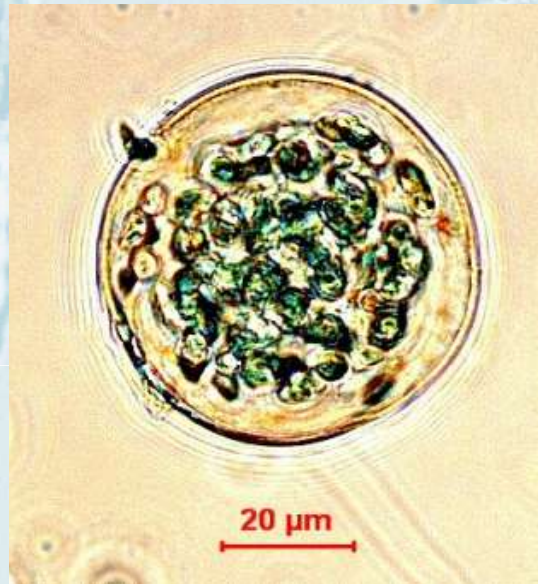




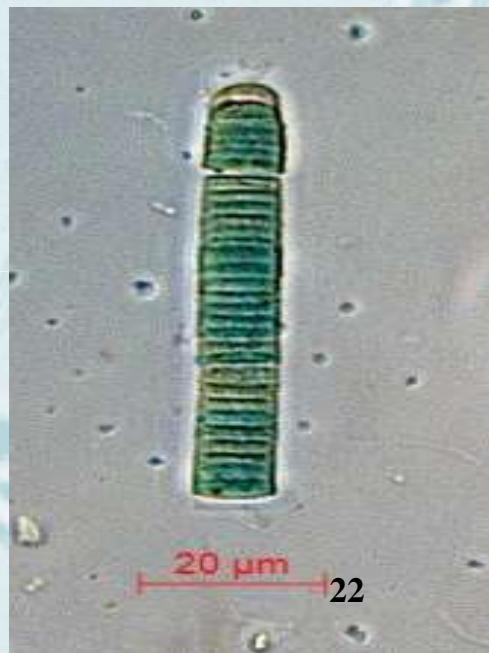




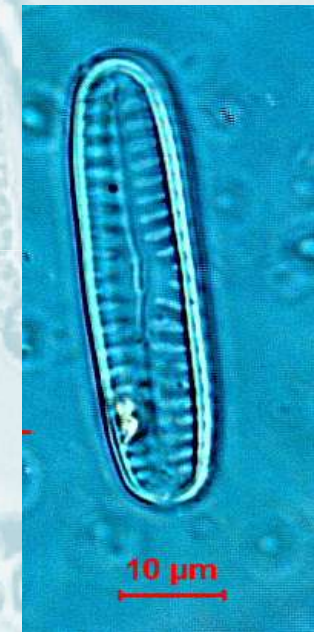
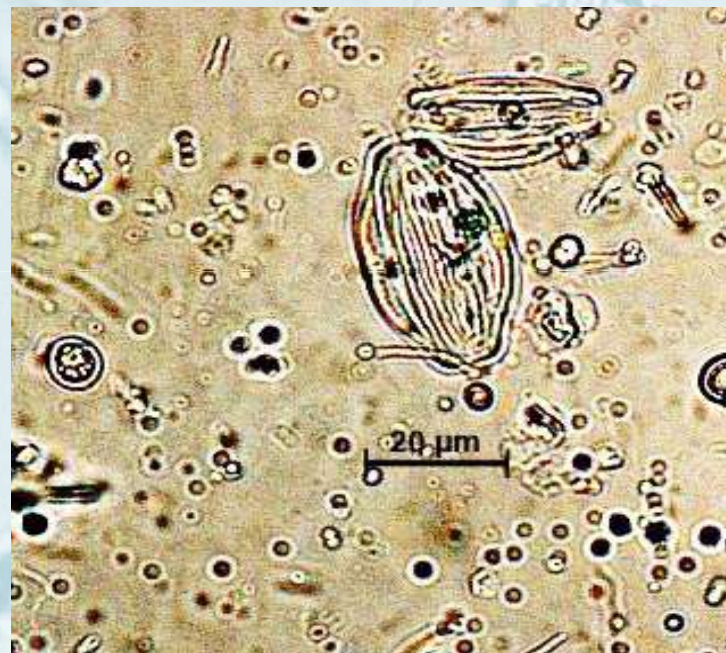




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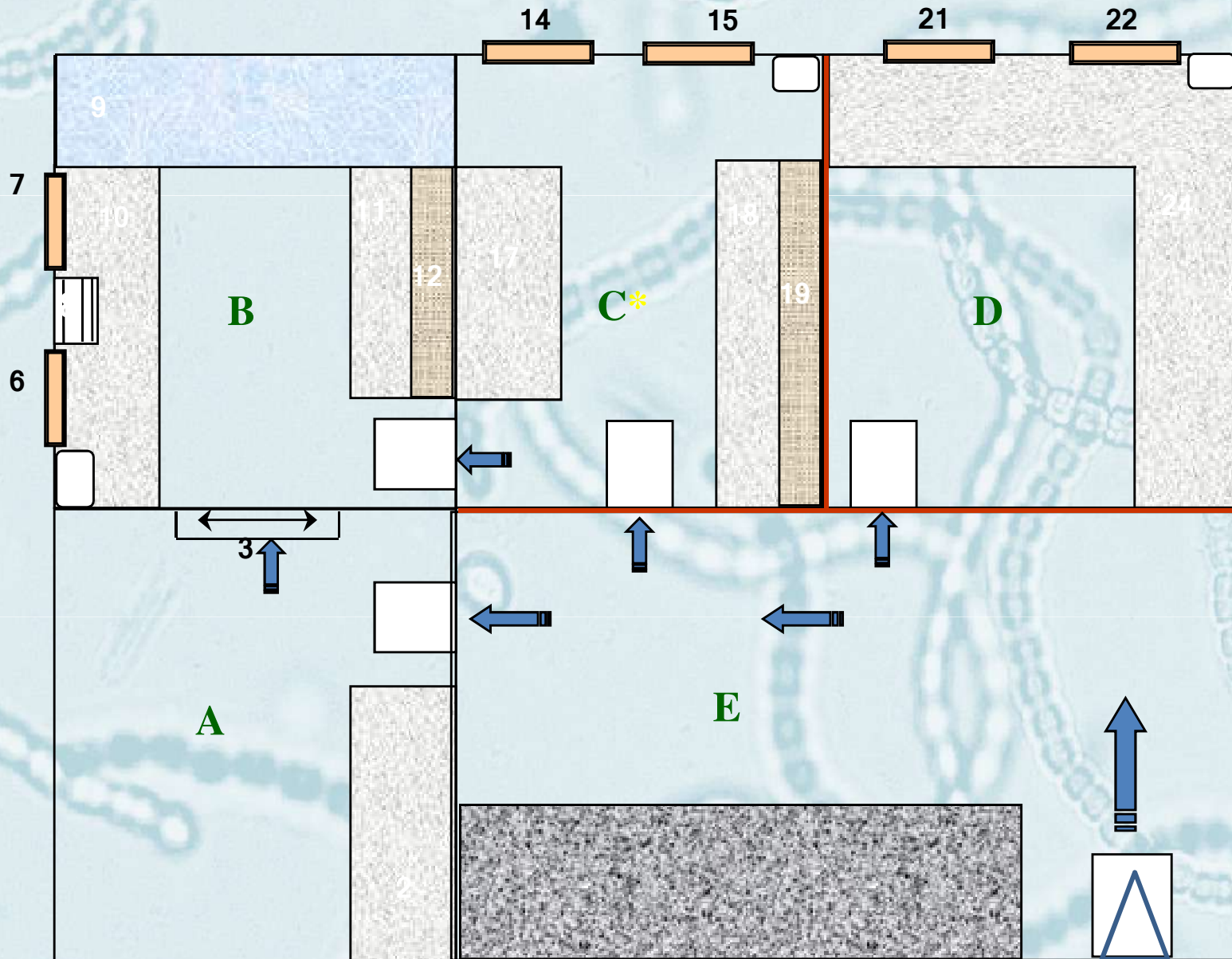








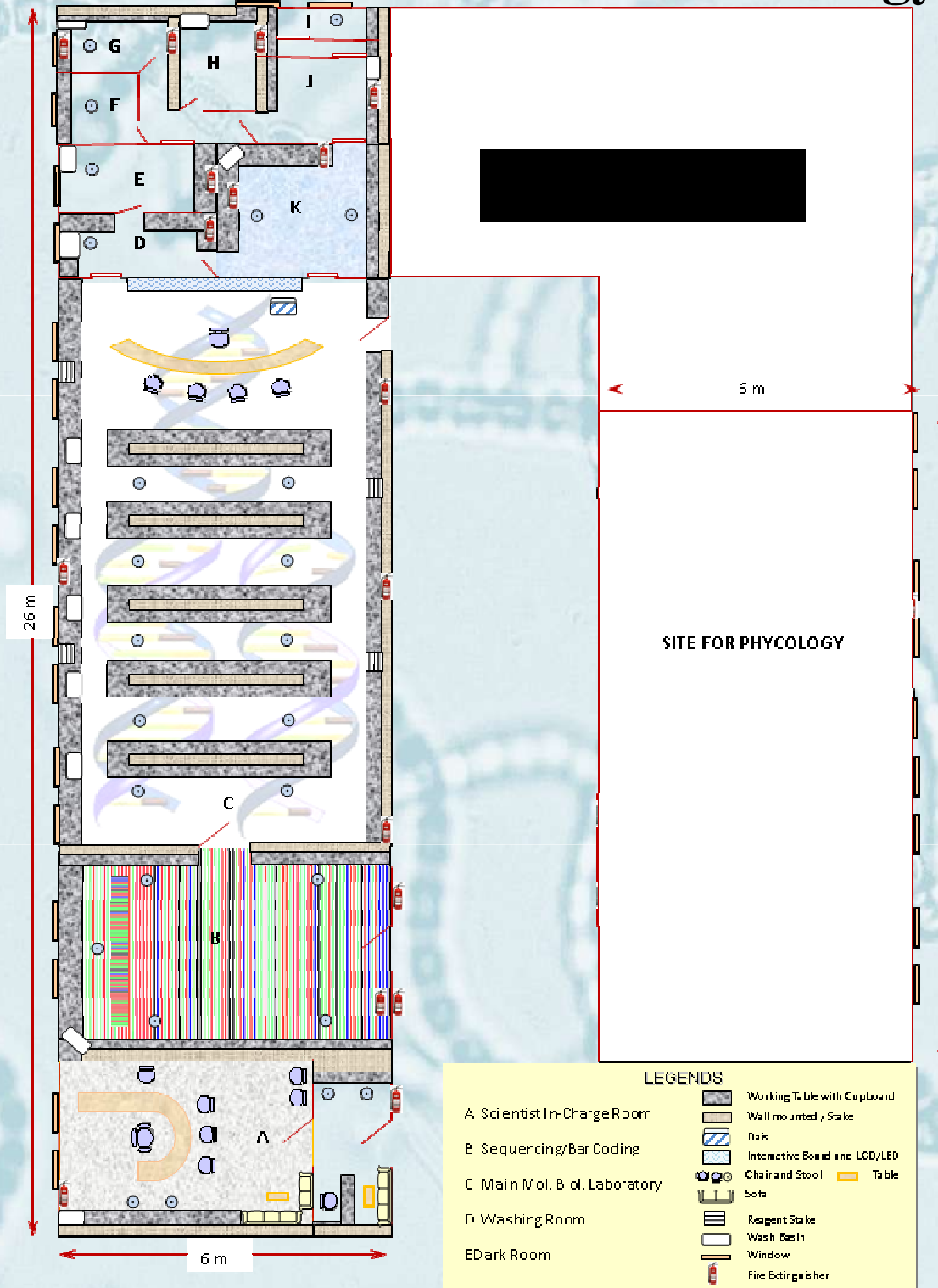
# Plan for Establishment of Phycology Section / Unit and Phyco-informatic Centre



- A Existing Room
- B Room for Microscopic Studies
- C Culture Room with Samples
- D Phyco Informatics Centre (PIC)
- E Lobby for Heavy Instruments & Sitting of Staff



# Plan for Establishment of Molecular Biology Lab





# **Submitted Requirement Plan for Molecular Biology Lab**

- **Infrastructure**
- **Equipments**
- **Other Essential Items / Accessories**
- **Experimental Kits,**
- **Primers**
- **Glass wares,**
- **Chemicals,**
- **Dyes and Enzymes,**
- **Specialized Bioinformatics Databases for consultation for very specific Information about DNA Sequencing**
- **Furniture and**
- **Minimum Staff required for Molecular Biology Lab**

# Websites / URL Search for Molecular Studies

## Gene Bank

[www.ncbi.nlm.nih.gov/BLAST](http://www.ncbi.nlm.nih.gov/BLAST)

[www.ddbj.nig.ac.jp](http://www.ddbj.nig.ac.jp)

[www.ebi.ac.uk/ena](http://www.ebi.ac.uk/ena)

## Specialised Barcoding Database

<http://www.cuhk.edu.hk/icmmdbd.htm>

<http://www.polarbarcoding.org/>

## Software for Primer Design:

<http://biotools.umassmed.edu/bioapps/primer3>

<http://basic.northwestern.edu/biotools/OligoCalc.html>

[http://bioinformatics.org/sms2/pcr\\_products.html](http://bioinformatics.org/sms2/pcr_products.html)

## Simple Primer Design:

[www.ncbi.nlm.nih.gov](http://www.ncbi.nlm.nih.gov)

## Multiple sequence Alignment

<ftp://ftp.ebi.ac.uk/pub/software/>

<ftp://ftp-igbmc.u-strasbg.fr/pub/ClustalX/>

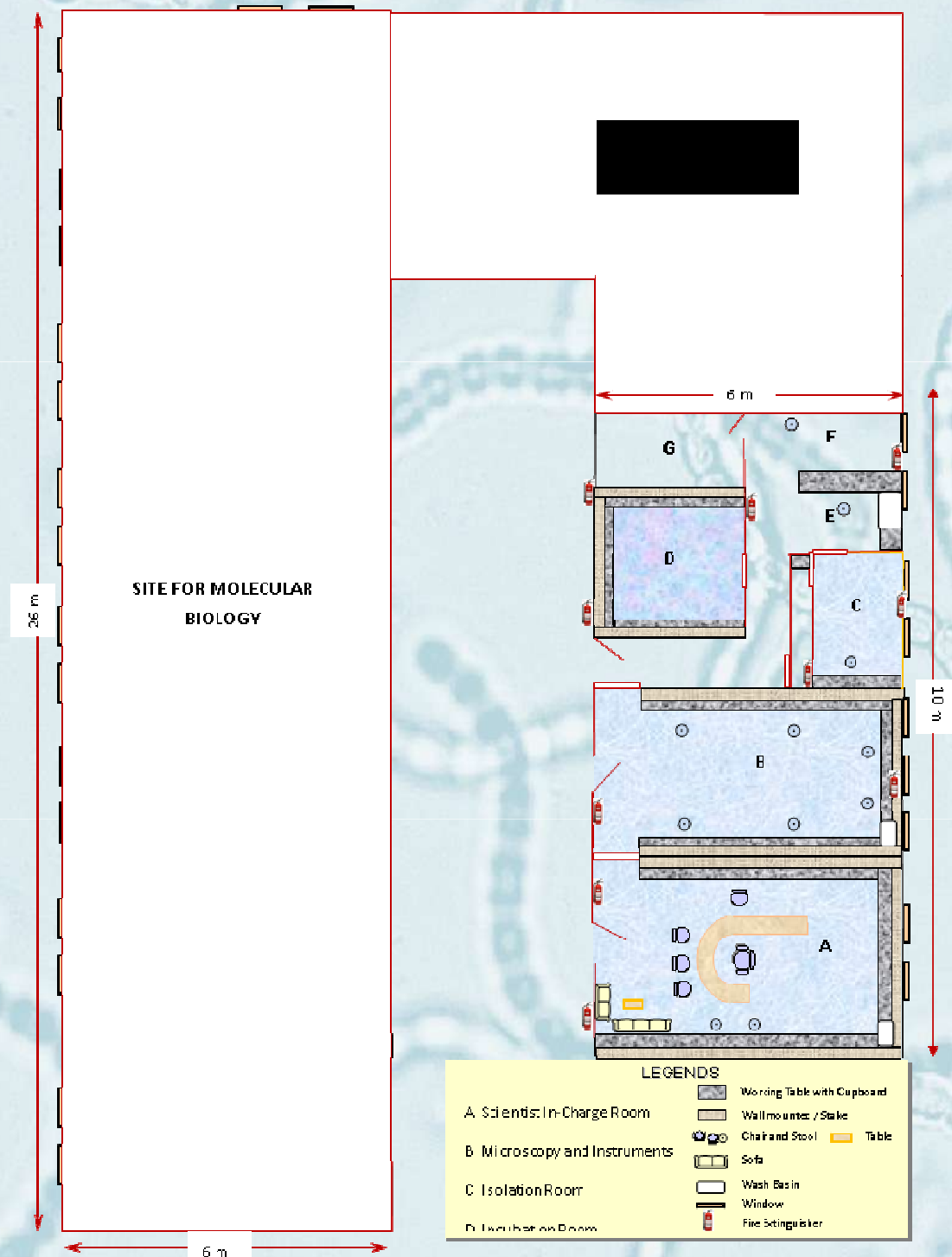
## Barcode submission in Gene Bank

[www.barcoding.si.edu](http://www.barcoding.si.edu)

[www.ncbi.nlm.nih.gov/WebSub?tool=barcode](http://www.ncbi.nlm.nih.gov/WebSub?tool=barcode)



# PLAN FOR PHYCOLOGY CENTRE (INCLUDING CULTURE FACILITY)



SITE FOR MOLECULAR BIOLOGY

26 m

6 m

6 m

10 m

## LEGENDS

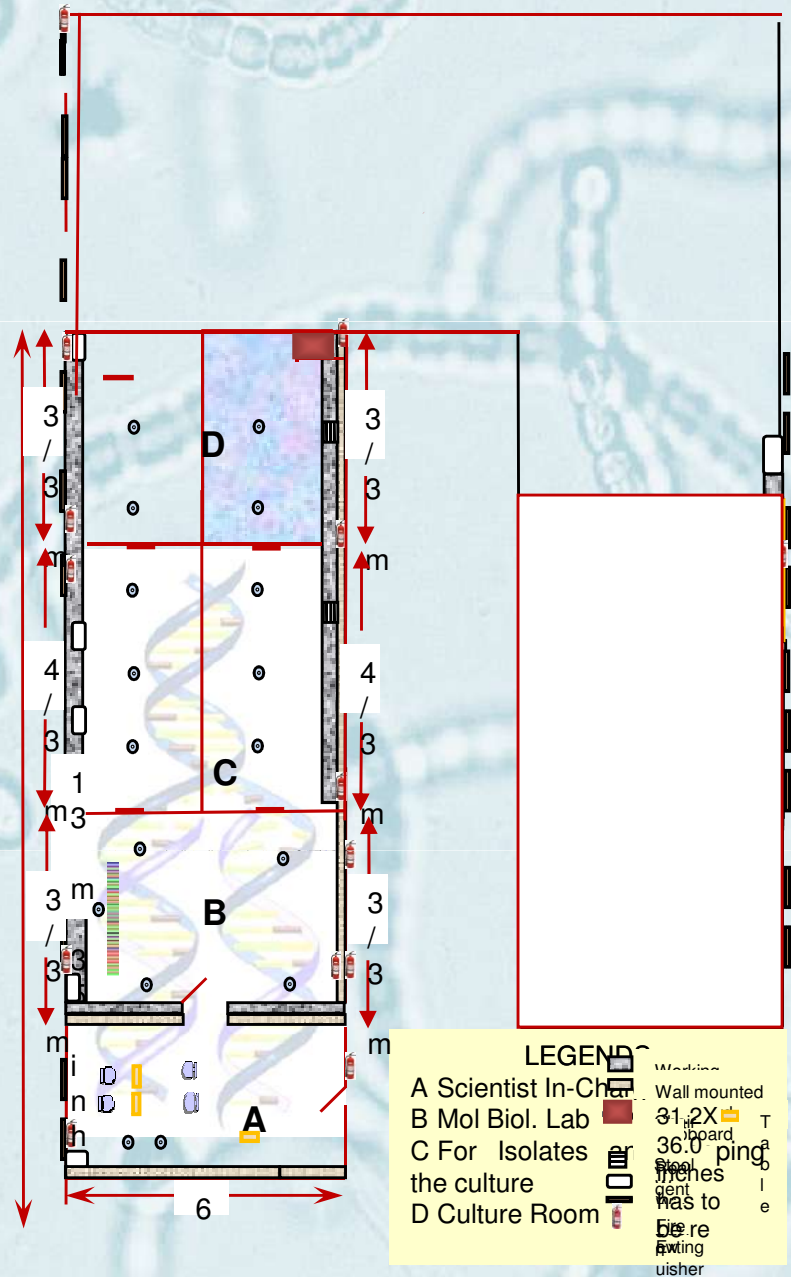
- |                               |                             |
|-------------------------------|-----------------------------|
| A. Scientist's In-Charge Room | Working Table with Cupboard |
| B. Microscopy and Instruments | Wallmounts / Stalks         |
| C. Isolation Room             | Chair and Stool             |
| D. Incubation Room            | Table                       |
|                               | Sofa                        |
|                               | Wash Basin                  |
|                               | Window                      |
|                               | Fire Extinguisher           |

# **Requirement for Phycology Centre (including Culture Facility)**

- **Infrastructure**
- **Equipments**
- **Other Essential Items / Accessories**
- **Glass wares**
- **Chemicals including Antibiotics**
- **Culture Medium (for each group of Algae)**
- **Furniture and**
- **Minimum Staff required for Phycology Section including Culture facility**



# PLAN FOR CULTURE AND MOLECULAR BIOLOGY LAB



# Initiatives Taken

- Plan for establishment of Culture and Molecular Biology Lab also submitted to In-charge, CNH for CPWD work for establishment of Culture and Molecular Biology Lab on 08<sup>th</sup> Aug., 2014.
- Prepared List of Instruments / Equipment's required for Algal Culture and Molecular Biology Lab to be developed in BSI and submitted with full specification and justification of each items on 7<sup>th</sup> Aug., 2014.
- Submitted Plan for Electric Fittings Details for Isolation/ Culture and Molecular Biology Lab on 15<sup>th</sup> Sep., 2014 required for installation of indented instruments in Molecular Biology and Isolation / Culture Lab which is under establishment in 4<sup>th</sup> Floor.
- Prepared Layout and submitted along with specification for fixing of Working Plate form with Cupboard, Wall mounted hanging Reagent Rack, Hanging cupboard, etc. required for Algal Culture and Molecular Biology Lab on 22<sup>nd</sup> Sep., 2014.



<b>Books</b>	<b>Numbers</b>
<b>Published</b>	<b>01</b>
<b>In Press</b>	<b>01</b>
<b>Submitted</b>	<b>01</b>
<b>Prepared</b>	<b>01</b>

## **Books Written**

- 1. Algae of India: A Checklist of Cyanoprokaryota (Cyanophyceae) - Published**
- 2. Cyanophyceae of Maldah District, West Bengal - In Press**
- 3. Algae of India : A Checklist of Dinophyceae (Dinoflagellates) – Submitted**
- 4. On Antarctica Expedition entitled “A Journey to Antarctica”**

## **Prepared Booklet : Water and Algae**

## **Chapters in Book :**

**Gupta, Pratibha and Husain, M. M. (2007). Cyanobacterial Toxins - Monitoring and Management. *Pollution Managements*. 1(17): 249 – 290.**

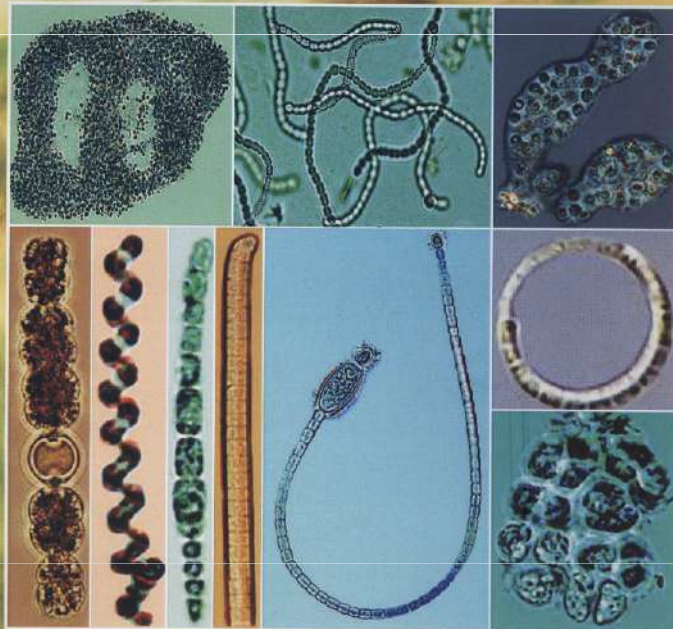




# ALGAE OF INDIA

Volume - 1

A CHECKLIST OF CYANOPROKARYOTA  
(CYANOPHYCEAE)



**BOTANICAL SURVEY OF INDIA**  
Ministry of Environment & Forests



# CYANOPHYCEAE

OF  
MALDAH DISTRICT, W.B.



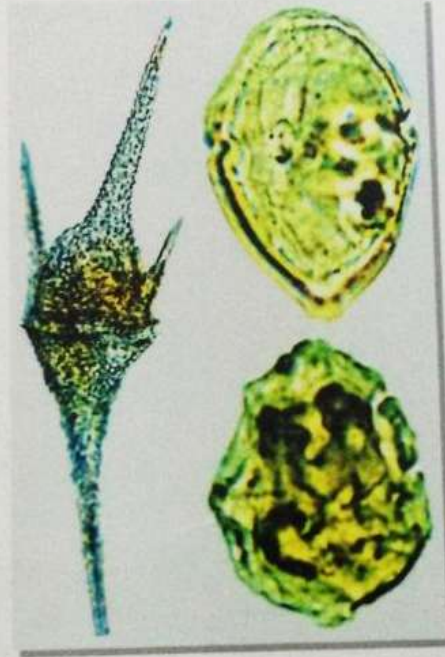
*Pratibha Gupta*

**BOTANICAL SURVEY OF INDIA**



# ALGAE OF INDIA

A CHECKLIST OF DINOPHYCEAE (Dinoflagellates)



*Pratibha Gupta*

**BOTANICAL SURVEY OF INDIA**  
Ministry of Environment Forests & CC  
Government of India



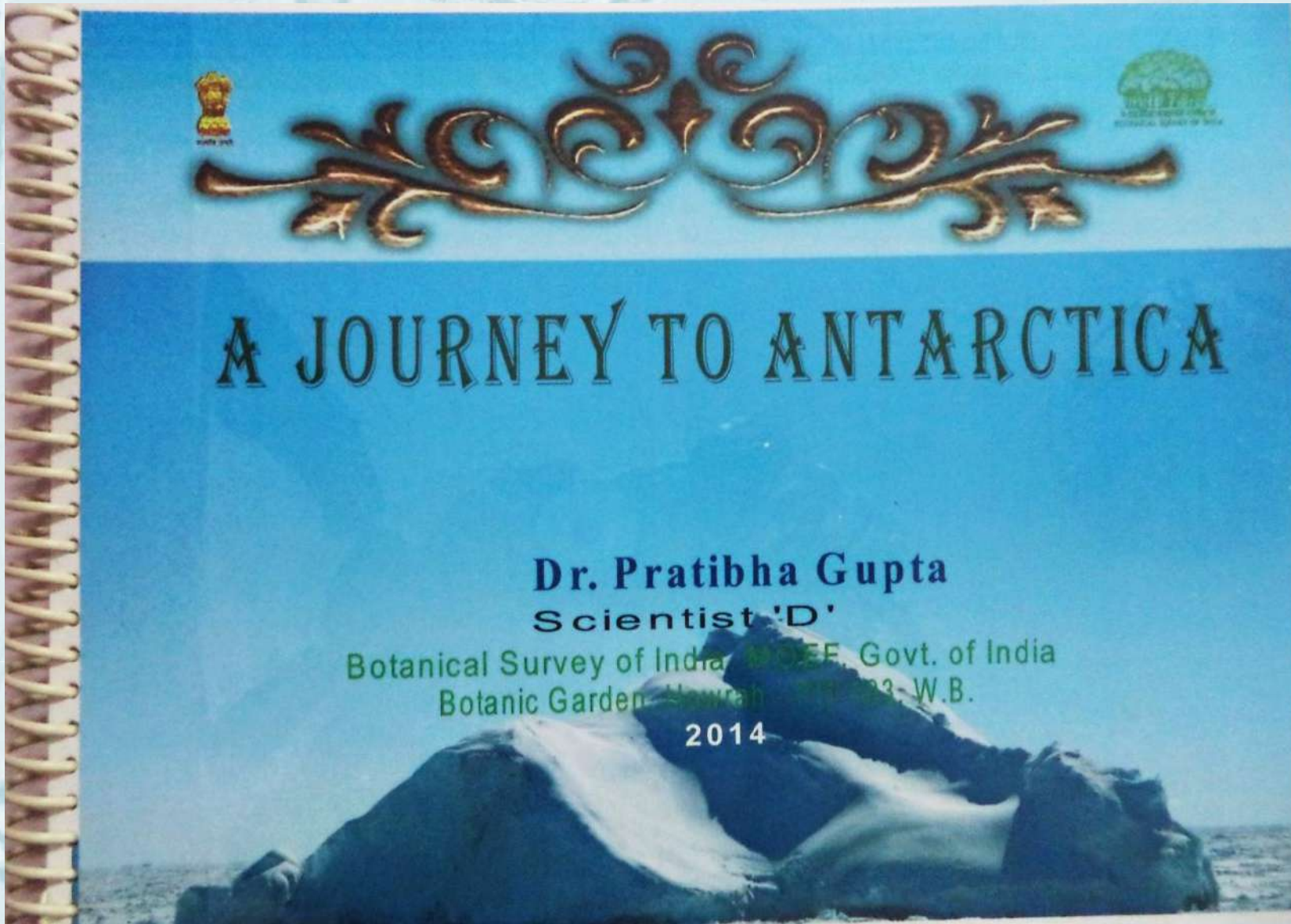


# A JOURNEY TO ANTARCTICA

**Dr. Pratibha Gupta**  
Scientist 'D'

Botanical Survey of India, SOE, Govt. of India  
Botanic Garden, Howrah, 711 003, W.B.

2014



# Publications

Papers	Numbers
Published	103
Communicated	01
Accepted	-
Review Article	01
Book Chapter (on request)	01
Total	106



# **Conference / Seminar / Symposium / Sangoshti/ Workshop/ Training Programme Attended and Paper Presented and PPT submitted**

**Conference Attended : 09**

**Seminar/ Symposium / Sangoshti Attended: 06**

**Workshop Attended : 03**

**Training Programme Attended in India : 06**

**Training Programme Attended in Antarctica: 01**

**Contd....**

**Contd.....**

**Paper Presented in Conference/Seminar/ etc. : 13**

**Paper/ Work presented/ lecture delivered other than  
Conference/Seminar/ etc. 12**

**Power Point Presentations Prepared and Submitted 08**

**Invited/ Guest Lectures Delivered : 05**



**Meeting Attended : 111 + 129 = 240**

**Lecture Attended : 36**

**Report Submitted : 281**

**Demonstration Attended : 17**

**Project Prepared : 05**

**Judged Hindi Programme : 16**

**Judged Sit and Draw Competition : 05**

**Judged Debate Competition : 02**

## **Editorial and Translation Work Done**

**Book Edited : 10**

**Book Translated : 03**

**Edited Articles : 271**

**Brochure Edited : 01**

**Signages Edited : Botanical gallery Signages of the Section and Subsections of ISIM**

**BSI Calendar Edited : Calendar of BSI 2011 edited and translated legends in Hindi of 15 photographs of different species and sub-species**

**Translated Abstracts : 05**



# **Book / Projects and Papers Reviewed**

**Book Reviewed : 01**

**Paper Reviewed : 05**

**Project Reviewed : 27**

**International Journal : Palgo Journal of Medicine  
and Medical Sciences  
(PJMM)**

## **Science Quiz**

**Science Quiz Questions Prepared : 350**

**Videos for Science Quiz submitted : 15**

# Book Release

Book entitled “Algae of India : A Checklist of Cyanoprokaryota (Cyanophyceae) Vol. I” released on the occasion of International Day of Biological Diversity by **Dr. V. Rajagopalan, Secretary (E & F), Ministry of Environment & Forests, Government of India** at WWF-Indian Auditorium, WWF, India, Lodhi Estate, New Delhi on 22.05.2013.





## **Felicitation**

**Received Certificate and Memento for Participation and Research work done during 33<sup>rd</sup> Indian Scientific Expedition to Antarctica (ISEA) in Debriefing and Felicitation Programme organised by National Centre for Antarctic & Ocean Research (NCAOR), Ministry of Earth Science, Goa on 17.05.2015**

## Award

Awarded Environmental Science Gold Medal with Citation and Memento for **“Outstanding Research & Academic Contribution in the Field of Environmental Sciences”** on 17.11.2014 during National Seminar on ‘Threats to Biodiversity and Ecosystems: Impacts of Developmental Projects and Climate Change’ organised by Department of Zoology & Environmental Science, Gurukul Kangri University, Haridwar. **It was nicely covered by local daily newspapers like Hindustan, Amar Ujala, Rashtriya Sahara, Dainik Jan Vani, Jagran of Dehradun / Haridwar and Hindustan Times of Delhi Edition along with my name and Photo.** Besides this, the news was also flashed in Kanpur edition of **Hindustan, Inext and Dainik Jagran** along with photo on 18<sup>th</sup> and 19<sup>th</sup> Nov., 2014 News Papers.





ANNUAL SEMINAR  
ON  
DEVELOPMENTAL PROJECTS AND CLIMATE CHANGES  
THREATS TO BIODIVERSITY AND ECOSYSTEMS  
DEPARTMENT OF ENVIRONMENTAL SCIENCE  
Kangri Vishwavidyalaya, Haridwar  
Delhi and JCCST, Govt. of Uttarakhand, Dehradun

Certificate  
2014  
Presented to  
Dr. Parvati Singh  
for  
Outstanding Research & Academic Contribution  
in the field of  
Environmental Science, India

PROF. R.D. JOSHI  
PROF. RAM PRAKASH  
CHANCELLOR, G.G.S.  
PROF.



# Climate change to hit one-third of flora and fauna, say experts

Radhika Nagrath

■ htdehradun@hindustantimes.com

**HARIDWAR:** Climate change and developmental projects may affect the flora and fauna of the entire world 35 years from now, said experts at a three-day seminar organised by Gurukul Kangri University here. The seminar -- Threats to Biodiversity and Ecosystems: Impact of Developmental Projects and Climate Change -- organised by the department of zoology and environmental science began Monday.

UGC professor BD Joshi said scientists have predicted that by 2050, one-third of the flora and fauna would be affected due to climate change and developmental projects.

Chancellor of Gurukul Kangri university Dr Ram



■ Pratima Gupta receives an award at Gurukul Kangri University for her work on environment conservation.

HT PHOTO

**AN INDISCRIMINATE USE OF PESTICIDES IS AFFECTING NOT ONLY THE CROPS BUT ALSO**

emission in this connection.

RC Sobti from Lucknow said performing yajnas, worshipping trees and mountains are all ways







# ADMINISTRATIVE

As In-Charge of Ecology Section discharged all routine duties from 09.07.2001 to 19.07.2015. In between worked as head of the Office of CBL and BSI HQ on following Dates :

## **CBL :**

From 5<sup>th</sup> Oct. to 7<sup>th</sup> Oct., 2010 (Order no. BSI-44/1/2009 - Adm. dtd. 4<sup>th</sup> Oct., 2010).

## **Headquarter :**

On 18.04.2011 (Order no. BSI-44/2/2009-Adm. dtd. 13.04.2011).

From 13.12.2011 to 26.12.2011 (order No. BSI-44/2/2009-Adm. dtd. 12.12.2011).

From 10.11.2014 to 12.11.2014 (Order no. BSI - 44/2/2012-Adm. dtd. 10.11.2014).

From 02.06.2015 to 05.06.2015 (Order no. BSI - 44/2/2012-Adm. dtd. 27.05.2015).

## **ISIM :**

Joined ISIM on 20.07.2015 (Order no. BSI - 80/5/2015- Estt. dtd. 26.06.2015), and taken charge as In-charge of ISIM and discharged all routine Administrative duties as HOO. On 25.10.2016 Handed over the change of the HOO of ISIM.



## **Membership**

- **Life Member of International Society of Environmental Botanists, Scientific Member of International Union of Biological Sciences (IUBS), Lucknow.**
- **Life Member of the Indian Science Congress Association (ISCA), Kolkata.**
- **Conferred Life membership of the Administrative Staff College of India (ASCI), Hyderabad.**
- **Life Member of Vigyan Parishad, Lucknow, U.P.**
- **Life Member of Member of Zoological Society of India.**

## **Future Plan**

- **Study of Algal Diversity of Laremann Hills Antarctica will be completed**
- **Epiphytic Algal Flora of AJC Bose IBG, Howrah**
- **Study of Microalgae and monitoring of the water Quality of Leram Lake of AJCBIBG, Howrah (New)**



The background of the image is a light blue, semi-transparent overlay of a microscopic photograph. It shows several chains of small, spherical bacteria, likely cocci, arranged in various patterns such as straight lines and curves. The bacteria are rendered in shades of light blue and white, creating a delicate, scientific aesthetic.

*Thank You*