

Screening algal species for CO₂ sequestration, total lipids and fatty acid production

Suvarna S. Adak, Manjushri A. Deodhar¹

V.G. Vaze College, Mithagar Road, Mulund (E), Mumbai - 400 081

¹meghdoot_1960@rediffmail.com

ABSTRACT

Various species of algae isolated from Konkan region of Maharashtra were screened for their ability to sequester CO₂. For this purpose a tubular airlift photobioreactor was used. Amount of CO₂ supplied varied between the range of 0.03% to 50%. Bioreactor was operated in semi continuous mode by adjusting pH and biomass produced. Biomass produced was also screened for amount of total lipids produced. Fatty acids were detected on AgNO₃ impregnated silica plates by TLC. Attempts are being made for identification and quantification of fatty acids.

Aquatic Biodiversity of Cyanophytes of Jawahar Bal Udhyan Pond, Bhopal

*Bharti Khare and Pramod Patil**

C.S.A. Govt. P.G. College, Sehore (M.P.), E-mail : kharebt@gmail.com

**M.L.B. Gov't Girl College, Bhopal (M.P.)*

ABSTRACT

The present studies focused on hydro biological aspects of Cyanophyta of Jawahar Bal Udhyan Pond. In this study, an attempt has been made to identify the taxa of Cyanophyta in pre monsoon, monsoon, summer and post monsoon periods from July, 2007 to June, 2009. The physico-chemical parameters like atmospheric temperature, water temperature, D.O., pH and CO₂, total alkalinity, total hardness, calcium hardness, chloride, phosphate and nitrate were studied. The Cyanophyte flora were identified and these are enumerated with short descriptions.

Biodegradation of low density polyethylene (LDPE) by fungi isolated from marine water

*P. Sinduja, M. Padmapriya, R. Pramila and K. Vijaya Ramesh**

Dept. of Plant Biology & Plant Biotechnology

Quaid-e-Millath Govt. College for Women, Chennai - 600 002

**Corresponding author e-mail : ramesh.vijaya67@gmail.com*

ABSTRACT

Low Density Polyethylene (LDPE) are a group of degradation resistant compounds and in this paper we have proved by performing certain preliminary studies that certain microorganisms like fungi can degrade the LDPE completely to form Carbon dioxide (CO₂). Certain fungi were isolated from marine water and they were subjected to colonization studies on LDPE films to show that the hydrophobic nature of the LDPE has to be surpassed in order to degrade the substance. Carbon dioxide evolution test (Sturm test) was done to confirm the complete degradation of LDPE by way of measuring the evolved CO₂. This work suggests that if the right microbe is isolated, the recalcitrant plastic can certainly be degraded biologically.

Bioactive potential of marine phytoplankton-silver nanocomposites against urinary tract infectious bacterial pathogens

**S. Ravikumar^{*1}, M. Venkatesan¹, K. Kavitha², S. Sumaya²,
V. Rajesh Kannan³ and S. Kavitha³**

*¹School of Marine Sciences, Department of Oceanography and Coastal Area Studies,
Alagappa University, Tamilnadu, India*

²Thassim Beevi Abdul Kadar College for Women, Kilakarai, Tamilnadu, India

³Department of Microbiology, Bharathidasan University, Trichy, Tamilnadu, India

**Corresponding Author e-mail : ravibiotech201321@gmail.com*

ABSTRACT

The present study was made as an attempt to identify the possible antibacterial compounds from marine phytoplankton-silver nanocomposites against pathogens causing urinary tract infectious. The maximum zone of inhibition was observed against *Pseudomonas sp.2* (16 ± 0.61 mm) and *Pseudomonas sp.5* (13 ± 0.63 mm) at 100 and 75 mg.l⁻¹ silver nanoparticles enriched phytoplanktons. No sensitivity was observed at 50 and 25 mg.l⁻¹. It is concluded from the present study that, the marine phytoplankton-silver nanocomposites enhanced these broad spectrum antibacterial activity.

Food and feeding habits of fish assemblages along the stream habitat of Vamanapuram river, Kerala

S. David Kingston¹, Koos Vijverberg² and P. Natarajan

Department of Aquatic Biology and Fishereis

University of Kerala, Aquarium, Thiruvananthapuram, Kerala

¹Veterinary University Training and Research Centre (Fisheries)

Tamil Nadu Veterinary and Animal Sciences University, Parakkai - 629 601, Tamil Nadu

²Centre for Limnology, 3631 AC Nieuwersluis, Rijsstraatweg, The Netherlands

ABSTRACT

The food and feeding habits of fish species occurring along the stream habitat of Vamanapuram river were studied. The gut contents of the 17 species recorded were analysed. Animal matter formed the main food item (>50%) in ten fish species and plant matter in seven(>50%). Trophic plasticity was observed in *Rasbora daniconius*. The importance of autochthonous and allochthonous diet in shaping the structure of the fish community is discussed in detail.

Freshwater diatoms as indicators of water quality of some important lakes of Mysore, Karnataka, India

S.H. Basavarajappa¹, N.S. Raju^{1*}, S.P. Hosmani² and S.R. Niranjana³

¹Department of Studies in Environment Science, University of Mysore
Manasagangotri, Mysore - 6, Karnataka, India

²Department of Biotechnology, SBRR Mahajana First Grade College
Jayalakshmpuram, Mysore - 12, Karnataka, India

³Department of Studies in Biotechnology, University of Mysore
Manasagangotri, Mysore - 6, Karnataka, India

^{1*}Corresponding author email : nsr@envsci.uni-mysore.ac.in

ABSTRACT

Monitoring water quality using freshwater epilithic diatoms in seven lakes of Mysore has been done. The role of diatoms in determining ecological values has been stressed. All lakes studied are alkaliphilic and nitrogen autotrophic tolerant. They range from alpha mesosaprobic to polysaprobic. Bilikere lake supports circum neutral species. Dadadahally lake and Kabini dam are met-autotrophic and the remaining lakes are eutrophic. Kalale lake is capable of supporting sub-aerial species also. Indicators of organic pollution in the lakes were *Nitzschia intermedia*, *Navicula cryptocephala*, *Cyclotella meneghiniana*, *Cyclotella automus*, *Melosira varians* and *Surirella tennera*. Indicators of anthropogenic pollution were *Amphora ovalis*, *Rhopalodia gibba*, *Synedra ulna*, *Cymbella tumida*, *Gomphonema olivaceum*, *Synedra acus*, *Nitzschia gracilis*, *Navicula rhyncephala* and *Cocconeis pediculus*. *Synedra ulna* is the most tolerant species tolerating human disturbance in all lakes. All species recorded are tochoplanktonic to euplanktonic. Species evenness in the lakes is not well marked while the diversity is high in Bilikere lake. Abundance of genera is in Kabini dam. Diatoms can be an excellent source as ecological indicators and can be used in monitoring water quality of fresh waters.

Zooplankton diversity and Physico-chemical characteristics in Muthupettai mangrove environment, Palk Strait, Southeast coast of India

*T. Kannappan and M.M. Karthikeyan**

*Department of Zoology, Arignar Anna Government Arts College
Villupuram - 605 602, Tamil Nadu*

**Centre of Advanced Study in Marine Biology, Annamalai University
Parangipettai - 608 502, Tamil Nadu, India
E-mail : karthikasci@gmail.com*

ABSTRACT

In the present investigation carried out during February 2006 to January 2007 on hydrography, composition and community structure of zooplankton at the Muthupettai mangrove environment, Palk Strait (Southeast coast of India) are reported. Physico-chemical parameters and nutrients such as air temperatures, surface water temperatures, salinity, pH, light extinction coefficient (LEC), dissolved oxygen, nitrite, nitrate, inorganic phosphate and silicate were at the ranges of 21-32.8°C, 23- 31.0°C, 14.5- 34‰, 7.4-8.3, 0.21- 0.83, 3.01 to 5.33mg/l, 0.122 to 2.08iM, 0.911 to 6.00iM, 1.03 to 2.98iM and 30.21 to 102.21iM, respectively. The maximum density was found during summer season coinciding with the stable hydrographical conditions. Totally 92 species of zooplankton besides 18 larvae were recorded and the foraminifera and copepods formed the dominant group. Higher values of zooplankton density and species diversity were found during premonsoon and summer seasons and which showed positive correlation with salinity. The seasonal distribution and abundance of plankton are discussed in relation to hydrographical parameters.

Zooplankton population in different khors of Lake Nasser, Egypt

Hesham R. Abdel Mola¹, Adel A. Mageed², Saltanat Parveen³ and Uzma Ahmad³

1National Institute of Oceanography and Fisheries, 101, Kasr El-Ery St, Cairo, Egypt

2Department of Biology, College of Science, University of Hail, Hail, KSA

3Department of Zoology, Aligarh Muslim University, India

Corresponding Author : hesham_reda06@yahoo.com

ABSTRACT

Lake Nasser is one of the largest lakes in Africa. Four khors were selected; in each khor five stations were analyzed of zooplankton population. The highest abundance of zooplankton was recorded at Wadi Abyad (233265 organisms/m³) while the lowest abundance was recorded at Khor Kalabsha (151770 organisms/m³). Twenty one species of zooplankton were recorded belonging to Rotifera (11 species), Cladocera (7 species) and Copepoda (3 species). Rotifera was the most dominant group (62.10 %), followed by Copepoda (26.95 %) and Cladocera (10.66 %). In addition Tubullarians and Nematods formed collectively 0.30 % of the total zooplankton. Although the highest (abundance, number of species and species Richness) was recorded at Khor Wadi Abyad, it recorded the lowest diversity indices (Evenness, Shannon-Wiener and Simpson). This may be due to the highest abundance of Rotiferan *Keratella cochlearis* which formed 77.035 % of total zooplankton at this Khor.

Minerals uptake and pigment production by *Spirulina platensis* grown in Kolavai Lake water

T. Murugan

*Head, Department of Microbiology, SRM Arts and Science College
Kattankulathur, Tamilnadu - 603 203, India, e-mail : tmghan@gmail.com*

ABSTRACT

Water samples were collected from Kolavai Lake at four different places. The physico-chemical characteristics were analyzed before and after cultivation of *Spirulina platensis* in-vitro. From the results, it was clear that, there was a considerable reduction in hardness, alkalinity, calcium, magnesium, chloride, total suspended solids (TSS), total dissolved solids (TDS) etc., Hence, *Spirulina platensis* can be effectively utilized for mineral uptake of Kolavai lake water. From the result, it was conferred that, we can also extract some commercially useful bio-pigments such as, chlorophyll, carotenoids, phycocyanin etc., obtained from the grown alga as useful by products.

Survey of cyanobacterial diversity from the different freshwater ponds of Thiruvarur, Tamilnadu, India

R. Gomathi, P. Deepa, C. Manoharan, S. Jeyachandran and S. Vijayakumar*

P.G. and Research Department of Botany and Microbiology

A.V.V.M. Sri Pushpam College (Autonomous), Poondi - 613 503, Tamil Nadu, India

**Corresponding Author : svijaya_kumar2579@rediff.com*

ABSTRACT

Survey of cyanobacterial flora of 4 different freshwater ponds of Thiruvarur, Tamilnadu, during month March-July 2010 has been made and compared their variations among four different ponds. The physicochemical characteristics of all the pond water more or less similar. Totally 36 species of cyanobacteria distributed in four different ponds were recorded. Among the ponds, pond II recorded maximum number of species (27) followed by pond III (25), pond I (24) and pond IV (22). In total 15 species of cyanobacteria were recorded in common to all the ponds of them, *Oscillatoria* with 6 species, was the dominant genus which was followed by phormidium (4), *Lynbya* (3), *Microcystis*, and *synechococcus* with single species. *Oscillatoria rubescens* and *Lynbya martensiana* only recorded in pond III.

Antifeedant and larvicidal activity of the two seaweeds *Chaetomorpha litorea* Harvey and *Hypnea musciformis* (Wulf.) Lamouroux against Cotton bollworm *Helicoverpa armigera* Hübner (Lepidoptera ; Noctuidae) larva

S. Revathi¹, S. Lingathurai², Nirmala C. Alexander¹

¹Queen Mary's College, Department of Botany, Chennai - 600 004, India

²Department of Entamology, Loyola College, Chennai - 600 034, India

ABSTRACT

The effect of the aqueous extracts the two seaweeds, *Chaetomorpha litorea* and *Hypnea musciformis* on the feeding and performance of *Helicoverpa armigera* larvae was investigated in the laboratory. *Chaetomorpha litorea* and *Hypnea musciformis* aqueous extracts showed antifeedant activity against *H. armigera*. Third instar larvae were allowed to feed on the leaf discs dipped in 1.25, 2.5 and 5.0% extract solutions. *Chaetomorpha litorea* presented an antifeedant activity of 30.4, 47.71 and 62.85 percent at 1.25, 2.5 and 5% concentrations respectively. *Hypnea musciformis* presented an antifeedant activity of 17.37, 32.52 and 48.64 percent at 1.25, 2.5 and 5% concentrations respectively. Toxic effect of the two extracts on the larva of *H. armigera* was also studied. Larval mortality in the treatments and control was recorded up to 4 days after treatment. The two extracts were found to be toxic to the third instar larva of *H. armigera* larvae. However the extract of *Chaetomorpha litorea* was the more effective larvicide compared to that of *Hypnea musciformis*. *Chaetomorpha litorea* extract killed the larvae at 12% (1.25 percent), 21 % (2.5 percent) and 41% (5 percent) concentrations. *Hypnea musciformis* extract presented larval mortality (34%) at 5percent concentration only.