

Diversity of unicellular cyanobacteria in forest of Kozhikode district, Kerala

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Abstract

An extensive specimen collection was made from Peruvannamuzhi forest and Janaki forests of Western Ghats in Kozhikode District, Kerala State, during 2018–2019. A total of 15 cyanobacterial taxa were identified belonging to the orders Synechococcales and Chroococcales. The genus *Chroococcous* showed highest species richness with four species followed by the genera *Gleothoece* and *Gleocapsa* with three species each. The present study reported *Gleothoece confluens* and *Gleocapsa reicheltii*, were the two new reports from India.

Key words: Cyanobacteria; diversity; unicellular; Western Ghats forests.

A study on physico-chemical conditions and phytoplankton distribution in ponds of Kavaledurga fort, Shivamogga – India

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Abstract

The present study area provided with perennial ponds for assessing the physico-chemical and biological parameters (phytoplanktons). The physical and chemical factors like temperature, pH, turbidity, conductivity, TDS, alkalinity, hardness and DO were estimated. During the study all parameters were within the desirable limit and water quality is good as suggested by WHO (1971) and BIS (1991) in that optimum temperature (19.83°C), pH (7.7), conductivity (45–47 µs/cm) and DO (6.5–6.7 mg/l) which were responsible for phytoplankton distribution. Forty-one phytoplankton species were recorded belonging to 4 classes (*Zygnematophyceae*, *Bacillariophyceae*, *Chlorophyceae*, *Euglenophyceae*). *Zygnematophyceae* was the most dominant group with 10 genera (0.663) and *Euglenophyceae* was the low dominant group with 1 genus (0.046). Shannon – Wiener diversity index (H') value (3.007) was found to be the highest in the pond 3 and pond 2 has highest evenness value (0.188). The present study revealed the current conditions of all the three ponds.

Key words: Abiotic factors; Diversity index; Phytoplanktons; Ponds; *Zygnematophyceae*.

Water quality status of Perungudi fresh water lake, Chennai, Tamil Nadu, India

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Abstract

Water is most important in shaping the land and regulating the climate. Water is most necessary resource for all the biological organisms. Healthy lakes indicate healthy and eco-friendly environment for the human beings and its neighbourhood. Lakes play a pivotal role in maintaining the ecological balance. Lake water is generally used for drinking, domestic and irrigation purposes. Therefore it should be free from pollutants. The quality of water is usually determined based on its physical, chemical and biological characteristics. Rapid industrialization and indiscriminate use of chemical fertilizers and pesticides in agriculture cause heavy and varied pollution in aquatic environment leading to deterioration of water quality and depletion of aquatic biota. Due to contaminated water, living organisms suffers from various water borne diseases. Thus, water pollution requires serious actions and continuous monitoring of pollution level in order to prevent the water pollution. Without freshwater sustainable development will not be possible. Hence, the present work is focused on the determination of physico-chemical parameters such as pH, temperature, turbidity, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Total Suspended Solids (TSS) chlorides, Dissolved Solids (DO), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD) etc., of Perungudi lake.

Key words: Perungudi Lake water; Physico-Chemical Parameters; Heavy Metals; Pollution; Eco-Friendly.

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Assessment of the status of Narmada River by studying the diversity, species composition and abundance of Aquatic beetles (Coleoptera)

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Potential bioremediation and characterization of native microbes for tannery effluent treatment

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Abstract

Bioremediation of tannery effluent was performed with the use of native *E. coli*, *Klebsiella sp.*, *Pseudomonas* and *Staphylococcus aureus*. Several physicochemical parameters such as, colour, odour, pH, electrical conductivity (EC), total suspended Solids (TSS), total dissolved solids (TDS), biochemical oxygen demand (BOD), and chemical oxygen demand (COD) were considered and analysed with the un-treated and bio-treated tannery effluents. The obtained data clearly indicated that treated tannery effluents have improved selected parameters substantially. The data generated have showed that the pre-treated tannery effluent colour was found dark-brown and odoriferous. The values of pH, EC, TSS, TDS, BOD and COD of pre-treated tannery effluent were found 10.21 ± 0.0769 , $8655 \pm 1.1254 \mu\Omega \text{ cm}^{-1}$, $215 \pm 3.03315 \text{ mg/L}$, $16100 \pm 1.8735 \text{ mg/L}$, $525 \pm 1.8721 \text{ mg/L}$ and $3725 \pm 3.705 \text{ mg/L}$ respectively. Similarly, the same values were also recorded in post treated tannery effluent as 7.0 ± 0.1623 , $3540 \pm 1.212 \mu\Omega \text{ cm}^{-1}$, $36 \pm 1.58 \text{ mg/L}$, $7350 \pm 1.32 \text{ mg/L}$, $45 \pm 1.223 \text{ mg/L}$ and $150 \pm 1.252 \text{ mg/L}$ respectively. For the bioremediation, 40, 20, 25, and 25 different samples of *E. coli*, *Klebsiella sp.*, *Pseudomonas* and *Staphylococcus aureus* respectively were collected from different locations. This study is novel with reference to large sample size and revealed a strong emphasis on the potential source of bioremediation for the treatment of tannery effluents.

Key words: Bioremediation; Tannery effluent; Total dissolved Solids; Biochemical Oxygen Demand.

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Cosmarium Corda ex Ralfs (Desmidiaceae, Charophyta) at Nathsagar Water Reservoir (Paithan) Maharashtra

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Abstract

Present paper deals with the species diversity of *Cosmarium* Corda ex Ralfs from the Nathsagar water reservoir near Paithan in Aurangabad district of Maharashtra. Eighteen species were recorded from the water reservoir. viz., *Cosmarium angulosum* Bréb. var. *concinnum* (Rab.) W. et G.S. West, *C. auriculatum* Reinsch, *C. biretum* Bréb., *C. calcareum* Witter, *C. forceps* Brühl et Biswas, *C. furcatospermum* W. et G.S. West var. *maius* Prasad et Misra, *C. granatum* Bréb., *C. hammeri* Reinsch var. *homalodermum* (Nordst.) W. et G.S. West, *C. hammeri* Reinsch var. *schmidlei* Grönblad et Scott, *C. impressulum* Elfv. var. *crenulatum* (Naeg.) Krieger et Gerloff, *C. lundellii* Delp. var. *subellipticum* Prasad et Mehrotra, *C. margaritatum* (Lund.) Roy et. Biss., *C. moniliforme* (Turnp.) Ralfs. var. *limneticum* W. et G.S. West, *C. norimbergense* Reinsch var. *elongatum* (W. et G.S. West) Krieger et Gerloff, *C. obsoletum* (Hantzsch) Reinsch. var. *sitvense* (Gutw.) Krieger, *C. obtusatum* Sch., *C. polygonum* (Naeg.) Arch. and *C. portianum* Arc. var. *nephroideum* Witter.

Key words: *Cosmarium*; Diversity; Nathsagar; Paithan.

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Water pollution impact on macrophytes phytosociology: A case study of Valsad district, Gujarat

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Abstract

The impact of water pollution on some aquatic macrophytes was investigated in the post-monsoon season at selected lakes of Valsad district, Gujarat, India. The hypothesis was checked to assess the pollution – macrophyte relationship and to assess the role of various polluting factors on the distribution and composition of the macrophyte flora. Physicochemical parameters of water were computed to assess the status of water conditions. Total macrophytes florainumbering 45 was recorded, which belongsto 26 families. Cluster analysis as a classification method yielded two conspicuous groups (X and Y). Group X indicates the polluted wetland and group Y indicatethe non-polluted wetland. Thirty-one macrophyte species were representedin the polluted wetland (group X) and forty macrophyte species were representedin the non-polluted wetland (group Y) and twenty-six macrophyte species were represented in both groups. Species percentage of various groups monitor the ecological status of selected lakes. Araceae was the most abundant invasive family, which tolerating serious water pollution levelsat a selected study site. Therefore, it can be considered as an indicator family for water pollution areas and also used for phytoremediation.

Key words: CCA; Macrophytes; Phytosociology; Water pollution.

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Impact of Kishanganga Hydroelectric Project on Susceptibility and vulnerability of Adult population of different fish species of the Kishanganga river in Kashmir (India)

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Abstract

The present Research was carried out in Kishanganga River Where damming of River was done for generation of 330 MW hydroelectricity. Since the damming of the river will have an impact on the aquatic life of the river. In this research, an attempt was made to investigate the impact of hydroelectric dam on the susceptibility and vulnerability of Adult population of different fish species of the river.

Key words: Hydroelectric Project; Susceptibility and Vulnerability; Adult Population; Kishanganga River; Kashmir (India).

Influence of Physico-chemical parameters on Chlorophycean diversity from two freshwater lakes of South Goa, India

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Abstract

Anthropogenic activities have resulted in contamination of lakes changing their trophic status and rendered them unsuitable for human use. Present investigations were aimed to assess the water quality and its interaction with phytoplanktons. Two fresh water bodies from south Goa viz; Lotus and Curtorim Lake were selected. Water samples were collected on monthly basis for a period of two years and physico chemical parameters like temperature, DO, BOD, nitrates, phosphates (PO₄⁻) and total chlorophyll were analyzed to understand their seasonal variations and to recover phytoplanktons. Significant ($P < 0.0005$) variation among seasons as well as a high influence of these parameters was observed on phytoplankton productivity. Seventy-four species of Chlorophyceae belonging to 26 genera were recorded. Genera with number of species are given in parenthesis viz; *Actinastrum* (1), *Ankistrodesmus* (2), *Botryococcus* (1), *Bulbochaete* (1), *Closterium* (10), *Coelastrum* (1), *Cosmarium* (19), *Crucigenia* (1), *Dictyosphaerium* (1), *Euastrum* (2), *Kirchneriella* (2), *Korshikoviella* (1), *Nephrocytium* (4), *Netrium* (1), *Oocystis* (2), *Pandorina* (1), *Pediastrum* (6), *Protococcus* (1), *Scenedesmus* (6), *Sehroederia* (1), *Selanestrum* (1), *Spirogyra* (2), *Staurastrum* (3), *Tetraedron* (1), *Tetralantus* (1), *Ulothrix* (2). PCA identified analyzed physico chemical parameters as key factors influencing the chlorophycean communities.

Key words: Physico chemical parameters; Phytoplanktons; Chlorophyceae; Principal component analysis.

Quantitative analysis of the morphometric characteristics of Arpa River Basin (ARB), Chhattisgarh, India

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Abstract

Morphometric analysis is a quantitative measurement and mathematical analysis of a drainage basin in terms of the terrain feature and its flow patterns. The morphometric characterization of the drainage system is essential to study the detailed hydrological behavior of each river basin. In the present study, an attempt has been made to determine the morphometric characteristics of the Arpa River Basin (ARB), a watershed of Sheonath River that constitutes a part of the Mahanadi River Basin. The entire ARB has been divided into 6 major sub basins and various linear, areal and relief has been carried out to understand the spatial variations in morphometric parameters and evaluate the hydrological, topographical and geological properties. This study was performed using the hydrology tool in GIS environment. The ARB comprises of dendritic drainage pattern with the maximum number of flows found in first order. Circulatory ratio (0.12) depicts an elongated shape of Arpa River basin. The mean bifurcation ratio (5.71) confirms that the drainage pattern is not affected by its structural disturbances. The study will be helpful for management of water catchment areas, agricultural land use planning, sustainable water utilization by industrial facilities as well as for studies on hazard management.

Key words: Arpa River Basin (ARB); morphometric; dendritic pattern.

Larvicidal efficacy of *Alstonia scholaris* latex against filarial vector *Culex quinquefasciatus*

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Abstract

Indigenous eco-friendly vector control strategies using botanicals are preferred over synthetic pesticides because natural products of plant origin are more environmentally benign and less likely to develop resistance. The effectiveness of *Alstonia scholaris* (*A. scholaris*) latex and latex chloroform/methanol (1:1, v/v) extract against growing immature juveniles of *Culex quinquefasciatus* (*Cx. quinquefasciatus*) was demonstrated in this work. In a nutshell, latex was collected and fractionated using chloroform/methanol (1:1, v/v). In a dose-dependent technique, the latex and latex extract were tested for larvicidal activity. The death rate was determined and statistically analyzed. The highest larvicidal efficacy was found in a concentration of 5% crude and 500 ppm chloroform/methanol (1:1, v/v) extract on *Cx. quinquefasciatus* larvae. The most effective LC₅₀ values were recorded against first instar larvae. Statistical justifications were computed through ANOVA and Tukey's test of multiple comparisons. FT-IR spectrum indicated the presence of aromatics, alkanes, alcohols, amides, amidines and ethers in latex chloroform/methanol (1:1, v/v) extract. As a result, this work has opened up new horizons, allowing for the development of *A. scholaris* latex as a novel strategy in the filarial vector management programme.

Keywords: *Alstonia scholaris*; *Culex quinquefasciatus*; latex; mosquito control.

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Prevalance of Trematodes infection in carnivorous fish *Catla catla* of Raigad

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Abstract

Studies on carnivorous fish are presented in this paper. Infection prevalence, seasonal variation, and mean intensity of digenean trematodes in the Raigad region are depicted in *Catla catla*. The trematodes are diatoms harbouring various organs of fish like intestine, stomach, liver etc. Present study was carried out in a span of one year from Jan 2021 to Dec 2021. The present study is helpful for accessing the status of diversity of helminth parasites from Raigad Region. There are many fish markets in Raigad, and many species of fishes were collected from fish markets around each area or specific area. Here, many locals are themselves fishermen. They not only catch and sell fish but also preserve it. As there are many rivers and seas in Raigad, it becomes easier for local people to sell and purchase. In the present study, *Catla catla* fish is considered for trematode parasitic infestation during specific seasons. Helminth parasites infest the majority of fish, causing their food value to deteriorate and perhaps resulting in high mortality. Furthermore, infected fishes are a particularly effective source of helminth infection in humans and they are only transmitted to humans through eating of fish.

Key words: *Catla catla*; Trematodes; Seasonal variation; carnivorous; prevalence.

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Diversity and spatial distribution of algae in the industrial belt of Eloor in Periyar river, Kerala

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Abstract

Algae play an important role in monitoring aquatic ecosystem and form the base of food chain or food web. Eloor, a municipal island along the Periyar River is the industrial belt with more than 200 chemical industries in Kerala and one of the top toxic hot spots in the world. In the present study seven important sites of Eloor area were analyzed for algal distribution viz. Vettukadavu, Methanam, Eloor Depo, Eloor Ferry, Ambassador market, Patahalam and Manjumaal. The maintenance of a healthy river ecosystem depends on the abiotic properties of water and the biological diversity of ecosystem. Chemical industries release the effluents into the nearby areas, thereby posing serious threat to the water quality of this region. Therefore, the Physico chemical characterization of water in the industrial area is the prime requisite to understand the extent of pollution in these areas. Investigations on the hydrographical parameters were conducted. Totally 29 species of algae were recorded from these seven sites. Among them Methanam was recorded with the maximum number of species (12) followed by Eloor Depo (10), Eloor Ferry (9) and Patahalam (9). Eleven species of algae were recorded in common to all the sites analyzed. Members belonging to the Class Chlorophyceae were found dominant followed by the Class Bacillariophyceae and the Cyanophyceae.

On studying the Physico-chemical parameters it was assessed that four among these sampling sites such as Vettukadavu, Methanam, Ambassador Market and Manjumaal have showed Physico chemical parameters at the favourable limit. Three

sites such as Eloor Ferry, Eloor Depo and Pathalam were rich in nutrients, because of the discharge of effluents from the industrial area.

Key words: Physico-chemical parameters; Urbanization; Industrialization; Effluents; Ecosystem.

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Phytochemical composition, *in vitro* antioxidant and hemolytic potential of mangrove associate *Suaeda monoica*

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Abstract

The mangrove associate plant *Suaeda monica* was investigated for phytochemical analysis, antioxidative and hemolytic activities. Petroleum ether, benzene, ethyl acetate, methanol and ethanol extracts were used to evaluate antioxidant activity using different assays viz; DPPH, hydroxyl, superoxide, ABTS and reducing power. Methanol extract showed Higher DPPH (127.32%) Hydroxyl (126.68%) and Superoxide (139.83%) radical scavenging activity whereas ethyl acetate extract exhibit higher ABTS radical scavenging activity (128.25%). Higher reducing power value was recorded by ethanol extract. Least activity for all assays was recorded by petroleum ether and benzene extract. Aqueous extract of *S. monica* was tested for hemolytic activity against normal human erythrocytes. The hemolytic activity was increased with concentration of extract and it was recorded 8.12% of hemolytic activity at 500 µg/ml concentration. *Suaeda monica*, a promising source of bioactive compounds with antioxidant and hemolytic activities.

Key words: Mangrove associate; *Suaeda monoica*; Phytochemical; antioxidative; hemolytic.

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The impact of insecticide endosulfan on growth and enzymes of nitrogen metabolism in water fern *Azolla filiculoides*

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Abstract

The impact of organochlorine insecticide (pesticide) endosulfan on growth (Dry weight), nitrate uptake, ammonium uptake and enzymes of nitrogen metabolism like nitrate reductase, glutamine synthetase and nitrogenase were studied. Endosulfan declined the dry weight, its rising concentrations decreased nitrate and ammonia uptake. The activities of enzymes of nitrogen metabolism like nitrate reductase, glutamine synthetase and nitrogenase were also inhibited by the pesticide stress. Among all parameters nitrogenase, the sole enzyme of nitrogen fixation was severely damaged.

Key words: *Azolla filiculoides*; endosulfan; growth; nitrogen metabolism.

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Are all indigenous freshwater ornamental fishes being petted in aquarium?

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Abstract

Present study reveals that it is difficult to rear each and every species of indigenous freshwater ornamental fish in aquarium condition. The major constrain is the food barrier. Indigenous ornamental fishes are habituated to feed on the natural foods, available in the natural aquatic systems. It is not easily possible to collect natural foods for a hobbyist to pet their beloved fish species. It has been observed that out of 27 selected indigenous freshwater ornamental fish species only 11 (41%) species were able to feed on all selected artificial food items and successfully habituated in aquarium condition. Therefore, present study will highlight on the species selection of indigenous freshwater ornamental fishes for easy maintenance and rearing with artificial supplemental feeding in aquarium of a hobbyist.

Key words: Food; Preference; Indigenous; Freshwater; Ornamental; Fish.

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Phycoremediation: A future aspect of wastewater treatment

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Abstract

The increase of industrial activities has led to the production of toxic pollutants such as heavy metals, dyes, pesticides, phenols, organic compounds, etc., in the aquatic system leading to water pollution. This increase in water pollution has become a threat to humankind and a matter of concern for protecting aquatic flora, fauna, and other living organisms. The classical treatment of wastewater include physical, chemical, and biological methods. These known chemical and physical methods require a lot of energy and induce secondary pollutants into the environment. Phycoremediation is a biological process of removing waste from wastewater using algae, which have played a crucial role in removing nutrients such as nitrogen (N), phosphorous (P), sulfur (S), and minerals that act as feed for the growth of these algae rather than being contaminants. Algae have also been found to be efficient in removing toxic elements such as mercury, cadmium, arsenic, etc, as well as radionuclides as a bio absorbent. These algae are not only capable of removing the nutrients but are also capable of reducing the BOD and COD of the wastewater. Another significant advantage of utilizing algae in bioremediation is that it produces a large amount of biomass and absorbs and accumulates heavy metals. Thus, phycoremediation is now an emerging technology for wastewater treatment and can be a sustainable biomass feedstock for biofuel production.

Key words: BOD; COD; heavy metals; phycoremediation; wastewater.

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Studies on the anti-inflammatory activity on *Turbinaria ornata* and *Halymenia dilatata*

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Abstract

Estimation of the biological activities of *Turbinaria ornata* (Turner) J. Agardh (brown alga) and *Halymenia dilatata*, Zanardini (red alga) for anti-inflammatory activity. Two marine algae were collected from coastal areas of Mandapam, Rameshwaram, and extracted using ethanol. The two algal extracts showed significant anti-inflammatory effects by inhibition of protein denaturation procedure. *Turbinaria ornata* showed remarkable anti-inflammatory activity than *Halymenia dilatata*. The findings suggest that *Turbinaria ornata* and *Halymenia dilatata* have potential anti-inflammatory activity.

Key words: Anti-inflammatory activity; Marine macroalgae; *Turbinaria ornata* and *Halymenia dilatata*.

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Plastic degradation by aquatic microalgae and cyanobacteria and its effects on various parameters – A review

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Abstract

Plastics, a commercial product with high demand and market value across the globe acts as a peril for the aquatic environment. The traditional methods such as ignition, landfill and reprocess to degrade the plastic wastes failed to control this white pollution. Biodegradation of plastics involving microalgae and cyanobacteria in contrast to that of bacteria serve as an inexpensive and environment friendly solution to curb this threat. In this review the properties and different categories of commercial plastics available, its impact on the aquatic environment, biofouling and biodegradation of microplastics and their additives with respect to microalgae and cyanobacteria and their enzymes responsible for deterioration of plastics, effect of plastics and their fragments on aquatic microalgae and cyanobacteria, a comparison regarding the rate of degradation of plastics with other microorganisms and an alternative substitute to conventional plastics, implications, benefits and challenges faced and future prospects in this field of research have been emphasized.

Key words: Plastics; Biofouling; Biodegradation; Microalgae; Cyanobacteria.

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Hepatoprotective activity of the ethanolic extract of *Halymenia floresii* (Clemente) C.Ag. against acetaminophen induced liver dysfunction in wistar albino mice

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Abstract

Marine algae are valuable natural resources for the production of primary and secondary metabolites used in the cosmetics, food industry and pharmaceutical products. Red algae are rich in biologically active compounds with distinct biological roles including hepatoprotective properties. The present study was designed to screening the hepatoprotective activity of *Halymenia floresii* (Clemente) C.Ag. against acetaminophen induced liver dysfunction in wistar albino mice. The ethanolic extract of *Halymenia floresii* (Clemente) C.Ag. was evaluated in both the doses of 200 and 400 mg/kg body weight. Hepatotoxicity was induced in wistar albino mice by per oral of acetaminophen (2 g/kg body weight for 7 days). Hepatoprotective effects were shown in both dosage groups and it was highly active against the dosage of 400 mg/kg as compared to 200 mg/kg ethanolic extract. Histopathological studies have confirmed that there was no toxicity in liver tissue at both doses 200 and 400 mg/kg of ethanolic extracts. The results suggest that the ethanolic extract of *Halymenia floresii* (Clemente) C.Ag. can protect the liver from toxicity which contains bioactive chemicals of pharmacological significance.

Key words: Marine algae; *Halymenia floresii*; Acetaminophen; Hepatoprotective activity.

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Phytochemical analysis of the ethanolic extract of *Codium tomentosum* Stackhouse

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Abstract

The present study was carried out to determine the chemical profile of the ethanolic extract of *Codium tomentosum* Stackhouse. The chemical compounds were extracted from the dried algal sample using the soxhlet extraction method. The bioactive compounds were separated using Gas Chromatography-Mass Spectroscopy (GC-MS) and Fourier transform infrared spectroscopy (FTIR). The phytochemicals were identified after the comparison of the mass spectra with NIST library which revealed five different compounds namely N-(9H-fluoren-9-yl)formamide, 4-methylsulfonyl-5, 5-diphenyl-1H-imidazol-2-one, N-benzhydrylideneacetamide, Phenytoin and Vitamin E. The FTIR exhibited eight major peaks with the functional groups like alkenes, aldehydes, vinyl compounds, sulfonic acids, sulfonyl chlorides, phosphines, alcohols and phenols. The identified constituents exhibit the pharmacological activities such as phobic disorders treatment, anticancer, anticonvulsant, antidiabetic, anti-inflammatory etc.

Key words: *Codium tomentosum*; Phytochemicals; Ethanolic extract; GC-MS; FTIR.

Ground water status of Kolong river, Nagaon, Assam: Present and future research strategy for management and conservation

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Abstract

Water is a component of the five elements ('Pancha-tattva') of our body. A huge percentage of human beings are dependent on groundwater. So the quality and quantity of the groundwater should not degrade. India has many important rivers and Kolong river of Nagaon district of middle Assam is one of them, which is facing some dangers due to anthropogenic activities. So it is important to test the groundwater and surface water quality regularly. In the previous studies, PH was found to be higher, which indicates higher organic pollution. The taste of some samples were slightly saline. Water sources were not free from turbidity and hence unfit for drinking. BOD values were higher and hence some water samples were polluted. Iron contents were within desirable limit but some samples exceeded the desirable limit. Dissolved oxygen level were very good in pre monsoon seasons. Alkalinity exceeded the desirable limit and hence some water samples were not safe for drinking. But arsenic levels were within permissible limit. Most of the water samples of the Kolong River were found to be safe for irrigation.

The study area has very good potential for groundwater, in spite of some ignorable factors regarding physico-chemical parameters. Lots of places in the study area remained water logged. It is important to check the quality of groundwater to keep the quality of the Kolong River intact. Kolong river is kindred with the emotions of the people of Nagaon, Assam and hence we need to keep the dignity and quality of the river intact.

Key words: Kolong river; Ground water; Pollution; Anthropogenic activities; Conservation.

Phytochemical analysis and *in vitro* antioxidant potential of marine angiosperm *Enhalus acoroides* (L.F) Royle

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Abstract

In the current study, the marine angiosperm *Enhalus acoroides* was studied for the qualitative screening, quantitative analysis of total phenolics and flavonoids and potential *in vitro* antioxidant activities. Five different solvents namely petroleum ether, benzene, ethyl acetate, methanol and ethanol were used to study the *in vitro* antioxidant activity using different assays viz. DPPH, hydroxyl, superoxide, ABTs and reducing power. Maximum DPPH (116.27% and IC₅₀ 32.16 µg/ml) and hydroxyl (121.63% and 30.16 µg/ml) radical scavenging activity of methanol extract was recorded whereas ethanol extract showed enhanced superoxide radical scavenging activity (118.28% and IC₅₀ 28.12 µg/ml). Maximum ABTs radical cation scavenging activity (109.21% and IC₅₀ 24.38 µg/ml) was recorded for ethyl acetate extract. The reducing power of the *E. acoroides* extracts was in the following order: ethanol > methanol > petroleum ether > ethyl acetate > benzene. The qualitative phytochemical analysis revealed the presence of alkaloids, catechins, flavonoids, phenols, saponins, tannins, glycosides and xanthoproteins in the benzene, methanol and ethanol extracts. The present study indicates the significant free radical scavenging potential of *Enhalus acoroides* whole plant which can be experimented for the treatment of various free radicals mediated ailments.

Key words: Seagrass; *Enhalus acoroides*; Flavonoids; ABTs; Reducing Power.

The holy soul its illumine receives

Prof. L. Kannan (10.06.1946–28.04.2022, native of Vetriyur near Karaikudi, Tamil Nadu) an academician par excellence and an erudite scholar is no more now. We along with our fellow researchers grew under the

passionate guiding force remain helpless. We were trained from scratch by him in all spheres of research in marine science. Our nostalgic thoughts hover around the days we joined with our Professor as research fellows in the Department of Ocean Development sponsored research project during the 80s. We could not forget his effortless stay with us along the sea shore during our samplings. He was unassuming and slept along with us in the floor of the roadside teashops in the coastal villages and his holy foot prints were embedded all along the entire coast of Tamil Nadu. We are blessed and gifted to join under him to do research. He was a real time researcher to impart all his aptitude and attitude towards research to his scholars.....

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A pioneering algologist of India

Dr. Vrajlal Dayalal Chauhan [V. D. Chauhan] was born on October 7, 1933, at Shihor – a small town near Bhavnagar. Being well in academics in school days, his parents encouraged him to pursue BSc in Science (Botany) from Sir P. P. Institute of Science [popularly known as Science College], Bhavnagar, while he obtained his M.Sc. Degree in Botany from prestigious Xt. Xavier’s College affiliated to Bombay University. It is worth mentioning here that his M.Sc. teacher was well-known taxonomist Prof. H. Santapau and thus naturally inclined to taxonomic research from the beginning. Soon after M.Sc. he joined Science College, Bhavnagar as a laboratory demonstrator.....