

Ichthyofauna Diversity of Kulik River in Uttar Dinajpur District, West Bengal, India

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Abstract

The ichthyofauna diversity of the Kulik river, which is of international importance in both India and Bangladesh, was studied for two consecutive years from November 2019 to October 2021 at Raiganj and Hemtabad block of Uttar Dinajpur district, West Bengal, India. The study was done monthly basis for which five sampling sites were selected in the meandering Kulik river about 75 km in length. From the present investigation, a total of 89 fish species belonging to 9 orders and 27 families were recorded during the whole study period. The order Cypriniformes was found to be dominant (37 species) followed by Siluriformes (20 species), Perciformes (19 species), Synbranchiformes (5 species), Osteoglossiformes (3 species), Beloniformes (2 species), Clupeiformes, Cyprinodontiformes and Tetraodontiformes (1 species each). The protection of the ichthyofauna diversity of Kulik River is essential for fishermen's long-term livelihood as well as the country's socioeconomic development.

Key words: Ichthyofauna diversity; Kulik River; Fish food; Ornamental fish; Conservation status.

Review on Physicochemical Parameters of Water Concerning their Effect on Biotic Population

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Abstract

Water is one of the most important substances, which is very essential for plants, animals and humans. Without water we cannot even think of life. More than 70% of our body is made up of water, without water no organism in the world can survive. In our life water is not only used for drinking but also useful in daily life. But the quality of water is deteriorating day by day due to excessive use of chemical pesticides and hazardous wastages from industries. Household garbage, rubbish, decayed organic materials and chemicals from factories make the pure water polluted. This in turn poses death threat for human beings and associated flora and fauna. Nearly about 20% population of the world suffers from water related diseases. The availability of proper quality of water is a crucial feature for preventing diseases and to enhance quality of life. So, there is a repetitive need to test the physicochemical properties of water from time to time to maintain its purity and quality. There should be strict monitoring on water resources. It is necessary to know details about different physicochemical parameters such as temperature, total hardness (TH), pH, sulphate, phosphate, nitrate, chloride, fluoride, dissolved oxygen (DO), biological oxygen demand (BOD), chemical oxygen demand (COD), total alkalinity and total dissolved solids (TDS) used for testing of water quality. Heavy metals such as Pb, As, Cr, Fe, Hg, Cd etc. are of exclusive crisis because they make water unfit for domestic usage or long-term poisoning of aquatic organisms. In our present review we have collected the water analysis records with physicochemical parameters which will help in further research activities and maintaining the purity of water.

Key words: Physicochemical parameter; Water; Biotic population; Pollution; Seasonal variation.

Haematological Monitoring of Riverine Health: Synergistic Effects of Water Quality Deterioration and Parasitic Infection on Fish

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Abstract

Aquatic habitats get polluted by diverse industrial and domestic anthropogenic activities and natural surface run-offs etc. resulting in water quality alterations. The present study aimed at assessing the impact of the degraded physicochemical regime of the river Saraswati, on parasitic infection and fish health looking through the lens of a haematological profile. Two Water Quality Indices (WQIs) were adopted for determining water quality status based on 10 physicochemical parameters of water samples from two strategic sites (PR-1 and PR-2) of river and reference pond (RP), indicating that the organic load was lower at PR-1 compared to PR-2. A total of 150 fish (*Channa punctatus*) samples grouped into control (CONT), controlled infected (CI), polluted river not infected (PRNI) and polluted river infected (PRI) were examined for parasitic and haematological analyses. The RBC count and haemoglobin concentration were significantly lower ($p < 0.001$) in PRNI and PRI groups. The WBC count, percentage of monocyte, lymphocyte, eosinophil and IgM concentration were significantly higher ($p < 0.001$) in both CI and PRI. Immature RBCs infiltrated into peripheral circulation in PRI due to the hypoxic water condition. Principal Component Analysis (PCA) revealed how fish health is impacted by the individual influence of and synergistic interactions between the key physicochemical factors and parasitic infection.

Key words: Water quality index; parasite infection; water quality degradation; haematological alteration; fish health.

Study of Physico-chemical Analysis of Water and Sediments in Kamwari River

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Abstract

Kamwari River flowing through Bhiwandi, was used as port in the past, and now it has become a narrow perennial river due to various anthropological reasons. Two different locations were selected for the analysis of water and sediments on the basis of difference in amount of effluents discharging in the water body from the surrounding environment. The result of the study showed that Site 2 to be more polluted than Site 1. Acidity, Hardness, COD of Site 2 was high in comparison to Site 1. With respect to the sediment analysis, the moisture content of soil for Site 1 was higher than the Site 2. The organic content of Site 1 also showed an increased level as compared to Site 2.

Key words: Kamwari River; Water and Sediments; Physico-chemical parameters; Effluents; Pollution.

Induced breeding and embryonic development of indigenous ornamental fish *Puntius terio* (Hamilton, 1822)

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Abstract

Puntius terio (Hamilton, 1822) is an important small indigenous fish with food and ornamental values. It belongs to the family Cyprinidae and is found in Pakistan, India, Bangladesh, and Myanmar. Species have gradually decreased in India due to the culture of Indian Major Carp and selective exotic species. The present study aims to make dose selection for induced breeding, embryonic, and larval development of *P. terio* for conservation and livelihood for people. During the study period, live specimens were collected from natural water bodies, reared in an aquarium, and propagated through induced breeding. Embryonic and larval development of *P. terio* were observed. The optimum dose was selected through trial and error method by applying five doses (0.5, 1, 1.5, 2 and 2.5 ml/kg body weight) of synthetic hormone (ovotide) to both sexes. The study reveals that the optimum dose of synthetic hormone (ovotide) @ 2 ml/kg body weight for males and females is effective for induced breeding of *P. terio*. At the optimum dose, fertilization and hatching rates were $81.97 \pm 0.97\%$ and $76.6 \pm 0.71\%$, respectively. The physicochemical parameters of water have been analysed for proper induced breeding of the species. The results of the present study will help make *P. terio* a better ornamental plan for local people to generate income and protect from nature.

Key words: Optimum dose; Induced breeding; *Puntius terio*; Ornamental; Conservation.

Seasonal Fluctuation of Limnological Parameters and their impact on Ichthyofaunal Diversity of Chhariganga Oxbow Lake, West Bengal: A Case Study

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Abstract

To assess the ecological health of the lake, a study on the relationship between seasonal variation in limnological parameters and fish diversity indices was carried out in Chhariganga oxbow lake, a floodplain wetland in Nadia, West Bengal. Samples of water and finfish species were collected at pre-monsoon, monsoon and post-monsoon period from 2018–2021 to estimate limnological properties of water and fish diversity indices i.e. Shannon-Weaver species diversity index, Margalef's Species richness index, Pielou's species evenness index and Simpson's index of dominance. Total of 32 different fish species belonging to 8 Orders were found during the study period which varies seasonally. Water temperature (20.46–31.8°C), pH (7.51–8.38), dissolved oxygen (3.63–6.1 mg/l), Free CO₂ (2.45–9.04 mg/l), total alkalinity (97.33–153.33 mg/l) and hardness (86–125 mg/l) values varied significantly ($p < 0.05$) between three seasons. Shannon-Weaver species diversity index (H') is ranged between 1.18–1.54, which indicates moderate level of pollution. Margalef's species richness index (D) is measured between 4.79–6.19, Pielou's species evenness index (J') is recorded between 0.75–0.85 and Simpson's index of dominance (ID) is ranged between 0.054–0.072.

Key words: Correlation; Ecological health; Fish diversity; Physico-chemical properties; Pollution; Wetland.

Bio-energy production from microalgae using photosynthetic fuel cells

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Abstract

Many commercial microalgal species are being cultivated in open raceway ponds under sunlight. An introduction of electrodes and converting the open raceway ponds similar to photosynthetic fuel cells will definitely pave way to carbon sequestration and generate electricity parallelly. *Haematococcus pluvialis* and *Spirulina platensis* are very popular commercial microalgal taxa popular for their pigments and whole protein. Hence these two algal taxa were selected for our study and used in Dual Chambered Photosynthetic Fuel Cells. The carbon electrodes in the form of rod, membrane and cloth were used for optimization from which carbon rod was efficient. Three Catholytes such as air cathode, ferric nitrate, potassium permanganate were used for optimization studies. Compared to the three catholytes, air cathode production was comparatively low. Considering the environmental factors and cost of execution under solar condition, air cathode was selected for future studies. Based on electrode and Catholyte optimization studies subjecting to both microalgal species, *Spirulina platensis* was the potential microalga, which was further used for evaluating the voltage and current production using single and multiple electrode analysis.

Compared to the single electrode studies, multiple electrode-based studies revealed a maximum voltage with 0.72 V. The second stage of studies were carried out in solar condition similar to the real time open race way ponds. Multiple Single Chambered Photosynthetic Fuel Cells were connected in parallel and series to evaluate the voltage output. In series connection, a high voltage of 3.2 V was achieved. From the comparative studies under both lab and solar condition the microalga, *Spirulina platensis* proved to be an efficient candidate for production of bio-energy.

Key words: *Haematococcus pluvialis*; *Spirulina platensis*; Photosynthetic Fuel Cells; Microalgae; Biomass cultivation and Sustainable energy.

Pollution abatement by *Nymphaea alba* in Nigeen Lake waters of Dal Lake, Kashmir

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Abstract

The aim of this study was to analyze and estimate some physico-chemical parameters of Nigeen lake waters together with the biochemical assessment of aquatic macrophyte, *Nymphaea alba* in order to ascertain its pollution control potential. During the current study, water and plant samples from three sites were collected on monthly basis with the entire study period divided into two phases i.e., the peak growth phase and senescence phase. The results revealed marked variations among different sites wherein site-III was the least polluted with scanty vegetation of experimental plant and site-I was the most polluted having deteriorated water qualities owing to anthropogenic activities in the nearby human settlements with a prolific growth of the *Nymphaea alba*.

Key words: Kashmir; Nigeen Lake; *Nymphaea*; Phytoremediation; Pollution Control.

A report on Health and Functioning of an urban, Perennial Lake of West Bengal, India with Reference to Waterbird Colonization

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Abstract

Wetlands are areas with multifarious functions, and they support enormous biodiversity of which waterbirds hold a special position. Unfortunately, wetlands around the globe are facing conversions due to ever-accelerating anthropogenic activities. Santragachi lake in the district of Howrah of state West Bengal, India plays host to more than 5,000 migratory and resident waterbirds during the colder months of the year (October–March). Lesser Whistling Duck is the most common waterbird of this lake. However, their number along with the diversity of other migratory birds was noted to be fluctuating alarmingly during the study period (2004–2021). The present investigation was carried out to evaluate the health and functioning of the lake with reference to waterbird colonization. Anthropogenic interventions over the lake and management steps taken so far to restore this avian paradise were also evaluated. Aquatic vegetation (chiefly water hyacinth) was found to be the major culprit for choking this lake and had a negative influence on waterbird colonization. This lake needs further attention and proper scientific management plans.

Key words: Aquatic weed; Avian fauna; Santragachi lake; Water hyacinth; Waterbirds; Wetland health.

Tannery Effluent Induced Changes in Growth and Enzymatic Activity of *Solanum lycopersicum* L.

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Abstract

The present investigation deals with the influence of different concentrations of tannery effluent on growth and enzymatic activity of *Solanum lycopersicum* L. The morphological growth parameters like shoot, root length, leaf area, fresh and dry weight increased up to 10% of tannery effluent and thereafter reduced gradually. The aquatic plants were used for biological treatment of tannery effluent (*Azolla pinnata*, *Eichhornia crassipes*, *Lemna major* and *Salvinia natans*). The enzymatic activity such as catalase, peroxidase increased upto optimum level of 10% and at higher tannery effluent the enzyme activity drastically reduced. The superoxide dismutase, glutathione reductase and ascorbic acid increased upto extreme level of 100% tannery effluent.

Key words: Antioxidant; *Solanum lycopersicum*; Tannery; Superoxidedismutase; Glutathionereductase.

Habitat Specificity of Phyto-diversity in Semiurban Lotic System: A Case Study

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Abstract

Biological diversity plays pivotal role in maintaining the physicochemical conditions vis-à-vis homeostasis of ecosystems. The unicellular to complex multicellular forms of different biodiversity components prove their importance by providing the security of ecological health of ecosystems especially the aquatic once. The objective of this study was to find out the habitat specificity of Phyto-diversity sustained throughout the different segments of Bariti Beel based on variation of some environmental factors. It is revealed that, there was significant alteration in planktonic population in zone-A and zone-B. The macrophyte vegetation with five distinct stands supports to sustain different insect communities especially Odonates, Hemipterans and Coleopteran beetles. Most predictable abiotic factors controlling growth and reproduction of different growth forms of algae were derived through multiple regressions along with the prediction model with high significance level ($p \leq 0.15$). Specificity in establishment and distribution of some floral species as a result of their response to the environmental factors of the habitats both in micro and macro level was noted. This study would be helpful in wetland management through biomonitoring and maintenance of water quality with necessary biotic community.

Key words: Distribution; habitat specificity; plankton diversity; prediction model; water quality.

Phytoremediation and Toxicity Removal of Municipal Wastewater using *Cladophora*, *Azolla* and *Lemna*

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Abstract

Municipal wastewater treatment and its proper disposal are utmost problems all over the world. Due to high cost of treatment plants, many municipalities are strained to discharge Municipal wastewater untreated. Phytoremediation potential of *Cladophora*, *Azolla* and *Lemna* was studied for a period of 7, 15 and 30 days. The results of present study revealed the decrease in pH, Total Dissolve Solids, Total Suspended Solids, Total Solids, Biochemical Oxygen Demand, Chemical Oxygen Demand, Alkalinity, Electrical conductivity, Turbidity, Chloride, Calcium, Potassium, Magnesium Sulphate, Phosphate and Nitrogen. However increase in Dissolved Oxygen was observed. Changes in above parameters of Municipal wastewater make it suitable for gardening, irrigation and other purposes to minimize demand of fresh water resources and to prevent polluting the river Ganga. Based on current study results, *Lemna* proved to be better than *Azolla* and *Cladophora* in terms of nutrients removal from the Municipal wastewater.

Key words: Municipal wastewater; Phytoremediation; Water pollution; *Cladophora*; *Azolla*; *Lemna*.

Euglenoid Diversity in Pallavaram Lake – A Eutrophic Lake near Chennai, Tamil Nadu

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Abstract

Euglenoid diversity was studied in a eutrophic suburban lake of Chennai city. The diversity was very high in the lentic habitat. Euglenophytes are unicellular flagellate organisms. Euglenoid taxa identified in the study include 32 species belonging to two different families and eight genera. The family Euglenidae had 12 species and family Phacaceae was represented by 20 species. *Phacus* and *Lepocinclis* dominated with representation of ten and nine species respectively. It was followed by six species of *Euglena* and two species of *Cryptoglena* and *Euglenaria*. *Discoplastis*, *Monomorphina* and *Strombomonas* were represented by just one species each.

Key words: Flagellates; Eutrophic; Microalgae; Euglenidae; Phacaceae; Lentic.

Biomonitoring of Pollution in Kolong River, Nagaon, Assam, India

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Abstract

River is worshiped as Goddess in many religions of the globe. Kolong river, Assam India is a tributary of the mighty river Brahmaputra, which bears the great historical identity. But now it is categorized under the 71 most polluted river of India (Annual Report, Central Pollution Control Board, 2013). It is very important to evaluate the water pollution level regularly to check the effects of anthropogenic activities. Aquatic plants like macrophytes are the indicators of water pollution. Phytoplankton respond to change in water. Abundance of macrophytes were analyzed. Bacillariophyceae, Chlorophyceae and Cyanophyceae were more widely distributed microalgae. The sites of the river are light to moderately polluted. The macrophytes abundance and diversity were higher in Nagaon town site and hence it is found to be highly polluted since it bears lot of anthropogenic activities. Study during Covid-19 pandemic Lockdown period (2021–2022) revealed a tremendous change in microalgal diversity since the water was less disturbed. Growth of important algae was also observed, which indicated a good fishery potential in the river. Analysis of physico-chemical parameters like pH, DO, BOD; Concentration of Ca²⁺, K⁺, Na⁺, Mg²⁺ and PO₄²⁻ showed significant results. The PO₄²⁻ levels were found to be higher in Nagaon town area where higher amount of microalgal diversity was noticed. The other parameters were almost within the desirable limit. The higher PO₄²⁻ level in urban site indicated that the site was highly polluted. This was due to higher anthropogenic activities running there without any hindrance from the concerned authority.

Pollution damages the biotic and abiotic components of an environment. The present study evaluates the presence of many indicator species of water pollution. Effective pollution control measures should be adopted to reduce pollution and to stretch back the river to its original state.

Key words: Kolong river; Microalgae; biomonitoring; anthropogenic activities; Pollution.

Diversity of Cyanobacteria in the Freshwaters of Kaliganj Region, Nadia, West Bengal

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Abstract

A survey of cyanobacteria in different freshwater bodies of Kaliganj block in the Nadia district, West Bengal was carried out during 2021. Altogether, 34 cyanobacteria species belonging to 13 genera were identified. The most common cyanobacteria were under the genus *Oscillatoria* (14 species) followed by *Nostoc* and *Anabaena* (4 species each), *Calothrix* and *Scytonema* (2 species each) and one species each of *Chroococcus*, *Gloeocapsa*, *Synechococcus*, *Spirulina*, *Lyngbya*, *Gloeotrichia*, *Aulosira* and *Westiellopsis*. Among these *Oscillatoria princeps* showed maximum frequency of occurrence and minimum of *Westiellopsis prolifica*, *Scytonema bohneri* and *Aulosira fertilissima*. Maximum relative density of *Oscillatoria raoi* (7.36) and minimum of *Westiellopsis prolifica* and *Aulosira fertilissima* (0.52) in the water bodies of the study area.

Key words: Cyanobacteria; Diversity; Freshwater; Kaliganj region; West Bengal.

Diversity and Morpho-Taxonomy of the Genus *Phormidium* Kützing ex Gomont (Cyanoprokaryote) from Polluted Habitats of Meerut, Uttar Pradesh

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Abstract

Distribution pattern and morpho-taxonomy of *Phormidium*, a filamentous and non-heterocystous, Cyanoprokaryote occurring in five different polluted biotopes of Meerut, Uttar Pradesh, India were studied. In the present work, we reported eighteen species of the genus *Phormidium* along with their distribution pattern in different polluted water bodies of Meerut. These eighteen species of *Phormidium* include *viz.* *Phormidium attenuatum*, *P. autumnale*, *P. breve*, *P. bulgaricum*, *P. deflexoides*, *P. favosum*, *P. formosum*, *P. gardneri*, *P. granulatum*, *P. griseo-violaceum*, *P. holdenii*, *P. insigne*, *P. kolkwitzii*, *P. koprophilum*, *P. lacustre*, *P. laetevirens*, *P. terebriforme* and *P. tortuosum*.

Key words: Biodiversity; *Phormidium*; Cyanoprokaryote; Pollution; Meerut.

Biodiversity of Unicellular Cyanobacteria in Ricefield Soils of Chhattisgarh State

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Abstract

On the basis of morphology cyanobacteria are categorized as non-filamentous form (mainly coccoid form: single celled or in groups forming palmelloid colonies) and filamentous forms. The aim of the present paper is to document the unicellular cyanobacteria from rice fields of Chhattisgarh State. Twenty-four unicellular cyanobacterial forms were recorded from the study site.

Key words: Cyanobacteria; unicellular forms; rice fields; Chhattisgarh State.

***In Silico* Studies on the Anti-Inflammatory Activity of Compounds from Brown Alga *Padina tetrastromatica* Hauck**

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Abstract

The inflammatory diseases are one of the significant causes of death in the world. Inflammation happens when a physical factor triggers an immune reaction. Several studies have shown that seaweeds own several medicinal properties against many health issues. The marine algae are taxonomically diverse, largely productive, biologically active and chemically unique, offering a great scope for discovery of new drugs. Cyclooxygenase-2 (Cox-2) is an enzyme that causes inflammation. *Padina tetrastromatica* Hauck is a marine brown alga which contains several compounds that can be used for inflammatory diseases. The compounds fucose, phloroglucinol and scutellarein 4-methyl ether present in the *Padina tetrastromatica* are taken as ligands for the present study. These ligands were docked against the target protein Cox-2 by using Hex docking software to obtain energy values for the protein-ligand complexes. The binding affinity of each compound with target protein is then compared. The docking energy values of fucose, phloroglucinol and scutellarein 4-methylether with Cox-2 are -167.82, -134.98 and -255.77 respectively. The complex of Scutellarein 4-methyl ether with Cox-2 has less energy value and more binding affinity. So that this complex is more stable than the other two complexes. Hence there is a chance that these compounds present in this alga can be used against the inflammatory diseases.

Key words: Inflammation; *Padina tetrastromatica* Hauck; fucose; phloroglucinol; scutellarein 4-methyl ether; docking.

Molecular Docking Study to find the Binding Affinity of Human Breast Cancer Protein with Anticancerous Compounds in *Ulva lactuca* Linnaeus

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Abstract

Algae possess several biological activities, including anticancer activity. Many algae have been used for the treatment of cancer. Many crude or partially purified polysaccharides from various algae have been tested for their antitumor activities. *Ulva lactuca* Linnaeus is a green, marine, macro alga which have many therapeutic effects. Sulphated polysaccharides of *Ulva lactuca* commonly called ulvan, terpene derivatives like DL-Limonene and an alcoholic compound 1-Dodecanol have anticancer activity especially in breast cancer. These compounds have been taken for the present study. Molecular docking studies were carried out to find the binding affinity of these compounds with HER2 protein by using Hex software. Docking allows virtual screening of approved drugs, naturally occurring compounds etc. after docking, this study reveal that the highest energy value observed for the three compounds with the target are, 1-Dodecanol with energy value -175.81, DL-Limonene with energy value -135.09 and Rhamnose with energy value -124.30. From the results it can be concluded that 1-Dodecanol is having less energy value and has strong interaction with the HER2 protein when compared to the other two.

Key words: Breast cancer; HER2 protein; *Ulva lactuca*; Molecular Docking; 1-Dodecanol; DL-Limonene; Rhamnose.

Morphological Study of Various Species of *Calothrix* occurring in Rice Fields of Chhattisgarh

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Abstract

Eight species of the cyanobacterial genus *Calothrix* were recorded from rice field soils at 24 sites of Chhattisgarh. These were identified based on their morphological features and presented.

Key words: *Blue-green algae, Calothrix*; Rice fields; Morphological characterization; Chhattisgarh.

Diversity of Marine Amphipods Associated with Macroalgae Along the Intertidal Rocky Shore at Thirumullavaram, Kollam, Kerala

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Abstract

One of the world's most biologically diverse environments is the intertidal zone. The rocky intertidal macroalgae are important habitat-forming organisms on the rocky coasts and enhance biodiversity. Amphipoda is an order of malacostracan crustaceans with no carapace and generally ranges in size from 1–340 mm. The present study was conducted at the intertidal rocky shores of Thirumullavaram, situated on the west coast (8°42' N Latitude and 76°34' E Longitude) of Kollam district, Kerala State, India. The study was focused on the diversity of marine amphipods associated with macroalgae present in the intertidal zone. A total of ten species of marine amphipods belonging to four families were identified. The highest number of species belonged to the family Gammaridae (5 species), followed by Ampithoidae and Talitridae (2 species each), and the lowest in Isaeidae. The species *Ampithoe kergueleni* and *Parhyale hawaiiensis* were obtained throughout the study. The Shannon-Wiener index ranged from 0.388–0.475 for the four sampling stations. Pielou's evenness was in the range of 0.169–0.266 and Simpson's dominance index ranges from 0.589–0.651. Four species of amphipods viz. *Melita zeylanica*, *Melita* sp., *Parhyale hawaiiensis*, and *Parhyalella natalensis* showed significant ($P < 0.05$) spatial variation among the four sampling stations. Concerted efforts are required in the future to study the species-specific functional characteristics of amphipods and the complex biotic factors influencing macroalgal-amphipod interactions. It will also provide a better scientific understanding to monitor and formulate policies for the conservation of intertidal ecosystems.

Key words: Amphipods; Macroalgae; Rocky intertidal shore; Thirumullavaram; Kerala.

Diversity, Distribution and Conservation Status of Ichthyofauna of Kayamkulam Backwater, Kerala, India

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Abstract

Diversity and conservation status of fishes in Kayamkulam backwater were evaluated from April 2019 to March 2020. A total of 136 species of fishes under 21 orders 56 families and 92 genera were documented. Order Perciformes and family Leiognathidae constituted the most species-rich order and family respectively. Shannon-Wiener diversity of 4.389 and Margalef species richness of 13.17 indicated higher species richness and species diversity in Kayamkulam backwater. The Dominance of Perciformes (21%), Clupieformes (9.7%), and Siluriformes (8.8%) fish species were responsible for lower Peioulou evenness of 0.649 in Kayamkulam backwater. Among the 136 species identified, 100 species were categorized as Least Concern (LC), five fishes came under the category Vulnerable (VU), and three species were under the status of Near Threatened (NT) category. The species coming under the category of Endangered (EN) was *Hypselobarbus curmuca*. The relative abundance of the species showed that 38% of fishes in the total catch were Abundant (A) throughout the year. Furthermore, 12% and 20% of fishes in the catch were under the Rare (R) and Very Rare (VR) categories, respectively. The findings revealed the importance of conserving the valuable fish diversity-rich Kayamkulam backwater at any cost.

Key words: Fish diversity; Conservation status; IUCN Red List; Kayamkulam backwater; Kerala.