

The effect of SLF from *Padina tetrastromatica* on seed germination, growth, photosynthetic pigments and nutritive value of *Vigna radiata* L.

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ABSTRACT

Application of seaweed liquid fertilizer (SLF) from *Padina tetrastromatica* showed positive result on enhancement of seed germination, vegetative growth and yield of *Vigna radiata* L. Among the different concentrations tested (0.5%, 1.0%, 1.5%, 2.0%, 2.5%, 5.0%, 10% and 20%) 1.5% concentration was found to be more effective in enhancing the growth, biochemical constituents and yield. In addition, the SLF increased biochemical constituents viz., chlorophyll, protein and carbohydrate. There was a noticeable increase in number of flowers, pods, length and weight of pods.

Effect of SLF from *Amphiroa fragilissima* on seed germination, growth, biochemicals and nutritive quality of *Vigna radiata* L.

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ABSTRACT

An attempt has been made to investigate the effect of *Amphiroa fragilissima* seaweed liquid fertilizer (SLF) as bio-stimulant for enhancement of yield and quality of green gram. Among the different concentrations tested, 1.5% concentration exhibited higher seed germination, seedling growth and biochemical constituents. The SLF treated plants produced a greater number of flowers, pods and seeds. Application of seaweed liquid fertilizer has been shown to enhance the nutritional quality of green gram seeds.

Species composition of soil-crust cyanobacteria in red soil zone of the district Birbhum, West Bengal : a comparison with the alluvial zone

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ABSTRACT

The present study depicts the species composition of biological soil-crust cyanobacteria isolated from a red soil zone of the district Birbhum, West Bengal. Fourteen species of cyanobacteria belonging to six genera have been isolated from this red soil zone. *Phormidium tenue* has been found to be the most dominant species in this zone. The various parameters of soil – pH, ammonium, organic carbon, available iron and available nitrogen have been estimated. Two dimensional Plexus diagram showed nature of interspecific association between isolated taxa. Canonical correspondence analysis showed correlation between distributions of isolated taxa with soil parameters. Comparison between distribution pattern and species composition of alluvial and red soil zone has also been studied. It is inferred that, each type of soil has its own specific species composition and few organisms are common in all types of soil. This variation may be due to variation in available iron, ammonium and organic carbon content of soil. Along with soil type, dominant species also varies. Heterocystous organisms, showing more nitrogenase activity, are isolated from soil with more ammonium content.

Studies on Phytochemical screening and in-vitro anti-inflammatory activity of *Turbinaria conoides* (J. Agardh) Kutz.

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ABSTRACT

The aim of this study is to investigate the phytochemical composition and anti inflammatory activity of *Turbinaria conoides* collected from Rameshwaram, Tamilnadu. The algal extract of *T.conoides* from five different solvents was investigated. The Phytochemical analysis revealed the presence of active ingredients such as steroids, saponins, Phenols, flavanoids, terpenoids, alkaloids and tannins in the aqueous extract of *T. conoides*. The aqueous extract of *T. conoides* is evaluated for antiinflammatory activity by human red blood cell (HRBC) membrane stabilization method. The prevention of hypotonicity – induced HRBC membrane lysis is taken as a measure of anti-inflammatory activity. All the fractions showed a biphasic effect on the membrane stabilization. Their activities are comparable to that of the standard drug Aspirin, which is a remedy for analgesic, antipyretic, cardiovascular disease and long term oral treatment for platelet hyperactivity. Further work is highlighted on the natural drug which may be obtained from *T. conoides* without side effects. This can be referred as an alternative for aspirin.

Microbial degradation of phycocolloids in seaweeds

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ABSTRACT

The present work was undertaken to isolate a few microorganisms from the marine environment which can degrade the phycocolloids present in seaweeds, so as to utilize these seaweeds as a possible source for bio-ethanol production by converting the complex polysaccharides into monosaccharides prior to fermentation process. A marine bacterium M01 isolated from seawater was capable of degrading agar and carrageenan, the maximum activity being shown in the presence of 0.2 % and 0.25% of these phycocolloids respectively. The optimum growth conditions for M01 (seawater isolate) was found to be 2% agar, pH-7.0 and 27-30°C. Similarly, another bacterium AAL06 isolated from seaweeds showed alginate lysis property in the presence of 0.5% alginate, the optimum growth conditions for which was 1% alginate, pH-7.5 and 27-30°C. These isolates were identified to be of Enterobacteriaceae family based on the morphological & biochemical studies conducted. These microorganisms also exhibited enzyme activity in the phycocolloids extracted from pre-treated seaweeds, *Sargassum wightii* and *Gracilaria corticata*, as compared to the standard phycocolloids.

Studies on epiphytic algae on pneumatophores of mangrove *Avicennia marina* L.

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ABSTRACT

Mangroves are coastal tropical and subtropical formations occurring along the border of the sea and lagoons reaching up to the edges of river. They are highly productive but extremely sensitive and fragile. The present is an attempt to study the diversity of epiphytic algae on pneumatophores of *Avicennia marina* of Pichavaram, Tamil Nadu (Lat. 11°24'N; Long. 79°47'E). *Avicennia marina* is the dominant species in Pichavaram constituting nearly 74% of the vegetation covered. A total of 18 species of epiphytic algae on pneumatophores of *Avicennia marina* L., belonging to Chlorophyta (3 species), Bacillariophyta (13 species), and Cyanophyta (2 species), have been identified during summer and pre-monsoon season. Bacillariophyceae is dominant and showed the highest diversity of algal flora. These algae form a thick felt-like covering on the entire length of the pneumatophores of the *Avicennia marina*. These microalgae were also studied by Scanning Electron Microscope.

Seasonal variation of some physico-chemical parameters with respect to Phytoplankton diversity in perennial ponds at Thovalai Taluk

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ABSTRACT

Physico- chemical parameters were analyzed with respect to seasonal variation and phytoplankton diversity in perennial ponds located at Vempattur and Thazhakudy, Thovalai Taluk, Kanyakumari District, Tamil Nadu. The Physico-chemical parameters like water temperature, atmospheric temperature, EC, light extinction coefficient, pH, salinity, carbonate, total hardness and DO showed fluctuations. The hydrological characteristics and primary productivity exhibited direct relationship with the species diversity of phytoplankton. The higher level of phytoplankton diversity and moderate level of chemical constituents confirms the mesotrophic status of these ponds.

Water quality of two sub-urban ponds at Kanyakumari district in relation to Phytoplankton diversity

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ABSTRACT

Present study deals with the phytoplankton and physico-chemical characteristics of two sub-urban ponds near Nagercoil town at Kanyakumari district during December 2012 to March 2013. The total number of phytoplankton identified were 77 and 71 in pond I and pond II respectively. These species represent Cyanophyceae, Chlorophyceae, Bacillariophyceae, Euglenophyceae, Dinophyceae and Chrysophyceae. The species diversity pattern was more or less uniform throughout the study period in pond I, indicating the meso-oligotrophic nature of this pond. The domestic sewage entry in pond II from the adjacent villages enriched the nutrient status of this pond which in turn influenced the biodiversity and pond status.

Feasibility of Microalgal cultivation in soak liquors from leather processing unit

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ABSTRACT

Leather making involves several water intensive operations, using a variety of chemicals for processing raw skins / hides to finished leather and, hence, tends to pollute the environment heavily. Effluent treatment plants usually address composite streams; segregation of liquors may result in better treatment. The first streams that emanate from the wet processing of hides / skins are soak liquors I and II (two stage-soaking), with salinity as high as 100‰ and 50‰, respectively. These are normally directed to solar pans for evaporation, but leave behind a salt highly impure for reuse. This paper focuses on feasibility of cultivating two microalgae (*Spirulina* sp. and *Nannochloropsis* sp.) in the two types of soak liquors in their undiluted, diluted and mixed forms. These algal forms could not only sustain but grow well in these effluents by utilizing the growth components available in the substrate, thereby substantially reducing the BOD and COD levels. This was associated with a proportional increase in the DO levels due to the oxygen produced during photosynthetic activity of the algae. *Nannochloropsis* sp. showed better results than *Spirulina* sp.