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Abstracts

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Varanasi-5

and

Department of Botany Banaras Hindu University Varanasi-5

Convener: Prof. Bharat Rai FNRS
NATIONAL SEMINAR
On
Impact of Increasing Human Population on Natural Resources (I.P.N.)
October 16-18, 2003
Jointly Organized by
Department of Botany, Banaras Hindu University, Varanasi - 221005
and
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cides showed highly significant inhibition of water splitting complex and phycocyanin content (P<0.05).

**RADIObIOLOGICAL IMPACT OF PHYSICAL MUTAGEN (GAMMA RADIATION) ON ACONITE BEAN**

Srivastava Aparna, Srivastava Anupma
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Gamma rays are electromagnetic radiations of wavelength $10^{-1}$ to $10^{-2}$ cm. These physical mutagen affects the living tissues very sensitively. The action of these radiations on nucleic acid are of direct and indirect type. In the direct effect, there is rupture of chemical bonds of protein bases and of de-ooxy-ribose as well as of backbone of DNA molecules, sugar phosphate sugar. In the indirect effect ionization molecules. These free radicals either from water ($\text{H}^+ \text{OH}$) or from free organic molecules. These free radicals attack the constituent of DNA. Along with this, some significant changes also clearly observed on the morphology, seed germination, emergence of seedling, survival percentage 30th day after sowing, pod per cluster growth and reproductive behavior of the plant *Vigna aconitifolia* syn. *Phaseolus aconitifolia* due to these radiations.

**SUSTAINABLE BIOMASS AND ENERGY PRODUCTION FROM WASTELAND PLANTATION AND SOCIAL FORESTRY TECHNIQUES**

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In order to reduce the gap between supply and demands of forest products, plantations of selected species capable of growing on nutrient poor wasteland with fast growth, high biomass production and short rotation cycles are desired. Energy from biomass is indisputable importance in developing countries since wood supplies more than half of the total amount of energy used in many developing countries and in some cases this reliance is as rear as 95%. The rapid growth of population and technological revolution has created a serious concern to the existence of life on earth

Indiscriminate use of natural resources has also posed a serious threat to the environment. Rural people in general are dependent on locally available resources. They are involved in felling trees indiscriminately to meet their requirements in terms of food, fuel fodder etc. Under these prevailing conditions, social forestry has immense potential to meet the needs of rural people. Planting of suitable plants under social forestry can help the rural people to reduce the changes of heavy loss due to crop failure, general employment and income, promote soil and water conservation, and in maintaining biological diversity leading to sustainable development of the mankind. In this paper, the biomass and energy production from *Casuarina equisetifolia* and other fast growing species have been compared and discussed.

**ROLE OF CAPTIVE BREEDING TECHNIQUE IN THE CONSERVATION OF SPECIES DIVERSITY ON CBD OF FRESH WATER FISHES.**

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Fishes exhibit enormous diversity in individuals, number of species size, shape, biology and in the habitats they occupy (Banister 1984) Majority of the fishes form an important component of staple diet. Due to excessive human intervention brought the alterations in habitat and the species being threatened, endangered and rare. Various methods of conservation viz. in situ and ex-situ have proved significant in assessment and conservation of biodiversity. Convention on Biological Diversity (CBD) was adapted in Nairobi in May 1992 and accepted by more than 150 countries in June 1992 at Rio De Janeiro. Officially came into force in December 1993. Articles of the convention cover objectives, terminology, principles, legislation, cooperation and strategy as applied to various issues and methodology. It deals with identification and monitoring and to identify components of Biological Diversity important for its conservation and sustainable use. Component include ecosystem, habitat species and communities

Prioritization of species based on their
economic importance is one of the outcomes of Biodiversity Conservation Prioritization Project (BCPP). Methods like captive breeding would on way help to increase the population of species under rapid decline and dominance of selected few species might influence teh biotic index of aquatic fauna. A method of conservation 'with care' to avoid the increase in population of species of only commercially and ornamentally important species is suggested.

GROWTH PATTERN AND BIOMASS ACCUMULATION OF CERTAIN YOUNG WOODY PLANTATIONS ON COAL MINE SPOIL IN A DRY TROPICAL ENVIRONMENT

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Due to mining operation significant areas of land are degraded and existing ecosystems replaced by undesirable waste materials in the form of dumps. This study focussed on young plantations of three native tree species (*albizia lebbeck, albizia procera and Tectona grandis*) and one woody grass (*Dendrocalamus strictus*) raised on mine spoil. The study sites were situated in the east section of Jayant coal mine (North eastern part of Singrauli coal fields, Madhya Pradesh, India) between latitudes 24°15'45"-24°41'15" N and longitudes 82°36'40"-82°41'15". The climate of the area is tropical monsoonal and the year is divisible into a mild winter (November-February), a hot summer (April-June) and a warm rainy season (July-September). We studied growth parameter (Height, diameter and specific growth rate) and biomass production among these planted species, and estimated biomass accumulation, growth at ages 3, 4, 5 and 6 years respectively. For the measurement of tree biomass, allometric equations relating tree dimensioned component biomass were developed. Data collection was carried out annually in the months of February-March from 1993 to 1996. The stocking density at the time of plantation was 2500 individuals ha⁻¹ for all the species. Of these about 71-88 % individuals survived after three years of plantation establishment. Height and diameter growth was varied in all species. By the 6th year, *A. lebbeck* had attained 4.53 m height, *A. procera* 4.24 and *T. grandis* 3.23 m. Whereas Bamboo shoots from older clumps were taller than those from the younger ones. In this study, the height growth was nearly linear with age in all the three tree species. In *D. strictus*, the growth of culms between 4th and 5th was not as high as that during early growth stage of the clump. However, in all four species diameter growth was linear up to 2 years and then a slight reduction in the same was observed.

In this study, *D. strictus* plantation had the greatest biomass accumulation followed by *A. lebbeck, A. procera* plantation, with the *T. grandis* plantation having the lowest total tree layer and stand biomass. Total tree layer biomass (t ha⁻¹) increased from 21.24 to 67.81. 81 in *A. lebbeck*, 12.14 to 40.24 in *A. procera* and 2.80 to 9.05 in *T. grandis* plantation as they aged from 3-yr to 6-yr. Respective total stand biomass values (t ha⁻¹) for 3-yr and 6-yr old plantations were 26.19 and 76.63 for *A. lebbeck*, 16.73 and 50.98 for *A. procera*, and 7.12 and 24.25 for *T. grandis*. The total stand biomass was 57.98 and 85.98 t ha⁻¹ for 3-yr and 5-yr old *D. strictus* plantation, respectively. All the present four plantations supported much more biomass than that found on naturally vegetated mine spoil of the same age in the same area. We conclude that, all species have different growth pattern, biomass accumulation, as well as allocations in different components of plant species. Faster growth rate was observed in these planted species indicated rapid development of biomass accumulation in this disturbed ecosystem. Biomass allocation in different components (leaf, stem, course roots, fine roots and rhizome) was widely different in all species. However, larger partitioning of leaf biomass contributed to high level of primary productivity indicated high level of ecosystem production efficiency.

SOME NEW SPECIES OF HYPOMYXEAE GENUS CERCOSPORA, CAUSING FOLIAR SPOTS DISEASES ON SOME VALUABLE PLANTS FROM INDIA

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During the survey of fungal flora, species group of fungi have shown much diversity in North...
STUDIES ON ECOPHYSIOLOGICAL CONDITIONS AND FISH BIODIVERSITY OF U. P.

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India is well known for its mega biodiversity of biological wealth, harbouring our 12% of the shell and fin fishes known. The population of all the fishes in general and some of the fishes in particular has so greatly declined that some of them have completely vanished from the geographical areas. So much so, a noticeable number of fishes has become endangered in some of the areas where there were found in large numbers and in big sizes in the yester years. The endangered condition has become so alarming that it draws the attention of the scientists, researches and conservators the work on their conservation and rehabilitation for the survival of fishery resources. A recent report on existing freshwater resources on “Pilot Analysis of Global Ecosystems” (PAGE) of the World Resource Institute, USA reveals that more than 20 percent of the world’s known 10,000 freshwater fish species have become either extinct, or threatened, or endangered in recent decades. Presently in U. P. population of some potential food and ornamental fishes is reported to be declined more than 40% over the last 10 years.

Aquatic resources like rivers water bodies, play an important role in fish biodiversity conservation. A god number of water bodies, lakes and reservoirs with high potential in terms of fishery related activities are available in Uttar Pradesh, which can be sustainable utilized to boost the economy of the local population. During the last few decades, the fishery statuses of these water bodies having gown down considerably. The major reasons for deterioration of the aquatic resources due to destruction of the habitat, water pollution, water abstraction, destructive fishing etc. because of the pressure of human interference unabated increase in population and multifarious development activities, the rivers water bodies of U. P. are exposed to destruction of the aquatic resources. It is high time to study and assess the present status of fish biodiversity and hydrobiological parameters of these water resources and plans a strategy for their conservation. This required detail information on the present status of fish biodiversity, catch composition of fishery resources, hydrobiological and other habitat parameters, energy estimation, breeding pattern of important species in the water bodies and socio-economic profile of the communities living around the water body and their perception towards conservation. The study will provide detail information on various important aspects of the rivers and water bodies, which will be of immense practical relevance in several ways of policymakers and fishery administrators in U. P. The evaluation of the species in terms of their status for conservation will help in designing strategies for their sustainable utilization. The study will helpful in making a comprehensive plan with community involvement for economic benefits like fishing marketing and tourism along with the strategy to enhance fish production and conserve fish biodiversity of Uttar Pradesh.

BIOMEDICAL WASTE MANAGEMENT IN VARANASI

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The safe dispersal of Bio-medical waste has become a serious issue these days in Varanasi district. Proper care is not taken to dispose Bio-medical waste in the city. Pathogenic and sharp contamination may cause many diseases like AIDS, hepatitis B and C, cholera etc. Many chemicals and radioactivity substances, which are thrown on the streets, cause biological mutations. Hospitals of Varanasi are not provided with proper incinerators and other alternative facilities for the safe disposal of Bio-medical wastes like discarded outdated medicines, used cotton dressings, tubing’s, catheters etc. thrown on the open streets. In some hospitals land fill or burial method is adopted. This paper deals with different management plan for proper biomedical waste disposal in the city. About 37 masonry bins in 1 : 25000 population ratio with distance of each bin at 750 meters is adopted, whose frequency of clearance is twice a week. This is quite inadequate for about 9.29 lake population.
248. VARIABILITY STUDIES IN BARLEY (Hordeum vulgare L.) UNDER RAINFOITED CONDITION

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Barley is the most versatile crop among the cereals due to its wider agroecological adaptability and genetic diversity. In the present study, 20 genotypes of barley germplasm were evaluated during rabi season 1996-97. Analysis of variance indicated high significant differences among the genotypes for all the characters. The genotype Jyoti produced highest yield/plant along with very high mean performance for yield components. High magnitude of genotypic and phenotypic variation was observed for seed yield/plant, grain weight/spike, effective tillers/plant, grain/spike and 1000 grain weight. The high heritability coupled with genetic advance was recorded for maximum characters. The significant and positive correlation has been exhibited by yield/plant with plant height and grain weight/spike at genotypic and phenotypic level. The characters identified with due consideration in formulating effective selection strategy in barley is to develop high yielding variety under rainfed conditions.

249. WETLAND BIODIVERSITY AND STRATEGIES TO IMPROVE CAPTURE FISH GENETIC RESOURCES OF UTTAR PRADESH

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NBFG, Canal Road, Telibagh, P.O. Dilkusha, Lucknow-226 002

Efforts to conserve wetland resources should address the factors that lead to their degradation and biodiversity loss. Economic and ecological valuation of unmeasured wealth and services of wetlands in Uttar Pradesh must be carried out with time bound projects and made known to different stakeholders. This will become an essential instrument for countering the forces deteriorating the wetlands. The concept of conservation of fish germplasm and their biodiversity is not new. This was followed by many Act, Rules, Regulations and traditional practices. Despite these measures, threat fish genetic resources continued to exist in one form or the other, especially due to growing population, fast urbanization and industrialization. Presently in Uttar Pradesh, fish catch from nature of some potential food and ornamental freshwater fishes are estimated to have declined significantly over the last two decades due to heavy load of pollution and several anthropogenic stresses in this sector. Habitat loss and environmental degradation have seriously affected the capture fishery resources and fish biodiversity. Main causing factors of habitat loss are impoundment of channels, water obstruction, population pressure, intensive agricultural practices and lack of civil amenities etc. Reliable estimates of the decline in spatial spread of wetlands are not available for most of the wetlands but it is alarming over past independence period. There is an urgent need for conservationists to clearly quantify further degradation to restore them, which requires comprehensive policy decision, management effort and a strong political will. Siltation, sedimentation, large-scale brick making and mud lifting activities around wetlands adversely affect their ecology. As a precautionary measure, (i) Developmental activities and encroachment of tank beds, poaching hunting, removal of natural vegetation should be strictly monitored, (ii) Fishery resources should be used with proper planning and (iii) Proper and indigenous trees forestation of catchment area of wetlands which will help to prevent siltation, meet the biomass needs of the local people, enrich productivity and biodiversity of the habitat may be immediately initiated. For long run measure, wetland-specific compre-
Inensive economic valuation of wealth and services related projects may be launched strategically. Results of such studies will provide correct accounts and a firm basis to attract the expenditure from different sectors to start rebuilding and restoring its biodiversity and optimise its sustainable output in terms of product and services to society and government.

250. INDIGENOUS FRESHWATER ORNAMENTAL FISH BIODIVERSITY OF NAGALAND

S.M. Srivastava and S.P. Singh

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NBFGR, Lucknow is working on Fish-biodiversity programme under NATP with project entitled "Germplasm Inventory, Evaluation and Genebanking of Freshwater Fishes" in collaboration with ICAR Institute, state agriculture universities and conventional universities. Studies on germplasm inventory are concentrated to two prioritized biodiversity rich region, North East (NE) and Western Ghat of country, to document fish abundance in prioritized waterbodies of both regions. As a national policy, states of North East region are being provided emphasis for its various development including fishery. Considering (i) fast growing national and international market of ornamental fishes (ii) convention on biodiversity (CBD) provision for genetic material as sovereign property of country (iii) potential of ornamental fish trade to generate employment to weaker section and women (iv) prospects of Indian indigenous ornamental fish species in world market, (v) comparatively higher capacity of earning foreign exchequer and (vi) unique situation of border state Nagaland, it was decided to document its biodiversity of indigenous ornamental fin fishes. Total numbers of such fishes recorded were forty-seven. Conservation status of these fishes were also documented to provide base information to formulate strategy to conserve rich biodiversity of indigenous ornamental fish species of Nagaland. Out of documented 47 species, 10.63, 31.91, 19.15, 4.26, 4.26 per cent are endangered, vulnerable, lower risk near threatened, lower risk least concern, data deficient and not evaluated category respectively threatening.

251. MARIJUANA (BHANG) INDUCED ALTERATIONS IN THYROID GLANDS OF ALBINO RAT

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Marijuana is one of the Cannabis preparations, popular as Bhang. Marijuana contains more than sixty cannabinoids of which the only cannabinoid that is both highly psychoactive and present in large amounts is Tetrahydrocannabinol or THC. The sublethal dose of marijuana (5 gms/kg body weight/day), administered orally for 15 days in the albino rats caused severe damage to the thyroid glands. The epithelial linings of some thyroid follicles were destroyed so that colloids of adjacent follicles fused to form large colloidal mass. Some follicular cells migrated into colloid, and some cells showed necrosis. The thyroid follicles enlarged. The increase in the size of the thyroid follicles were more pronounced in 15 days marijuana administered rats, as compared to 7 days marijuana treated rats, indicating hypertrophy of thyroid glands.
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अंतर्द्वलीय व्यवस्थापनकी अनुसंधान एवं विकास - वर्तमान अवस्था तथा भव्यी दिशाए
15-16 मार्च 2004

समारिका
एवं शोध सारांश
अंतर्विषयक मत्स्य जल विवाहता के संरक्षण के लिए प्रयास में मछुआरा समुदाय की भूमिका

अलोक कुमार मिश्रा, विनय तिवारी, प्र. के. सरकार एवं श्री प्रकाश सिंह
राष्ट्रीय मत्स्य आयुर्विज्ञान संस्थान बुधगढ़
केनाल रिंग रोड, डकघर दिल्ली, लखनऊ-226002

सारांश

अंतर्विषयक मत्स्य प्रग्रहण की आधुनिक तकनीकों उपलब्ध होने तथा मछुआरों की संख्या वृद्धि एवं अन्य प्रग्रहण प्रयासों के बावजूद भी प्राकृतिक जल संसाधनों से प्रग्रहण द्वारा मत्स्य उत्पादन निरंतर घट रहा है। घाघरा नदी के कुछ स्थानों के संवेदन पूर्व अध्ययन से यह देखा गया कि कुछ मत्स्य प्रजातियाँ या तो लूहोनूँख है या इनके आकार तथा वजन में गिरावट आ रही है। इस आलेख द्वारा इन समस्याओं के कुछ प्रमुख कारण तथा इनके निवारण पर प्रकाश डाला गया है। मत्स्य प्रजातियों को दुष्प्रभावित करने वाले कारकों में प्राकृतिक स्रोतों की क्षमता से अधिक मत्स्य प्रग्रहण, बढ़ता जल प्रदूषण, जलस्तर का छिल्ला होना, मछली पकड़ने में अतिसूक्ष्म छिद्रों वाले जल (मच्छस्वादी जान) का बढ़ता प्रयोग, उत्तरदायित्वपूर्ण मत्स्य प्रग्रहण का अभाव, जहरीले राखायानों एवं विस्फोटकों का प्रयोग, प्रसार पद्धतियों एवं आर्थिक सहयोग का अभाव तथा वर्तमान नियमों को लागू करने की चुटियाँ नीतियाँ प्रमुख है। इस बुधआयामी समस्या के समाधान के लिए शीघ्र उपाय करने की आवश्यकता है, जिनके अन्तर्गत कृत्रिम जलाशयों का निर्माण, मत्स्य पालन, संख्या एवं संरचन संबंधित जानकारी का प्रवाह एवं प्रसार, स्वरोजगार के अन्य साधनों का उपयोग तथा मत्स्य अभ्यास विकसित करना सम्मिलित है।
नीली क्रांति में जैव प्रौद्योगिकी का योगदान

विवेक तिवारी, एस. फी. सिंह एवं प. के. मिश्रा
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सारांश

विश्व में भारत चौथा सबसे बड़ा मत्स्य उत्पादक देश है। वर्ष 2002-2003 में देश में मत्स्य उत्पादन 60.5 लाख टन तक पहुंच गया। इसमें अत्याधुनिक रूप से मत्स्य उत्पादन का अंश 29.9 लाख टन रहा। अहिलोणीय मत्स्य उत्पादन में आयी उल्लेखनीय वृद्धि में प्रमुख योग नीली क्रांति का रहा है।

हरित क्रांति में जैव प्रौद्योगिकी विशेष योगदान सर्वचिह्नित है। यह प्रोत्साहन, अधिक उपयुक्त, रोग रोधी एवं कीट रोधी क्रम की किस्में विकसित होने से हुई है। इसी तरह नीली क्रांति के द्वितीय अंश में जैव प्रौद्योगिकी का योगदान महत्त्वपूर्ण होगा।

विश्व स्तर पर जलकृषि उत्पादन में वृद्धि हुई है। वर्ष 2001 में जल कृषि का कुल जलजीव उत्पादन में 29 प्रतिशत योगदान रहा। विश्व की 56 प्रतिशत जनसंख्या कुल जीव प्रौद्योगिकी आवश्यकता के 20 प्रतिशत मत्स्य उत्पादों से प्राप्त करती है। बढ़ती हुई जनसंख्या वे
अनुपात में मत्स्य उत्पादन में वृद्धि आज समय की आवश्यकता है। भारत में क्षेत्रफल में अधिक पैदाव हेतु सम्बन्धित कम हैं। इसलिए उत्पादन बढ़ाने हेतु जैव प्रौद्योगिकी तकनीकों की अधिकतम सहायता लेनी होगी। इस क्षेत्र में शोध कार्य तो हुआ है, परंतु जलकृषि में इसका प्रयोग अभी तक सीमित है। इस लेख में अब तक देश में विकसित उच्च शोध तकनीक के संक्षिप्त परिचय के साथ साथ भारतीय मत्स्य उत्पादन में प्राथमिकता वाले कुछ क्षेत्रों को जैव प्रौद्योगिकी के प्रयोगार्थ चिन्हित किया गया है। अधिक मत्स्य उत्पादन हेतु विभिन्न मत्स्य प्रजातियों की प्रोत्साहन अंगुलिकाएँ उत्पादन, सर्वजनिक मत्स्य आहार उत्पादन, उच्च कोटी के बीजोत्पादन हेतु प्रजनन, शेगों की सफल रोकथाम तथा पहचान, कुशल प्रोत्साहन प्रबंधन तकनीक विकास जैसे क्षेत्रों में जैव प्रौद्योगिकी तकनीकों का प्रयोग किया जा सकता है। अतः भारतीय मत्स्य प्रजातियों के आनुवंशिक चरित्र दिखावा तथा उनके वृद्धि हार्मॉनी के जीवों के क्रम अध्ययन में जैव प्रौद्योगिकी तकनीकों का प्रमुख योगदान रहा है। मछली की पीयूष ग्रंथि से वृद्धि हार्मॉन बनाए गए हैं और अधिक विकसित वृद्धि हार्मॉन उपलब्ध हैं। इनके प्रयोग से मत्स्य वृद्धि दर में बढ़ोतरी देखी गई है तथा मत्स्य उत्पादन चक्र भी छोटा हुआ है। भारत में वृद्धि हार्मॉन कोड करने वाले सी-डी.एन.पी. को बलोन किया गया तथा इंडियन मेजर कार्य में भी कुछ वेक्टर विकसित किए गये हैं।

भारतीय मछलियों में ट्रांसजेनेसिस एक सम्बन्धित क्षेत्र है। इस विधि द्वारा रोगरोधी, सीतरोधी, उच्च प्रोटीन स्तर वाली तथा अधिक अण्ड क्षमता वाली मछलियों का विकास किया जा सकता है। यह विधि अभी भारत में प्रयोग स्तर पर है तथा इस क्षेत्र में शोध एवं अनुसंधान जारी है।

मत्स्य पालन एवं उत्पादन में मत्स्य शेग भी प्रमुख अवरोधक हैं। वे जैविक पौधों की रोकथाम हेतु प्रतिजीविक औषधियों का प्रयोग किया जाता है, किन्तु इनके लगातार प्रयोग से बैक्टीरिया तथा अन्य रोगाणु प्रतिजीविक औषधियों के विरुद्ध प्रतिरोधी विकसित कर लेते हैं। जैव
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tube growth of successive flowers of P. Mungo was also studied in the present investigation and proved that the ageing decreased the pollen fertility, germination and tube growth.

2. DETORIATION IN FRESH WATER BIODIVERSITY: PRESENT AND FUTURE THREATS

*A.K. Mishra, Shireesh Priyadarshi, Pushpanjali Singh and R.C. Gupta
*National Bureau of Fish. Genetic Resources, Canal ring road, P.O. Dilkusha, Lucknow-226002

The aquatic reason of the country is quite extensive and diverse and is the home for the establishment and evolution of different species. Fishes assume a key position in the ecosystem and also in the economical stability of the region. The past research, through, some taxonomic disparities exist, pointed to the presence of around 2500 native fish species in India contributing around 10% of the global fish biodiversity. Biodiversity is the totality of genes, species and ecosystem in a region. Human cultures have revolved due to fast adaptation to the environment, discovering, using and altering the local biotic and a biotic resource. The anthropogenic stresses increased so much in the recent years that it has become a great threat to the fish biodiversity. Out of total good resources of the planet 2-2/5th is consumed by the human population alone and the penultimate result is that the prevailing ecosystems are threatened. The huge loss of world’s biological wealth is a global crises today. The collection and preservation of genetic varieties i.e. Germplasm conservation of a large number of species are most effective means of preventing the crisis. Richness in genetic diversity i.e. variability leads to biodiversity. The loss of genetic diversity at any level is harmful for biological evolution and ecosystem. Genetic Richness of world’s flora and fauna has to be maintained and encouraged and preserved for various species to continue. Biodiversity is facing a great challenge of elimination from the nature. The rate of extinction was 1 species per 1000 years during 1600-1950 rose to one species per 10 years and at present it is one species every year. Out of 1.5 million species known to inhabit the earth, 1/4th to 1/3rd of total may face extinction, with in few decades, if human intervention remains as such. If we consider the fish biodiversity scenario of India, it is reported that 4 endangered, 21 vulnerable, 2 rare and 52 intermediate species are from the different ecosystems. The loss of ecosystem important for evolution is a serious threat. The loss of fish Biodiversity in India is a subject that has many interrelated factors. Germplasm resources of yesteryears are not in the same status out of numerous causes such as loss and fragmentation of habitat, introduction of exotic species, over exploitation, population explosion leading to green house effect, ozone depletion and pollution are important and needs attention. The rules made for conservation should be strictly implemented. People’s participation in association with government’s plan and programme is necessary and initiative is needed in totality
towards biodiversity conservation. The strategy for conservation involves four basic
elements such as saving biodiversity, studying biodiversity using sustainable as and
equitably as well as building an eco-friendly society. There is a need to protect and
conserve biodiversity. Biodiversity Conservation should be call at globe level and should
not be considered simply a topic of academic interest rather in a multiplicity of ways it
involves in people's lives. In Indian context when the question of fish biodiversity arises
it will have to consider collectively such as imperiled germplasm aquatic bodies rain
forest and other related factors of habitat degradation.

3. CHEMICAL ANALYSIS OF DRAIN WATER FOR
PHOSPHOROUS IN MARIAHU MUNICIPAL AREA
Rajiv Kumar Tripathi, Deptt. of Botany & Environmental Science, KNIPSS,
Sultanpur, (U.P.)

With green revolution in India the use of phosphorus as fertilizers and
ominicides has tremendously increased. The phosphorus contents in drain water in
areas having small Holding and Kitchen, gardening is comparatively larger than others.
The catchment zone of Mariah Hu Municipal area falls in this category.

In the present investigation periodic concentration of phosphorus in drain
water in Mariah Hu municipal board has been estimated and there from the total phosphorus
flown through drain during 1999-2000 and its lost at the current market rate has been
calculated. An attempt has been made to review the finance compensation of the board
through water management.

4. STUDIES ON EFFECT OF SOME FESTIVAL ON
AMBIENT AIR QUALITY AT JAUNPUR CITY (U.F.)
Rajesh Kumar Singh, Vandana Singh, Daroga Singh & N.P. Singh

The ambient air quality affects the human health animals, Plants, non living
and even the Meteorology of the globe. The proportion ratio of air ingredients keeps
desired equilibrium and sustain life on the earth.

In the present dissertation a positional and periodic estimation of Sox, Nox
and PM has been done. The date reveal during festivals like Ld and Diwali the pollutants
have on appreciable like which gradually fades and normalizes after seventy two hours.
5. BACTERIOLOGICAL EXAMINATION OF GOMATI RIVER WATER FOR FECAL CONTAMINATION

S.K. Singh and Sushila Dubey

A study was carried out to disclose the aspect of fecal contamination of Gomati river water by sampling at four (S1, S2, S3, S4) stations spread throughout the city. The river Gomati is flowing in mid of Jaunpur city from west to east.

Human interaction has always posed a threat to the flora and fauna supported by river. Presumptive coliform count for estimation of coliform bacilli in the water sample was carried out. Result obtained, on 24 hrs. incubation at 37°C, were compiled for the Maximum MPN. The observation revealed incidence of coliforms by presumptive positives in every sampling stations with highest number at S3. The region could be attributed mainly to the direct fecal contamination by human, city wastes, wallowing buffaloes and wastes of near by riparian sites of the river.

6. IMPORTANCE OF INDUCED BREEDING TECHNIQUES IN CONSERVATION OF FISH GENETIC RESOURCES

* National Bureau of Fish Genetic Resources, Canal ring road, P.O. Dilkusha-226002.

Number of seeds produced through natural breeding was not sufficient to fulfill the rising needs of farmers. Von Ihering, Brazil (1937) was the first to develop the induced breeding technique. This brought a revolution in the fisheries sector. Induced breeding of fishes in captive condition has made it possible to meet the needs of the farmers up to some extent. Hormonal intervention method is widely in practice to induce spawning. This method is easier and successful. Photothermal method is also used for same purpose by making manipulations in water temperature. It is done with the help of Chiller, heaters and heat pumps. Pituitary Gland Extract (PGE)/Carp pituitary extract (CPE) is most widely used as a inducing agent, but it has certain limitations. PEG performance is highly variable and depends on collection, handling, storage, maturity and health of donor fish. Usually, whole PGE is injected for hypophysation, but Khan H.A. et. al, 1992 developed a new technique to induced spawning. They injected pars distalis for inducing Ovulation in female Rohu. While, pars intermediate part of hypophysis was used for spermiation in males. It was found that 16.6% more females
and 66.6% more males were spawned. Ovaprime (LHRHa) was found superior to PGE-
HCG Combination. It was observed that fertilization percentage ranged from 70-95%.
Purified Human Chorionic Gonadotropin (HCG) was also found a good substitute as a
maturation-advancing agent. According to trends of research, Ovaprime is a good
Substitute of PGE/CPE and giving better seed production results. Research is going on
to introduce more inducers. There are practices to use inducers and Environmental
conditions in various combinations to develop new technique, breed new species and
enhance seed production. It is widely adopted by researchers and progressive farmers
and industries. It will help to expend aquaculture industry, its productivity and reduced
the pressure upon natural water bodies. Efforts are going on to up more non-carp species
having high commercial demand through NATP. The successful techniques and packages
are required to develop and collaborative efforts are to be made by involving NGO’s,
Universities so that industries take up such programmes and contribute to enrich
technology, food basket, diversity in aquaculture and reduce the pressure upon natural
water bodies.

7. ALTERATION OF RESTING PERIOD OF POLLEN
OF SUCCESSIVE FLOWERS OF PINK-
FLOWERED CULTIVAR OF CATHARANTHUS
ROSEUS BY MINERAL (SODIUM OXALATE) - A
CRITICAL REVIEW

S.A. Salgare and Tessy Mol Antony
Salgare Research Foundation Pvt. Ltd.
Prathamesh Society, Shivaji Chowk, Karjat-410 201 (MS), India

Effect of mineral (sodium oxalate) on the rate of pollen germination and
tube growth of F and F-24 series of pink-flowered cultivar of Catharanthus roseus forms
the topic of the present investigation. The first sign of pollen germination of F series in
sucrose medium (control) and sucrose medium supplemented with sodium oxalate was
noted after one hour of sowing. The pollen of F-24 series required 2 hours to germinate
in sucrose medium, while they showed first sign of germination after one hour of sowing
when the sucrose medium was supplemented with the mineral. Sodium oxalate stimulated
germination of pollen as well as tube growth of either series throughout the experiment.
It also stimulated the rate of pollen germination and tube growth of either series.
cyanobacterium *A. flos-aquae* is capable to cleave inorganic P moiety from complex organic P and the released inorganic P which supported the growth of cyanobacterium. It is interesting to note that PMEase activity of the cyanobacterium in the presence of organic P is indirectly proportional to release of inorganic P and growth. Thus, the cyanobacterium has potential to hydrolyze organic-P and may play an important role in the phosphorous cycling in the natural ecosystem.

44. ACIDIFICATION OF LAND AND INLAND WATER AND ITS EFFECT

* J.K. Chaurasia ** Shireesh Priyadarshi ** R.C. Gupta # A.K. Mishra
** Pushpanjali Singh

* Department of Chemistry
** Department of Zoology, T.D. College, Jaunpur
# National Bureau of fish Genetic Resource, Lucknow-226002

Water samples was collected from 100 different well, pumping sets, hand pumps, ditches, lake, and Gujartal situated at Khetasarai, Jaunpur. The water has analysed to detect the ions, Organic, Inorganic compounds alongwith pH, show the monitoring concentration of Chlorinated hydrocarbon and Heavy metal along with Chlorodanes, Toxaphenes, Polychlorinated dioxine and Dibenzoﬂorofuranose. The Chlorinated hydrocarbon, free chloride ion (Cl\(^-\)), sulphate ion (SO\(_4^{2-}\)) reacting with hydrogen (H\(^+\)) ions give rise hydrochloric acid (HCl) and sulphuric acid (H\(_2\)SO\(_4\)) resulting the decrease in pH of water tending towards acidity and extending toxicity of water by Inorganic and organic compounds. The average value of pH of water sample was recorded as 6.6, and showing the blunder fluctuation from normal value 7.0. The body of chordate retain at pH 7.4, therefore a small change in pH of plasma may be fetal, has increased the possibility of acidosis, would result the disturbance in normal body physiology.

45. EX SITU CONSERVATION OF MEDICINAL PLANTS NALANDA DISTRICT, BIHAR

Raghunath Prasad, Pratima Prasad and A.K. Upadhyay - P.G. Department of Botany, Nalanda College, Biharsharif-803101 (Nalanda), Bihar.

India is rich in biodiversity, much has been described in Ayurveda and other ancient Literature about the indigenuos system of medicine. The country is an important Centre of origin of over 167 important cultivated plant species and domesticated animals.

There is an urgent need for biodiversity rich to sare it against biodegradation.
15th Annual Conference of 
Purvanchal Academy of Sciences 
(PAS)

Abstracts

Held At
T. D. P. G. College, Jaunpur 
November 19 – 20, 2005

Purvanchal Academy of Sciences 
Jaunpur (India)
INCREASED PRODUCTION OF PULLULAN
BY A MUTANT OF Aureobasidium pullulans

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Two mutants were developed by using uv as well as methyl methane sulphonate (mms) designated as uv-1 and mms-mutant. These mutants were compared for pullulan production at different temperature, incubation period and sucrose concentration, organic and inorganic nitrogen sources. It was found that mms mutant was better than uv-mutant at all the levels. The wild type could produce 16.2 g/l pullulan while mms-mutant produced 28.5 g/l at 5 g/l sucrose concentrations for 3 days of incubation. The temperature optimum for this mutant was 35°C in the medium containing C-in medium only (NH₄)₂SO₄ - (0.08%) and yeast extract (0.06%) was added as nitrogen sources. Therefore, mms mutant is highly production strain for pullulan production.

ASSESSMENT OF POLLUTION LOAD AND IMPACT OF ANTHROPOGENIC STRESSES ON PHYSICO-CHEMICAL PROPERTY OF GOMATI RIVER


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Gomati River is one of the major tributary of Ganga takes a Course of 715 km, through 15 districts of U. P. It has an effective catchments of 22735 sq km and provide drinking water to over 1.39 million peoples. Industrial and domestic wastewaters coming from different sources in the river contains high level of metals besides other pollutants. It was observed that due to some important phenomenon such as adsorption, hydrolysis and coprecipitation only a small portion of free metal ions stays dissolved in water while a large quantity of them deposits in sediments. The river water of Gomati is extensively used for bathing washing recreational and religious purposes. The industrial effluents, domestic wastes and municipal sewage are discharged into the river without proper treatment, thus pollutants present in the discharges of the current of water are degrading the quality of water directly and indirectly and also affecting the flora and fauna. Pollutants present in the Gomati may cause toxic effects on the fishes, zooplanktons and phytoplanktons such as behavioral changes and histological damages in various organ systems. In the present study various parameters like physico-chemical property microbial and hydrological observations were determined to assess the water quality. In some cases, the microorganisms present in the riverine system transform these heavy metals into biologically active toxic compounds, which enter in the biological cycles. Heavy metals accumulate in the sediments, these are said to be good indicators of pollution in the rivers. Samples of water and sediment were collected in the month of November 2004 and were analyzed. In case of water, Cadmium could not be detected at any of the identified sites. The presence of Cr, Fe, Mn, Zn was shown in four sampling sites. Cu, Ni and Pb was found at all sites.
DIGENETIC TREMATODES OF FRESH WATER FISHES ON A NEW SPECIES OF THE GENUS Opisthorchis, BLANCHARD, 1895 FROM A FRESH WATER FISH OF GUJARTAL AT JAUNPUR (U. P.) INDIA

H. S. Singh and Sanjay Chaubey
Department of Zoology, T. D. P. G. College, Jaunpur – 222002 (U. P.)

*Opisthorchis gujarai* sp. nov. is described from the intestine of a fresh water fish *Mystus tengara* (Ham.) from Gujartal at Jaunpur (U. P.). It differs from all known species of the Genus *Opisthorchis*, Blanchard, 1895 in having shorter caeca, up to mid level of ovary, well developed tubular and elongated per pharynx, vitalline follicles extends from equatorial region of body up to more or less mid region of posterior testis. Receptaculum seminis per testicular instead of pre ovarian.

*Allolecithocladium Yamagutii* sp. Nov. (TREMATODA : HEMIURIDAE) FROM A MARINE WATER FISH *Cybium commersoni* FROM BAY OF BENGAL AT KANYAKUMARI (T. N.) INDIA

H. S. Singh and Sanjay Chaubey
Department of Zoology, T. D. P. G. College, Jaunpur – 222002 (U. P.)

*Allolecithocladium Yamagutii* sp. nov. is described from the intestine of a marine fish *Cybium commersoni* (Cuv. And Vol.) from Bay of Bengal at Kanyakumari (T. N.). It differs from all known species of the genus *Allolecithocladium* Singh, 1991 in having prepharynx, ventral sucker larger than oral sucker, testis post equatorial and equal, number of vitellaria nine instead of being seven and the ovary bipartite instead of being spherical.

CREATION OF AQUATIC SANCTUARY : IMPORTANT ISSUES FOR DEVELOPMENT

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Natural resources are the basic source of survival for human kind. Recently, there has been a severe pressure on the natural biological resources including aquatic germplasm. Therefore the potential of fresh water aquatic resources is necessary and for this one of the best option is creation of aquatic sanctuary in the potential reverine/streams and other areas. It is true for small geographical unit and at state, country or global level. In India we find a variety of aquatic sanctuary which is still relevant and maintained by only local community and people. Example may be ponds, part of river and other water bodies situated near the temple and other religious places all over country. Changing life style with progress in transportation, consumerism and rise in population raised the frequency and intensity of exploitation of natural resources. Now we find that inland fish production from capture fisheries during period 1985 – 1995 has been reduced significantly (Krishnan *et al.* 1999). Hence, the need arises to protect these resources.

Zoology
IMPACT OF POLLUTED SAI RIVER WATER ON
GERMINATION AND GROWTH OF *Oryza sativa*

Dasharath Singh and Divya Singh
Department of Botany, T. D. College, Jaunpur (U. P.)

The polluted water of Sai river was collected from Jalalpur in between old
Shahi bridge and railway bridge in the month of January. Polluted water was collected
in bottles and brought to the laboratory. Seeds of test plant were imbibed for their full
imbibition period in collected polluted Sai river water. Thereafter transferred to
moistened filter paper in Petri-plates. For control set seeds were imbibed in distilled
water and allowed to germinate on distilled water moistened filter paper. Experiment
was done in laboratory condition. It was reported that treated set of experiment showed
enhancement for germination and growth. Germination percentage and growth was
more in polluted water treated set than control.

EFFECT OF DOMESTIC SEWAGE ON
TILLERING OF *Hordium vulgare* K - 12

Dasharath Singh and Divya Singh
Department of Botany, T. D. College, Jaunpur (U. P.)

Uniformly selected seeds of *H. vulgare* CV - 12 were sterilized with 0.1%
aquous solution of mercuric chloride. Sterilized seeds were thoroughly washed with
distilled water. For treated set seeds were imbibed in the sewage water collected from
Ramdayalganj nala connecting Sai river near the bridge. Seeds of test plant were
imbibed in distilled water for control set. Imbibed seeds were allowed to germinate in
pot containing soil from Tilak Dhari College experimental farm (Pili Kothi) only one
plant in each pot was allowed to study the tillering pattern. Irrigation at suitable time
was done by sewage water and distilled water respectively for treated and control set. It
was reported that tillering was enhanced in treated set i.e. there was more tillering
caused by sewage water than tube-well water.

EFFECT OF BIOFERTILIZER ON THE GROWTH YIELD AND
PRODUCTION OF RICE IN JAUNPUR DISTRICT (U. P.) INDIA

K. N. Mishra and A. K. Mishra
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The manufacturing of chemical fertilizers involves consumption of greater
energy (about 13,500 k cal/kg. N fixed). The use of microbial inoculants (Biofertilizers)
is proved to be non hazardous environmentally safe and economical in agrosoil (Subba
Rao 2001). The enhancement by 32%, 28%, 30% and 44% were respectively observed
in NGR, RGR, Grain production and biological yield of rice (*Oryza sativa*) variety
Pant4 in case of soil application of *Azolla* based biofertilizer. The microbial inoculant
of bacteria and cyanobacteria converting atmospheric inert (N = N) nitrogen gas into
biologically active forms resulting in improved quality and fertility of agrosoil for
sustained and better production of crops. In optimum dose treatment the quality of
grains is also improved. The improvement in growth production, yield and quality of
grains may be due to greater availability of phosphorus created by phosphate
solubilizing bacteria.
प्रौद्योगिकी आणविक तकनीकों की सहायता से रोग लक्षण प्रकट होने से पूर्व ही कारण हो जाती है तथा रोकथाम के उपाय किए जा सकते हैं। कार्य तथा श्रीगु उत्पादन में जीवाणु, विषाणु तथा कच्चे रोगाणु के पहचान के लिए विशेष कित विकसित की गई है, जो कि मत्स्य पालन तथा उत्पादन क्षेत्र में सहायक सिद्ध हुई हैं।

जैव प्रौद्योगिकी तकनीक के प्रयोग से अनुसंधान एवं विकास सर्वाधिक संगठन एवं वैज्ञानिकों को आर्थिक प्रयास करना होगा जो रोग रोकने एवं भारतीय वातावरण के लिए सर्वसाधारण उपयुक्त हो। मत्स्य रोगों की पहचान एवं निदान, आनुवंशिक इंजिनियरिंग द्वारा उन्नत वृद्धि हामी पूर्वोत्तर श्रेणियों के मत्स्य आहार विकास के क्षेत्रों में शोध लाभ प्राप्त होगा।

भारत में कार्य आधारित मिश्रित मत्स्य पालन का आर्थिक मूल्यांकन

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सारांश

भारत में मत्स्य पालन उद्योग एक तीव्र गति से विकास करनेवाले उद्योग के रूप में उभर कर सामने आया है और पिछले दो दशक में इसके मत्स्य उत्पादन में उल्लेखनीय प्रगति हुई है। इस उद्योग को भारत के विभिन्न क्षेत्रों में विकास करने हेतु इसकी आर्थिक का आकलन आवश्यक है। भारत में मत्स्य पालन विशेष रूप से कार्य मचलियों पर आधारित है। मत्स्य उत्पादन का लगभग 90 प्रतिशत भाग देशी ब.