

NATIONAL CONFERENCE ON



ENVIRONMENT AND BIODIVERSITY: CHALLENGES AND STRATEGIES IN 21st CENTURY



Abstracts & Souvenir



EBCS-2020

2nd-3rd March 2020

SUPPORTED BY



University Grants Commission

ORGANIZED BY
Department of Zoology,
Agra College, Agra

In Collaboration with













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Dated: 25.02.2020



MESSAGE

I am pleased to know that Agra College, Agra, Uttar Pradesh is organizing a national conference on "Environment and Biodiversity: Challenges and Strategies in 21^{st} Century" on 2^{nd} and 3^{rd} March, 2020. On this occasion, the college is planning to bring out the conference proceedings.

The theme of the national conference is highly relevant in the present context. The conference will provide a platform to the academicians, environmentalists, industry experts and researchers to discuss and exchange their innovative ideas regarding environmental issues in present perspectives and to find out possible solution to various problems. Preservation of environment has become a tough task when various factories and other sources are emitting the pollutants, inspite of preventive laws being in vogue. So we all need to create awareness for sustainable environment and conservation of the natural resources, plant, animal and species. It is expected that the conference will yield constructive results.

I extend my best wishes to the organizers of the national conference and the participants and wish the publication every success.

(Prof. D.P. Singh)

प्रो.एस०पी० सिंह बहोल संसद सदस्य लोकसभा आगरा



44, एम0आई0जी0 न्यू शाहगंज, साकेत, आगरा दुरभाष : 0562.2213422

Dated: 22.02.2020



MESSAGE

It gives me immense pleasure that Agra College. Agra the most ancient institution of our nation, affiliated to Dr. B.R. Ambedkar University, Agra is going to organize a national conference on "ENVIRONMENT AND BIODIVERSITY: CHALLENGES AND STRATEGIES IN 21ST CENTURY" on 2-3 march 2020. This conference has multidisciplinary approach with involvement of diversified stakeholders who are working in the field sustainability of environment and biodiversity. This mega event will enrich the participants with new research ideas in direction to curb environmental deterioration and loss of biodiversity. There will be a number of delegates and invitees who will address their speeches loaded with output of their research output.

The conference will provide a splendid platform for exploring new ideas and technologies.

I wish for grand success of this conference.

Enforce of s (Prof.S.P. Singh baghel) प्रो. एक अं! भिक्त चियल संगर साम्य लोकसभा

चौ0 उदयभान सिंह

राज्य मंत्री सूक्ष्म, लघु एवं मध्यम उद्यम, खादी एवं ग्रामोद्योग, रेशम उद्योग, हथकरघा एवं वस्त्रोद्योग तथा निर्यात प्रोत्साहन



कार्यालय : जी—1 / 4, चतुर्थ तल, बापू भवन सचिवालय, लखनऊ — 226001

> कार्यालय : 0522—2235272 सी0एच0 : 0522—2214821

दिनांक : 22.02.2020



MESSAGE

I am very glad to hear that Agra College, Agra the most ancient, precious institution of north India is going to organize a national conference on "ENVIRONMENT AND BIODIVERSITY: CHALLENGES AND STRATEGIES IN 21st CENTURY" on 2-3 march, 2020 to grow different attitudes and aptitudes towards research and scientific disposition. The topic of conference is very relevant and need of hour especially for youth of nation. Idea of conservation of environment and biodiversity will aware and sensitize mankind towards eco friendly development. The issue of food security can only be sustained by stability of environment and biodiversity.

The conference will provide a venture for scientists and scholars to discuss new areas of concerned theme.

I extend my greetings to the organizers and participants and wish the conference every success.

(Ch. Udaybhan Singh)

Emeritus Scientist (C.S.I.S.)



Department of Toxicology Ch. Charan Singh University, Meerut – 250004 INDIA

Dated: 20.02.2020



MESSAGE

I am pleased to know that a conference on, "Environment and Biodiversity: Challenges and Strategies in 21st Century," will be organized at Agra College, Agra on 2nd and 3rd Feb 2020. The theme selected by the conference organizers is of immense importance in national as well as global context. The entire planet is passing through a state of Climate arid ecological emergency. Mass extinctions of species is likely to occur in this century. Therefore, deliberations on these issues are the demand of the day,

I anticipate constructive and meaningful outcome from this event. I wish the conference a great academic success.

(S.V.S. Rana)

Dr. Vinod Kumar Maheshwari

M.A. (English, Hindi), Ph.D., D.Litt. (English)

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Date: 24-02-2020



MESSAGE

New ideas in Science are induced by new discoveries that take you beyond the triumph, extending a helping hand for society. I am glad to know that Zoology Department of our college in association with other organizations is organizing a National Conference on Environment and Biodiversity Challenges and Strategies in 21st Century (EBCS-2020). I extend my heartfelt warm welcome to all experts, faculty members, participants and delegates to attend this two day academic endeavor. The participants will be benefited by experiences & researches of academicians in respective field.

I bestow best wishes to all the team members/organizers for the grand success of the Conference.

(Dr. Vinod Kumar Maheshwari)

Dr. K.P. Tiwari M.Sc. Ph.D. (Physics) M.Ed., Ph.D. (Education) Depatment of Physics, Agra College, Agra



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Date: 24-02-2020



MESSAGE

National Conference on Environment and Biodiversity: Challenges and Strategies in 21st Century (EBCS-2020) is a global forum for researchers and participants to present and discuss the most recent innovations, trends, results, experiences and concerns in the several perspectives of environment and biodiversity. It gives me an immense pleasure to be a part of this academic endeavor organized as a joint effort of Zoology Department of our Agra College and several other organizations working in this field supported by University Grants Commission, New Delhi. An overwhelming response of researchers, resource persons, scientists, experts, teachers, academicians, scholars and other intelligentsia engaged in respective fields from different parts of country, for participation at this platform is very encouraging.

Sustainability in the biodiversity and environment became huge problem and challenge today before each segment of human society. This need is actually the pivotal point of this conference. I am sure that the presentations and discussions here will pave the way for a better future, as the **great scientist**, **Albert Einstein has said** 'learn from the yesterday, live for today and hope for tomorrow'.

I wish all the participants for enriching experiences and a purposeful stay.

(K.P. Tiwari)



जवाहरलाल नेहरु विश्वविद्यालय

JAWAHARLAL NEHRU UNIVERSITY

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Dated: 25.02.2020



MESSAGE

I am delighted to know that Department of Zoology, Agra College, Agra is organizing National Conference on "Environment and Biodiversity Challenges and Strategies in 21st Century" (EBCS-2010) during 2-3rd March 2020, in collaboration with Pushpanjali Group, Yashwant Hospital, The Green Education, Kalp Laboratories, Council of Research and Sustainable Development, Indian Association of Music Therapy.

The conference provides a multidisciplinary platform for the scientists, faculties and young research scholars of different institutes and universities to present their research findings, and interact with expertise of the field on different challenges faced by our generation in management of environment and biodiversity. Since the theme of the conference covers wide spectrum of topics, it provide opportunity for larger participation.

I am sure that the participants will be immensely benefitted by acquiring new thoughts and ideas of advance research to face the present and future challenges.

I offer my heartiest congratulations to the organizers and wish the Conference a grand success.

Paulraj R.



DR. BHIMRAO AMBEDKAR UNIVERSITY, AGRA

(Formerly Agra University, Agra)

Dr. Ajay Taneja

Ph.D. FICC, FICS, MNASc.

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Joint Secretary Indian Council of Chemist (ICC) E-mail: jointsecretary@gmail.com

Dated: 25.02.2020

MESSAGE

I am happy to learn that Department of Zoology, Agra College, Agra is organizing a National Conference on "Environment and Biodiversity: Challenges and Strategies in 21st Century" from 2nd to 3rd March 2020. I congratulate the organizers for selecting the theme which is very relevant in the present day context. I am sure that the conference will provide an opportunity to the researchers to discuss various strategies, interventions and breakthroughs in the field of Environment and biodiversity.

I once again extend my greetings and best wishes to all the participants and wish their endeavors very best.

(Pof. Ajay Taneja)

Girish Maheshwari
Principal Investigator, DST, DBT & ICMR Projects
Director IQAC, convener Steering Committee &
coordinator NAAC



Head, Dept. of Zoology School of Entomology St. John's College, Agra Email:girish_maheshwari@yahoo.com M.No. 91-9412723123

Dated: 24.02.2020



MESSAGE

I congratulate to the Department of Zoology, Agra College Agra for organizing two days national conference on "Environment and Biodiversity: Challenges and Strategies in 21st Century" On 2-3 MARCH, 2020. This is the high time to organize this type of events related to deterioration of environment and biodiversity loss.

As apparent from the programme of the conference that their major concern is environment protection, global warming, climate change and loss of biodiversity. All these issues are in the priority list of the national and international agencies. I am sure that participants shall discus all these vital issues and the congress will reach to a concrete conclusion.

I wish all success to the organizing committee for coming venture

(Girish Maheshwari)



Deparment of Zoology, Agra College, Agra Pin: 282 002 (U.P.)

Dated: 24.02.2020



MESSAGE

It is a great privilege for me to welcome all the dignitaries, delegates, students and participants to this two day national conference on perceptible theme "ENVIRONMENT AND BIODIVERSITY: CHALLENGES AND STRATEGIES IN 21ST CENTURY" on 2nd-3rd march, in Agra College, Agra. Today, environment is facing many challenges for its existence and conservation of environment is the demand of present times. Several species of animals and plants have depleted and become extinct. Environmental challenges are being experienced globally. There is requirement of appropriate strategies to meet such environmental threats. This conference will train the minds of the participants from multidisciplinary areas to face various environmental problems.

To best of my belief, this conference will bring positive results and give solution to the environmental threats and challenges of present times. I congratulate the participants of this conference and wish them immense success for their useful work and thank all eminent speakers for sharing their knowledge.

Dr. Amita Sarkar (Co coordinator EBCS 2020)

melálore

M.Sc., Ph.D. Associate Professor



Deparment of Zoology, Agra College, Agra Pin: 282 002 (U.P.)

Dated: 25.02.2020



MESSAGE

Dear Friends,

It gives me distinct pleasure to write a message for forthcoming National Conference entitled as, "Environment and Biodiversity: Challenges and Strategies in 21st Century ',2-3rd March, 2020, being organized by Department of Zoology, Agra College, Agra. As the convener of the congress, I can fully understand the significance of worthily protection of environment and biodiversity and aptly coined conference theme Environment and Biodiversity reflects the importance of diversity conservation succinctly. The scientific programme of the conference reflects its rich qualitative academic contents and I am also able to envisage its great potential to discus and learn science and practice of conservational strategies. It is important to develop an attitude towards research and capacity building in the proposed field of the conference, so that future strategies for conservation of rich biodiversity of the country can be developed.

I am sure that the conference will provide a common platform for academicians, researchers, young workers, general public and policy makers to discuss various aspects of the congress and the findings of this event will go hand to hand to the field and society.

I am sure that the congress will be highly fruitful to all of you.

(Dr. Geeta Maheshwari) Convener



Deparment of Zoology, Agra College, Agra Pin: 282 002 (U.P.) M.No.: 09411404945

Dated: 25.02.2020



MESSAGE

It gives me pleasure to welcome all the experts, academicians, research scholars, delegates, students and all participants to this two day national conference on discernible theme "ENVIRONMENT AND BIODIVERSITY: CHALLENGES AND STRATEGIES IN 21ST CENTURY" on 2nd -3rd march ,with multidisciplinary approach, in Agra College, Agra .

Environmental problems are being faced everywhere globally. Life is becoming tough for living beings as they are facing environmental threats. Biodiversity across the world has been facing challenges for their existence. They have been assigned status like 'endangered', 'vulnerable' and 'extinct'. Anthropological activities and undesirable choices harm them in many ways. At the same time by virtues of researchers different strategies and technologies are coming up for their preservation, conservation and sustainability.

To the best of my knowledge, this conference is going to present some of the best ideas and knowledge by academicians. This conference will going to provide a shareable dais for scientists, researchers, academicians, environmentalists and biodiversity conservators from each nook and corner of our nation where they must be going to propagate experimental and practical approved outputs of their doings to each segment of society. Apart from this participants will have fruitful discussions and results and this intellectual practice will benefit them from innovative research ideas of experts of their respective arena. I thank all the participants for bringing out their work and innovative thoughts. I congratulate them for their participation and wish them success in their ventures.

Dr. Vishwakant (Organizing Secretary)





ELECTROMAGNETIC RADIATION (MOBILE PHONE RADIATION) AND ITS HEALTH IMPLICATIONS

Rohit Gautam, Kumari Vandana Singh, Sonali Pardhiya, Jai Prakash Nirala, J. Behari, Paulraj R*

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ABSTRACT

Recent advancements in telecommunication sector results in increasing exposure to electromagnetic radiation.. These have become one of the most ubiquitous components of the spectrum of the human environment, and the possibility that they may affect human health, which is major public concern. Therefore, the present study was aimed to analyze the effect of electromagnetic radiation (2.115 -16 GHz) exposure on brain and reproductive system of male Wistar rats.

Animals were exposed to mobile (2115MHz) radiation and other radiation (2.45-16.GHz) for 2 hrs/day for 45 days in a specially designed exposure set up (anechoic chamber) under standard conditions. On completion of exposure period, animals were sacrificed whole brain, hippocampus, and hypothalamus tissue were dissected out and used for estimation of DNA strand breaks, PKC and ODC activity. Epididymis was removed and various sperm parameters such as sperm cell count, head and tail morphology, cell viability, membrane integrity, mitochondrial activity were analyzed. Brain and testis histopathology and seminiferous tubular diameter were evaluated. Different oxidative stress parameters such as SOD, GSH, TAC and Lipid peroxidation were measured. Free radical level (reactive oxygen and reactive nitrogen species) was determined by EPR spectroscopy.

The results indicate a possibility that this type of radiation may affect DNA damage as well as growth related enzymes such as PKC and ODC, which are associated with the cell proliferation and differentiation.

Exposure to radiations did not induce significant changes in the body to organ weight ratio. However, the exposed group showed changes in sperm parameters such as decrease in sperm count, viability, motility, mitochondrial function and decrease in seminiferous tubules diameter. Histopathological examinations demonstrated a reduced number of spermatogenic cells and transmission electron microscopy (TEM) showed alterations in sperm membrane. Additionally, significant changes in oxidative stress parameters were observed in exposed group of rats. Likewise, EPR analysis suggested an enhanced free radical generation in exposed group of rats as compared to control counterpart.

The study thus conclude that exposure to Electromagnetic Radiation (EMR) may lead to oxidative stress which induces biochemical and morphological changes in rat brain and sperm.

IS POLLUTION INDOORS THE VISIBLE MENACE

Ajay Taneja
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ABSTRACT

According to recent Environmental Performance Index (EPI), India ranks 177th out of 180 countries with poor air quality score of 30.75. This is linked to poor performance in the environment health policy and deaths due to air pollution categories where a substantial amount of share is contributed by indoor air pollution related deaths. Recent findings across literature have enunciated the fact that indoor air is often more polluted than outdoor air. India is undergoing rapid urbanization and industrialization where indoor air quality is strongly influenced by motor vehicles and industrial sources outdoors as well as smoking and gas cooking indoors. Although household and ambient air pollution are considered separately in deriving estimates of disease burden, they are both comprised of many of the same pollutants and often co-exist. One of such pollutant is PM2.5 that is regarded as the best studied, most consistent and robust predictor of mortality in studies of long-term exposure to air pollution.

This presentation deals with the issues of IAP through a glimpse of few studies done in North Central part of India (Agra) region in homes and buildings located in different microenvironments i.e., rural, urban and roadside during last ten years. It also covers the need of size segregated analysis to provide a basis for precise examination of the relative contribution of sized PM as well as chemical components. The work too includes the emerging issue with and future scenarios of the current pollution status in Indian context. It concludes with various remediation strategies and policy abatement by different governmental agencies in pollution control methods and technologies.

INSECT BIODIVERSITY OF OLIGOTROPHIC WETLANDS OF NORTHWEST HIMALAYA, INDIA – AN EVOLUTIONARY APPROACH

*Girish Maheshwari and Geeta Maheshwari,

*School of Entomology, St. John's College, Agra Zoology Dept., Agra College, Agra

ABSTRACT

Biodiversity of high altitude wetlands of the Northwest Himalaya is very poorly understood so far and only fragmentary information are available. Himalayan wetlands are of the oligotrophic nature and all are situated 3500m. above msl. They includes Tso Moriri, Tsokar, Startaspuk Tso, Kyagar ,Yeye Tso, Pangong Tso, Chanratal, Surajtal, Dashauhar and Brighu. Present investigation shows that these water bodies harbor more than 80 hipsobiont species belong to Diptera, Ephemeroptera, Trichoptera and other aquatic fauna. Two Crustacean families also constitute peculiar fauna of these wetlands. Species diversity of these water bodies shows the following results:

ETC. UP to	81 species
Total no. of individuals	12099
Simposon's Diversity (1-D)	0.953 (For finite population)
Reciprocal of Simpson's diversity (1/D)	20.730 (N(2))
*Shannon-Weiner diversity (H')	4.863 bits per individual
No. of equally common species $(N(1))$	29.10
**Brillouin's diversity (H)	4.816 bits per individual.
Maximum possible diversity	
Simpson (1-D)	0.981 (Evenness= 0.970)
Shannon-Weiner	5.728 (Evenness= 0.849) (H/H _{max})
Brillouin	5.675 (Evenness= 0.849) (H/H _{max})

Insect has great importance in the field of nature conservation. This is the high time to spread the message that insect are not simply pest of agriculture, human and other animals but are significant component of food webs, they help in matter circulation in the aquatic bodies , well established pollinators and highly useful bioindicator to pinpoint the changes in the environment. Therefore, they need worthily protection and conservation.DNA conservation of each species will be a useful strategy for future and these data may prove as the gold standard for biodiversity monitoring. An attempt has been made to explain the pattern of diversity of Insect based especially on metabarcoding.

ECOLOGY, ENVIRONMENT AND BIODIVERSITY OF THE EPIC RAMAYANA PERIOD COMPOSED BY MAHARISHI VALMIKI

Ravi Sharma

Formerly Head Department of Botany, K.R. College, Mathura; Ex-Founder Principal ESS ESS College of Education Dayalbagh, Agra and

Retired Professor Botany Agra College, Agra (Dr. B. R. Ambedkar Univ., Agra Formerly Agra University, Agra) UP India E-mail: drravisharma327@yahoo.com Mob: 9897258005

ABSTRACT

All living beings existing on earth along with plants, animals, microbes, soil, water etc., that is, the different life forms, their genes and ecosystems make up the biodiversity of the earth. So also in the ancient Indian Epic Ramayana there are references of the ecology, environment, biodiversity, the geography, forestry, the flora and fauna, mentioning large number of plant and animal species. The value and wonder of biodiversity in the Ramayana has been described beautifully and is replete with superb descriptions of nature's glory. It revolves around two major events, viz., Rama's fourteen year exile in the forests and the rescue of Sita from captivity in Lanka. There were dense forests in Naimisharanya, Chitrakoot, Dandakaranya, and Panchavati which abounded in wildlife. Further, the Ramayana is geographically very correct as every site on Rama's route is still identifiable with several plants and animal species that had been mentioned in the Ramayana still existed in the same places. The stage of the epic includes a wide swathe of territory that stretches from present day Uttar Pradesh through Madhya Pradesh, Maharashtra, Karnataka, Tamil Nadu, Kanyakumari and Rameshwaram up to Sri Lanka beyond the sea. The area covers four major ecosystems, namely, the tropical deciduous forests, the dry and moist deciduous forests, the Alpine region of Himalayas, and the evergreen tropical rain forests of Sri Lanka with details of geographical distribution, principal flora and fauna, water elements and their environmental importance. Thus, the authenticity of the flora and fauna in Valmiki's Ramayana is a fascinating source for study of the changing ecology of Rama's route from Avodhya to Sri Lanka between epic period and today. The paper presents vivid account of plant and animal life mentioned in *Ramayana* one of the two great epics of our country. This study will be useful to eco-development of the region and would be an impetus for further research.

Keywords: Ramayana, Ecology, Environment, Biodiversity, Forest types, Flora, Fauna

ENVIRONMENTAL EDUCATION FOR QUALITY ENHANCEMENT OF SUSTAINABLE DEVELOPMENT

Dr. Gaurang Misra

Associate Professor, Department of Physics Agra College, Agra Email: gaurang_misra@rediffmail.com

ABSTRACT

Environmental Education (EE) is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and take responsible decisions. EE is a multidisciplinary field that integrates subjects such as Biology, Ecology, Geography, Earth Science, Physics, Chemistry, Mathematics, and others. It aims to teach how the natural ecosystem functions and how it can be managed effectively to create a sustainable development for all to live in.

The Human impact on the earth's ecosystem has led to the constant degradation of the environment which has resulted in a global climatic change. The UNESCO (United Nations Educational, Scientific and Cultural Organization) states that in order to safeguard the future global developments of societal quality of life, a widespread environmental awareness has to be enhanced. EE can help to make the people aware of how their actions impact the environment and how it can be minimized.

EE is not just a part of the school curriculum that is taught to students, but it also includes generating public awareness by the use of print media, media campaigns, websites, and others. Many zoos, aquariums, parks, and observatories include information about the environment and their impacts on the life forms that is imparted to the visitors.

In the present discussion I propose to discuss the EE's history, its components, objectives, goals and scopes along with the underlying principles of sustainable development. EE furnishes individuals with the mindfulness required to build up organizations, comprehend NGO exercises, create participatory methodologies to urban planning, and guarantee future markets for eco-business. The concluding remarks will emphasize the role of teachers in EE.

A WAY FOR AGROCHEMICAL FREE AGRICULTURAL: BACILLUS SUBTILIS BIOCONTROL AGENT

Touseef Hussain* and Yagyavalkya Sharma

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ABSTRACT

In the last decades, different researchers have studied the replacement of chemical pesticides by natural components of different plant and microalgal sources as insecticide agents, acaricide agents and fungicidal agents. Bacteria are the main biological agents that have been studied for the management of plant pathogens, particularly soil-borne fungi. Plant pathogens are the main threat for profitable agricultural productivity. Currently, chemicalbased pesticides are thought to be an effective and reliable agricultural management measure for controlling pests. Chemical pesticides are highly effective and convenient to use but they are a potential threat for the environment and all kinds of life on earth. Therefore, the use of biological control agents for the management of plant pathogens is considered as a safer and sustainable strategy for safe and profitable agricultural productivity. Similarly, they also play a role in soil fertility, soil reclamation, bio controlling of agricultural pests, and formation of microbiological crust, agricultural wastewater treatment and recycling of treated water. The agriculture production totally depends on the fertility level of the soil. Bacillus subtilis can secrete active substances, activate plant defence systems, enhance crop immunity and disease resistance, and reduce or eliminate the harm of pathogenic bacteria to plants. It can also promote the growth and development of a variety of plant seeds, seedlings, roots, and enhance the disease resistance of plants, thereby indirectly reducing the occurrence of diseases. In this talk we will discuss the more possible use of natural molecules collected from Bacillus for a better and safer

Keywords: Agriculture, Biocontrol, Bacillus, Bacteria, Plant Pathogens

POTENTIAL OF NATURAL NEUROPROTECTIVE PHYTOMEDICINES TO MITIGATE THE HUMAN MENTAL AND COGNITIVE HEALTH.

Dr. Arun Pratap Sikarwar

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ABSTRACT

In the ongoing 21st century, a growing attention has been given to traditional medicine once again. Our mother nature has bestowed mankind with enough resources of natural products on land and water. Natural plant products have a significant role in the prevention of disease and boosting of health in humans and animals. Several of natural plant products have been experimentally reported to manifest various biological properties such as antioxidant, anti-inflammatory, anti-tumor, and anti-apoptotic activities. In vitro and in vivo studies have further established the usefulness of phytomedicines in various preclinical models of mental and neurodegenerative disorders. Natural plant products include phyto-constituents e.g. polyphenolic antioxidants found in herbs, fruits, nuts, vegetables etc. In Ayurveda or traditional medicines, a large number of plants have been used to cure neurodegenerative diseases such as Alzheimer's disease, Parkinson's diseases, schizophrenia, memory related disorders, neurodegenerative disorders and other mental and cognitive disorders.

The large-scale neuro-pharmacological activities of natural products have been documented due to the result of either the inhibition of inflammatory processes, or the upregulation of various cell survival proteins or a combination of both. Bacopa monnieri, vernacular name as Brahmi, has been extensively used as a neuromedicine for various disorders such as anxiety, depression and memory loss. Similarly there are several such phytomedicines being used by humans since ages which are associated with human mental and cognitive health purpose.

SEDIMENTS ARE GOOD INDICATORS OF THE INPUT OF METAL IN TO THE RECEIVING WATER OF YAMUNA RIVER, AGRA

#Dr Susan Verghese P and Dr Anjali Misra

Head , Department of Chemistry, St.John's College, Agra Asst. Profssor, Department of Chemistry, Gujrat

ABSTRACT

Heavy metals gain access in river system from nature as well as from anthropogenic sources and get distributed in water, suspended sediments and sediments during the course of The horizontal distribution of heavy metals in the top layers of the sedimentary column has been proved to be useful in tracing sources and dispersal patterns of metal pollutants in aquatic environment. The heavy metals like Pb, Cd, Cu,Ni, Co,as well as other chemical parameters of the sediment have been analyzed by multivariate statistical method in order to explain the behaviour of the heavy metals in the zone. Indeed sediment shows a high capacity to accumulate and integrate on time. The low concentrations of trace elements in water allow the determination of metals even when levels in water are extremely low. The enrichment rate of pollutants in river sediments reflects the upstream contamination sources. The concentration of seven heavy elements viz. Co, Fe, Mg, Cu, Ni, Cd and Zn, in water and bed sedimentsof river Yamuna have been studied for the stretch from Kailash Ghat to Raja Bhoj ka Ghat has been receiving industrial as well as domestic sewage analysis of a number of a sediment samples collected from the river bed and river showed that it is contaminated with Cu, along with other heavy metals. Copper ,the most common among the heavy metal, is toxic to aquatic lives, in trace amounts if present in the water system and sediment of river. The sediments of Yamuna river which receives industrial effluents from factories ,electroplating units etc ,besides partially treated and untreated sewage is rich in heavy metals like Cu, Pb, Ni, Cd, Fe, and Zn. The municipal waste discharged in to the river through drains are responsible for the higher values of heavy metals of the river. The Yamuna river is under the stress of urbanization, industrialization. The five dyes based metallic elements namely, Mn, Cu, Fe, Cd, Hg, and Zn were recorded in river water and sediments above the permissible levels. Study carried out by using sensitive, and accurate instrumental analytical techniques for the determination of heavy metals in the sediment and in water sampled in the Yamuna river by employing Atomic absorption /emission spectrometer and a comparison was made by evaluating the analytical parameters of merit eg.precision, accuracy, sensitivity, and detection limit. A very high correlation was observed between Cu/Mn, Fe/Pb. A high correlation were noticed between Zn/Mn, Pb/Cu, while moderate correlations were found between Cr/ Pb, Fe/Cr, Cd/Cr, Cr/Cu, Cr/Z and Cr/Ni, Pb/Mn, Mn/Fe, Mn/Ni, Pb/Zn, Pb/Ni, Cu/Fe, Fe/Ni, Zn/Cu, Zn/Ni. This correlation clearly indicates their possible common sources from heavy minerals or from urban centers as well as their common s ink in stream sediments. The redox sensitive Fe and Mn hydroxides under oxidizing condition are significant or concentrating metals in aquatic system.(Horo witz,1991)

ALIEN SPECIES DISPLACING LOCAL FISH IN RIVER YAMUNA

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ABSTRACT

Study reveals that the use of Yamuna river water for the purpose of hydal projects, irrigation and drinking purpose and water pollution are the main threats affecting the habitat of native species and has provide a favorable environment for the alien fishes. It has been recorded that presence of exotic fishes gradually establishing themselves as a breeding population replacing the Indian Native Fish Fauna. Alien fish species were originally introduced illegally for aquaculture purposes, but have subsequently spread to many other watercourses, presumably due to natural dispersal and human activity. These species have the ability to establish, invade and compete with native fishes leading to high abundance in the new environments following their introduction. Many of the species affect biological diversity and strongly influence surrounding native fishes; thus, they are considered invasive in Indian waters. Alteration of the habitat structure in river Yamuna has provided a favorable environment for the exotic species. Significance presence of Oreochromis nilocticus, Cyprinus carpio, Hypopthalmicthys molitrix and Clarias geripineus is evident in majority of the river stretches and gradually establishing themselves as a breeding population replacing the Indian Native Fish Fauna. The "deliberate or accidental introduction" of the alien species was identified as a key component of the human induced biodiversity crisis that is harming native species and disturbing the ecosystem processes.

A preliminary record shows that 48-fish species belonging to 13-families. In my observation reported 20 species of fish species in river Yamuna at Mathura, including 4-Invasive Alien fish species (belong to 2-families) viz. Oreochromis nilocticus, Cyprinus carpio, Hypopthalmicthys molitrix and Clarias geripineus. Abundance of these species is recorded due to less stressed condition which reflects the dominance in terms of biomass than any other species. It also recorded the degraded environment condition; resulting the gradual depletion of native fish species. The greater the incidence of introduction of alien fish species in a region, the higher the probability that some of them become invasive and cause ecological or economic damage. The entire stretch of the Yamuna is used for human activities, including fisheries through which the state department earns substantial revenue by leasing out stretches of the Yamuna to fishermen's societies. Given the significant irreversible environmental and socio-economic damages at the genetic, species and ecosystem levels caused by invasive fishes quantifying their incidence and impacts is an utmost fisheries management priority. Therefore, our aim is to document the distribution of alien fish species in the Yamuna River, to assess their ecological impact as reflected by potential declines in native fishes. According to a new study by the National Bureau of Fish Genetic Resources human activities have wiped out the native fish species of the Yamuna and alien fish species are now dominating the 950-km stretch of the river and affecting yields.

Keywords: Invasive alien fish, Yamuna river, Native fish fauna

ASSESSMENT OF WATER CONSUMPTION IN DIFFERENT DOMESTIC ACTIVITIES IN VILLAGES OF AGRA

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ABSTRACT

The study was conducted in the 20 Villages situated near by the Agra region to estimate the water consumption in the domestic activities at household level & capita level. Whole experimental area is divided into 5 main sites comprising 4 villages each site. Participatory Rural Appraisal (PRA) technique was used for collecting data through personal interview, focussed group discussion & direct observation. The Average consumption of water per household per day in different domestic activities at different sites was found 577.2 liter/day & Average consumption of water per capita per day in different domestic activities at different sites was estimated 77.8 liter/day which was just double from given Ideal village standards in villages of Agra(National rural drinking water program.2010).

Keywords: Water, Agra, consumption, Village



ULF WAVE AND ITS THEORITICAL DISCRIPTION

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ABSTRACT

Ultra low frequency (ULF) waves incident on the Earth are produced by processes in the magnetosphere and solar wind. These processes produce a wide variety of ULF hydromagnetic wave types that are classified on the ground as either Pi or Pc pulsations (irregular or continuous). Waves of different frequencies and polarizations originate in different regions of the magnetosphere. The location of the projections of these regions onto the Earth depends on the solar wind dynamic pressure and magnetic field. The occurrence of various waves also depends on conditions in the solar wind and in the magnetosphere. Changes in orientation of the interplanetary magnetic field or an increase in solar wind velocity can have dramatic effects on the type of waves seen at a particular location on the Earth. Similarly, the occurrence of a magnetospheric substorm or magnetic storm will affect which waves are seen. The magnetosphere is a resonant cavity and waveguide for waves that either originate within or propagate through the system. These cavities respond to broadband sources by resonating at discrete frequencies. These cavity modes couple to field line resonances that drive currents in the ionosphere. These currents reradiate the energy as electromagnetic waves that propagate to the ground. Because these ionospheric currents are localized in latitude there are very rapid variations in wave phase at the Earth's surface. Thus it is almost never correct to assume that plane ULF waves are incident on the Earth from outer space. The properties of ULF waves seen at the ground contain information about the processes that generate them and the regions through which they have propagated. The properties also depend on the conductivity of the Earth underneath the observer. Information about the state of the solar wind and the magnetosphere distributed by the NOAA Space Disturbance Forecast Center can be used to help predict when certain types and frequencies of waves will be observed. The study of ULF waves is a very active field of space research and much has yet to be learned about the processes that generate these waves.

Keywords: Cavity modes, file line resonances, MHD, magnetic storm, magnetosphere, pulsations.

COLEOPTERANS CONTROLS NUTRIENT CYCLING IN AN ECOSYSTEM THROUGH DETRITUS FEEDING

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ABSTRACT

The particulate materials which typically include bodies or fragments of bodies of dead organisms and their fecal matters termed as detritus. Organisms which feed upon detritus are known as detritivores. Due to their accessibility and ease of manipulation, the detritivores have best-demonstrated effects on ecosystem processes. As we are aware that all energy fixed in primary production and biomass produced as producers or consumers eventually becomes available to detritivores and decomposers. The critical role of these organisms for the turnover of detritus for the reuse of nutrients by autotrophs has been recognized as early as in 1961 by Engelmann. It has been pointed out that the detritivores are responsible for up to 80% of total decay rate. In the absence of detritivores, biotic detritus would accumulate which will eventually creat a bottleneck in nutrient cycling and further it will inhibit primary production. Although some vertebrates function as scavengers of vertebrate carcasses, virtually all detritivores are arthropods and most of them are small. Coleopterans are one of the largest groups of arthropods contributing as detritivores. Among them, the largest ones are elephant beetle, Megasoma elephas and Plagionotus detritus, larvae of which feed in/on standing or fallen trunks and thick branches. Scarab beetles and ground beetles are transient members of detritus food web which spend only a part of their life cycle. Moreover, Carabid beetles have been found as dominant detritivores macroarthropods in no-tiling systems. In another observation, the dung beetles communities have been found to influence the associated ecological processes such as dung composition and incidental soil bioturbation in controlled logging ecosystem. Hence, Coleopterans play a pivotal role in the process of inoculation with saprophagous microorganisms which completes the decomposition and mineralization of detritus that make nutrients available for plant uptake.

Keywords: Coleoptera, detritivores, decomposer, scarab beetles, microorganisms

STUDIES ON DIVERSITY, RELATIVE ABUNDANCE AND HABITAT ASSOCIATION OF AVIAN FAUNA IN MAJANG FOREST BIOSPHERE RESERVE IN GAMBELLA REGION, SOUTHWEST ETHIOPIA

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ABSTRACT

An ecological study was carried on the avian fauna in Majang Forest Biosphere reserve from February, 2017 to December, 2017 for both dry and wet seasons to assess diversity, distribution, relative abundance and habitat association. Sampling sites were stratified based on the vegetation type and area cover of three habitat types: forest, grassland and wetland. Point count method was employed for forest habitat and line transect method was used for grassland and wetland. Data were collected early in the morning (6:30 a.m. to 10:00 a.m.) and late afternoon (3:30 p.m. to 6:00 p.m.). Shannon-Wiener diversity index (H') was used to compute species richness, species evenness and species diversity of avian in the study area. A total of 205 avian species belonging to 45 families were identified in the study area during the wet and dry season surveys. Diversity index (H') and evenness (E) of bird species varied between the three habitats. The highest diversity was observed in the natural forest habitat (H'= 4.98) and relatively, the lowest diversity index was observed in the Wetland area (H'= 4.63). Simpson similarity index (SI) of the three study sites in showed that forest and grassland areas have a higher similarity index (0.4) compared to a lower similarity index that was observed between natural forest and grazing areas (0.2 and 0.26, respectively) During the study period season data collection, 63 bird species were recorded only one habitat type, 184 bird species were recorded in two habitat type and 71 bird species were recorded in all habitat types. Chi-square test for habitat association of bird species indicated that the distribution of avian species was strongly associated on the type of vegetation at significance level (p<0.005).

Keywords: Birds, diversity, relative abundance and habitat association

EFFECT OF CLIMATE CHANGE ON BIODIVERSITY-DISEASE RELATIONSHIP-TRENDS AND CONSEQUENCES

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ABSTRACT

How changes in biodiversity alter the transmission of infectious diseases is presently under debate. Epidemiologists and ecologists have put a lot of effort to understand the mechanism behind biodiversity-disease relationship. Two important mechanisms, i.e. dilution and amplification theories have in some manner made it clear that biodiversity and disease outcome have an intimate relationship. The dilution effect theory seems to answer some overarching questions, but paucity of information about many disease systems is a real obstacle for its acceptance. Also, there is hardly any agreement on host population threshold and critical community size vis-a'-vis wild life diseases. Climate change may have variable effects on different diseases; some diseases may be sensitive to climatic changes, while others may be less responsive. Climate change may actually expand the range of vector borne diseases from the tropical zone, where the species diversity of hosts is comparatively high in contrast to the temperate climatic zone, where species diversity is very low. We suggest a multidimensional approach whereby the same disease system needs to best udied in different ecological zones and then the effect of biodiversity on disease outcome needs to be ascertained. Nonetheless, caution is to be taken while jumping to any conclusion as biodiversity—disease relationship is a multifactorial process.

Keywords: Biodiversity, dilution effect, amplification, host population threshold, Critical community size

PATHOGENIC POTENTIAL OF MELOIDOGYNE INCOGNITA AND FUSARIUM OXYSPORUM F. SP. VASINFECTUM ALONE/ AND IN COMBINATION ON THE DISEASE DEVELOPMENT AND PLANT GROWTH OF MENTHA ARVENSIS

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ABSTRACT

Studies were made to determine the effect root-knot nematode, *Meloidogyne incognita* and wilt fungus, *Fusarium oxysporum* f. sp. *vasinfectum* alone and in combinations on the growth of *Mentha arvensis*. The experiment was conducted under green house conditions $(25\pm3^{\circ}\text{C} \text{ and } 58\pm6~\% \text{ RH})$ and terminated seventy-five days after inoculation. Results indicated that the inversely proportional relationship between initial inoculum densities (Pi) of *M. incognita / F. oxysporum* f. sp. *vasinfectum* and plant length, fresh and dry weights. Reduction in all growth parameters was observed significantly (P \leq 0.05) at minimum Pi (500 J₂/pot of *M. incognita* and / or 0.5 ml of *F. oxysporum* f. sp. *vasinfectum* spore suspension with 10^8 cfu/ml) of both the pathogens. Relationship between final nematode population / root-knot index and Pi was observed directly proportional. Simultaneous inoculation of both the pathogens increases the severity of disease followed by nematode and fungus alone.

Keywords: Mentha arvensis, Nematodes, Fungus, Interaction, Pathogenicity

INTEGRATED MANAGEMENT OF ROOT-KNOT NEMATODE, MELOIDOGYNE INCOGNITA WILT FUNGUS, FUSARIUM OXYSPORUM DISEASE COMPLEX OF PIGEON PEA, CAJANUS CANJAN, UNDER FIELD CONDITIONS

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ABSTRACT

A field experiment study was conducted to determine the comparative efficacy of carbofuran at 1 mg a.i. /kg soil, bavistin at 1 mg a.i./kg soil, neem (*Azadirachta indica*) seed powder at 50 mg/kg soil, green mould (*Trichoderma harzianum*) at 50.0 ml/kg soil, rhizobacteria (*Pseudomonas fluorescens*) at 50.0 ml/kg soil against root-knot nematode, *Meloidogyne incognita*—wilt fungus, *Fusarium oxysporum* disease complex on Tomato, *Lycopersicon esculentum*. All the treatments significantly improved the growth of the plants as compared to untreated inoculated plants. Analysis of data showed that carbofuran and *A. indica* seed powder increased plant growth and yield significantly more in comparison to Bavistin and *P. fluorescens*. Carbofuran was highly effective against nematode, Bavistin against fungus, *A. indica* seed powder against both the pathogens and both the bioagents were moderately effective against both the pathogens.

Keywords: Disease complex, Integrated management, Cajanus cajan

BIOLOGICAL ATTRIBUTES OF *OEDALEUS ABRUPTUS* THUNBERG (ORTHOPTERA: ACRIDIDAE) UNDER LABORATORY CONDITIONS

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ABSTRACT

The field collected *Oedaleus abruptus* reared in specialised wooden cages in thermoregulated insectary. The findings revealed that oviposition behaviour of this grasshopper species was observed to be on typical acrididian pattern. Eggs were incubated at $27\pm1^{\circ}$ C and $37\pm1^{\circ}$ C and $70\pm5\%$ R.H. The hoppers completed their development through five nymphal stages. The nymphal duration for different experimental setups are as follows: At $37\pm1^{\circ}$ C, it was 33.4 days in isolated/male, 30.8 days in crowded/male, 37 days in isolated/female, 32.3 in crowded/female when fed on Z. mays and 37.2 days in isolated/male, 33.9 days in crowded/male, 43.1 days in isolated/female, 35.7 days in crowded/female condition when fed on *Cynodon dactylon*. At $27\pm1^{\circ}$ C, it was 37 days in isolated/male, 32.8 days in crowded/male, 42.8 days in isolated/female, 35 days in crowded/female when they were fed on *Zea mays*; and 36.6 days in isolated/male, 33.4 days in crowded/male, 42.6 days in isolated/female, 36.4 days in crowded/female when fed on *C. dactylon*.

Keywords: Abiotic factor, grasshopper, life cycle, Cynodon dactylon, Zea mays

DIGITIZATON OF CLERIDAE (INSECTA: COLEOPTERA) TYPE SPECIMENS OF NATIONAL FOREST INSECT COLLECTION (NFIC), FRI, DEHRADUN FOR PRESERVING BIODIVERSITY

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ABSTRACT

Insects play an important role in terrestrial ecosystem. They form the sizable number, which is the most varied and abundant (about 80%) of all the organisms on this planet. There are about 60,000 described species of insects in India. National Forest Insect Collection (NFIC) FRI is one of the important historical insect collections of India. NFIC contains a unique and irreplaceable collection of insects of the Indian subcontinent. Presently, this collection has about 3, 00,000 specimens with about 17,000 identified species. NFIC also contains the more than 2,086 type species. The NFIC, FRI, Dehradun has 31 authentically identified type specimens of Cleridae family including types of 27 species with 13 holotypes and 14 paratypes. The clerids commonly known as checkered beetles, are a family of brightly-coloured with many being medium in size (between 3 and 12 mm) predatory beetles. NFIC is rich and is a well maintained insect collection that represents a significant resource for clerid, world researchers interested in types of Indian subcontinents, for making it easily accessible to them and for preserving biodiversity; it is prudent to publish digital documentation of clerids type specimens of NFIC.

Keywords: Type, Cleridae, NFIC, Documentation, Digitization

ENVIRONMENTAL EDUCATION AN ESSENTIAL GROWING ROOT FOR FUTURE

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ABSTRACT

Environmental education has become increasingly more popular in recent years. This can be seen with the increase of the subject in many schools' curricula. In addition, various out-of-school programs have developed to reconnect students with nature and prepare them to solve difficult environmental problems that the future will present. However, despite these bold initiatives, many young people are still not being reached. Whereas Environmental sciences are made up of disciplines such as Environmental Biology, which is regarded as an Applied Ecology. Ecology and Environmental Biology are related areas of specialization, thus the reason why students study it as a discipline. Ecology is the study of the relationship between living organisms and their environment, while environmental biology is an Applied Ecology that studies the holistic relationship between man and the physical and biological environment. Research methods is an important aspect of science and it denotes the procedure the researchers utilize in carrying out research processes. These include methods or techniques applied by the researcher throughout the period of studying his research problem. Keywords: Environmental Studies, Ecology, Environmental science

CONSUMER BEHAVIOR TOWARDS AGROBASED FAST MOVING CONSUMERS GOODS (FMCG)

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ABSTRACT

In the present marketing scenario, the study of consumer behavior has become essential. Consumer buying behavior has become an integral part of strategic market planning. Customer behavior study is based on consumer buying behavior, with the customer playing the three distinct roles of user, payer and buyer. Fast Moving Consumers Goods (FMCG) sector is the fourth largest sector in India touching everybody's life every day. Consumer's behavior towards FMCG products is affected by variables factors. In the present era of globalisation needs and wants of consumers changes with time. The FMCG sector contributes a lot to the growth of India's GDP. Therefore it is necessary to identify the changes in consumer buying behaviour towards FMCG products. In the present study, data has been collected through questionnaire and findings have been theoretically presented. The observations revealed that the consumer behavior is largely affected by place, product, price, promotions, physiological and psychological factors. However effects of these factors also differ from product to product.

Keywords: Consumer behavior, Fast Moving Consumer Goods, Strategic market

TOXIC EFFECT OF CHROMIUM AND ZINC ON PROTEIN CONTANT IN CHANNA PUNCTATUS (BLOCH.)

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ABSTRACT

Heavy metals destabilized the ecosystem due to their toxic impact on fishes. Occurrence of chromium and Zinc varies in fishes, depending upon their age, development as well as other physiological variables. It also produced cytotoxicity and detrimental impact on behaviour of fish such as hypertrophy and paraplegia at gill epithelium, uneven swimming and suspended feeding. Various research studies indicated adverse effects of chromium in fish at haematological level like anaemia, thrombocytopenia, decrease in haemoglobin and total erythrocytes count. At bio-chemical level, mostly decline in the contents of glycogen, lipids and proteins was observed. In the present study, protein content has been decreased in turn affects the enzyme mediated bio defence mechanisms of the fish.

Keywords: Chromium and Zinc, Thrombocytopenia and Hypertrophy

DIFFERENT TYPES OF FOOD PROCESSING METHODS USED IN THE FOOD INDUSTRY

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ABSTRACT

Food processing is a set of ways and different methods used to transform, process, eatable digestible and convert food into different shape, size and texture. Food technology is a technique which is effectively used in process food and also used to enhance the shelflife of food. There are different types of crops are cultivated food processing is used to transfer and process these uncooked crops into cooked and eatable form different types of methods are used to process the food and also protect them from the spoilage and make them eatable methods are like sterilization, pasteurization, canning. Preservation is a part of food technology the methods used in the industry are effectively enhance the shelflife of food preservation method are used to protect the food from viruses harmful microorganism and bacteria which create the deterioration in food and make non-edible two types of processing methods are used high temperature and low temperature methods food processing probably involves events emulsification, renovation pickling and other packaging processing of food is the transformations of food agricultural products into food, or one form of food into other form primary food processing is necessary to make most food edible and secondary food processing turns the ingredients into familiar foods such as bread.

Keywords: Food, Process, Industry, Packaging

BIODIVERSITY OF HYMENOPTERAN INSECT POLLINATORS IN DISTRICT BARAMULLA OF JAMMU & KASHMIR

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ABSTRACT

The present study was carried out in Baramulla district of North Kashmir to investigate the comparative pollination potential of various hymenopteran insects. For this purpose some crops on the basis of their agricultural/ horticultural importance were selected. A total of 12 species of insects belonging to order hymenoptera comprising of 06 families i.e. Apidae (*Apis cerana indica*, *Apis mellifera*, *Apis dorsata*, *Bombus haemorrhoidalis*, *Bombus lepidus*), Vaspidae (*Vespa velutina*, *Vespa affinis*, *Polister wetti*); Formicidae (*Camponotus* sp.); Halictidae (*Halictus* sp.); Xylocopidae (*Xylocopa violacea*) and Ceretinidae (*Caratina hieroglyphica*) were recorded. The most prevalent insect visitors were the members of family Apidae followed by Vaspide. The result showed that among the selected crops, almost 80% were found to be mainly pollinated by honey bees.

Keyword: Pollination, hymenoptera, apidae, vispidae

ROLE OF SOCIAL ENTREPRENEURSHIP IN SUSTAINING ENVIRONMENT

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ABSTRACT

The three pillars of sustainability are economic sustainability, social sustainability and environmental sustainability. If these three pillars of sustainability are sustainable then only the complete sustainability problem can be solved. Among these three, the most important is environmental sustainability. If this is not solved, then no matter how hard we try the other pillars cannot be made strong because they are dependent on the greater system they live within, the environment. As said by Albert Einstein "A new type of thinking is essential if mankind is to survive and move toward higher levels"

On the other hand, Social entrepreneurship goes beyond philanthropy. Harnessing the entrepreneurial spirit, it encourages the development of profitable solutions and sustainable efforts for different social issues. Social entrepreneurship is more than just giving and receiving. It issues a challenge that, if met, could give hope, continually support, and turn around and improve the lives of the recipients.

Social Entrepreneurs give away more than just financial resources. They devote their time and effort to help build relationships, create connections, and impart knowledge, skills, and strategies. Their role is to address environmental issues that continue to plague our planet. They have the capacity to fund ventures that could look into particular environmental problems and assign the execution to organizations that help those, who belong to the disadvantaged groups in the society.

The primary objective of this paper is to be associated with sustainable environmental science and technology and to contribute to improving environmental practice. The scope of this paper includes issues of environmental science, technology, management and related fields, especially in response to sustainable water, energy and other natural resources through social entrepreneurship.

Keywords: Social Entrepreneurship, Sustainability, Entrepreneur, Environmental Science,

A NEW RECORDS OF GENUS DIAPHOROCORIS (D. SEMILUNARIS, SP.NOV.) NAUCORIDAE FROM INDIA

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ABSTRACT

The Naucoridae are most interesting and fascinating auatic water bugs known as water creepers, needle bugs & toibeters in view of the studies of Naucoridae fauna from other Parts of the world. The study of water bugs of family naucoridae is very Important from the view point of water pollution. The genus Diaphorocoris is distributed in oriental (India, Srilanka, Burma and Philippines) and Australian regions. In India the genus(Diaphorocoris) is represented by three species viz, Diaphorocoris punctatissimus Kirby, 1891, Diaphorocorissemilunaris, sp. Nov. and Diaphorocoris- duvreuili Montand, 1908, Diaphocoris semilunaris, Sp. Nov. is recorded in the Present investingation for the first time from India and has been described in the Present Study. Diaphorocoris punctatissimus Kirby, 1891 was Previously described from Ceylon by Distant, 1906. Its distribution is for the first time recorded various parts from India in the present investigation. It is found in running water amongst rocks and rivers. The present work is an out come of three and a half years continuous survey of these bugs. Several fields survey were undertaken in utter Pradesh, Punjab, Harvana, Delhi, Rajisthan, Jammu and Kashmir. The entire insects collected in the field were immediately preserved in 90 parsent alcohol. The entire study were made under sterescope, binocular and compound microscope. The sketches were made with the help of camera Lucida.

A STUDY OF ENVIRONMENTAL POLLUTION

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ABSTRACT

Man is causing all round damage to air pollution,water,land,to the various elements of environment and_to the ecosystem itself. There is so much man-made pollution and environmental degradation that the nightmare ahead is enough jittery to shake us all. Taking a synoptic view of the general scenario a few trends are underway. Our atmosphere on global as well as regional scale is heavily polluted. The protective ozone shield in the heavily populated latitudes of the northern hemisphere is thinning twice fast as scientists throught a few year ago. The buildup of green house gases will lead to significant changes in the wheather patterns in the near_future leading to global warming. The destruction of ozone layer and further warming of the earth surface threater catastrophic consequences such as eruption of cancerous and tropical diseases, distribution of oceans foodchain, rising of sea levels, submission of many Islands melting of small land-based glaciers, flooding in many low lying coastal areas and harvest loss etc.

Keywords: Atmosphere, pollution & health

A STUDY OF ENVIRONMENTAL POLLUTION, CAUSES AND CONSEQUENCES

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&

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ABSTRACT

Man is causing all round damage to air pollution, water, land, to the various elements of environment and to the ecosystem itself. There is so much man-made pollution and environmental degradation that the nightmare ahead is enough jittery to shake us all. Taking a synoptic view of the general scenario a few trends are underway. Our atmosphere on global as well as regional scale is heavily polluted. The protective ozone shield in the heavily populated latitudes of the northern hemisphere is thinning twice fast as scientists throught a few year ago. The buildup of green house gases will lead to significant changes in the wheather patterns in the near_future leading to global warming. The destruction of ozone layer and further warming of the earth surface threater catastrophic consequences such as eruption of cancerous and tropical diseases, distribution of oceans foodchain, rising of sea levels, submission of many Islands melting of small land-based glaciers, flooding in many low lying coastal areas and harvest loss etc.

Keywords: Atmosphere, pollution & health

TAXONOMICAL STUDY ON THE FAMILY: HYDROPHILID BEETLES GENUS DACTYLOSTERNUM AND COELOSTOMA (FAM.SPHAERIDINI TRIBE -SPHAERININI) WITH SPECIAL REFERENCE TO THE EXTERNAL GENITAL ORGANS. COLLECTED FROM KUMAON AND GARHWAL REGIONS (U.K)

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ABSTRACT

In this study of the genus the aquatic Coleoptera species were collected from various places of Kumaon and Garhwal regions (U.K) province in 1990 were evaluated over all 2 genera and 4 species concerning the superfamily Hydrophiloidea. (Coleoptera: sphaeridinae) were detected in the area. The collected materials were preserved in the para-dicloro benzene, 10% ethyle alcohol and Nepthlene tablets. The present investigation is mainly based on taxonomy of Hydrophilid beetles with special reference to their genitalia. The previous classification of these beetles were based on on the experimental genital characters like colour markings, wing venetion ,number of segment of antennae, shape of elytra etc. But in recent investigations, it is found that beside the above taxonomical characters is very important which are neglected so far to be important and not changeable characters on which the correct key for the identification can be made.

A BIOFUEL ALTERNATIVE TO FOSSIL FUEL

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ABSTRACT

Environment pollution is a global menace influencing every nook and corner of the earth. All type of life forms are in one way or other affected by the impact of pollution. Due to anthropogenic activities such as industrialization, urbanization, deforestation, change is now occurring at a very fast pace. Green house gases are mainly affecting climate change that mainly include Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (NO₂), Water vapours (H₂O), Hydrochloroflurocarbon (HFCs), Polychlorinated biophenyls (PCBs), Chloroflorocarbon (CFCs), etc. Global carbon emission are increasing due to these pollutants. Climate change is causing conditions such as warmer weather, melting glacier, polar warming, heavy precipitation events, a rise sea level, increased environment degradation and natural disasters. Some researchers reported that climate change has impact on infectious diseases in humans. Changes in climate factor affect agricultural productivity and food security through direct and indirect actions. Hence, we need to shift to green alternatives so as to heal environment and bring them back to normalcy. So we should move towards Biofuels as sustainable sources as they are produced from organic products and waste i.e. Bioethanol, Biomethane, Biodiesel, Biogas, Syngas (CO and Methane). Hence, Biofuels are environment friendly, safer, as they reduce air and water pollution, reduce green-house emission, are biodegradable, as they burn more clearly than petroleum.

Keywords: Pollution, anthropogenic activities, pollutants, climate change, Biofuels.

EARTH WORMS AND EUSOCIAL INSECTS AS POTENTIAL ALTERNATIVE SOURCES OF PROTEIN FOR POULTRY FARM

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ABSTRACT

This study set out the nutritional composition of termites and earthworms and their potential value as alternative sources of animal protein in poultry diets. It has been demonstrated that termites and earthworms have high nutritional value and that they may be an important source of protein, carbohydrate, fats, vitamins and minerals. In U.P., feed costs account for over 65% of the total production costs in commercial poultry production, as nearly all the ingredients used in manufacturing feeds are imported. This makes the prospect of utilizing insects which are available in nature for most part of the years as alternative sources of proteins feasible. Nutritionally, it has been shown that termites and earthworms compare favourably with fish meal, which is the main animal protein source in poultry diets. Based on the high nutritive value of termites and earthworms, it seems that there is need to carry out extensive research on their production in order to enable their use in smallholder poultry production.

Keywords: Earthworms, fish meal, nutrition, poultry

SPECIES RICHNESS AND ABUNDANCE OF SPIDERS (ARANEAE) OF YAMUNA FLOOD PLAINS OF AGRA

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ABSTRACT

Araneae are represented by 48,365 species of spiders belonging to 4,145 genera with 120 families, of which only 1799 under 448 genera and 59 families have been reported in India. Inspite, of its vast number and important role in biocontroling of pests, yet the focus on spider research has been limited. The current paper focuses on the richness and abundance of spider biodiversity in the Yamuna flood plains of Agra. The rational for the selection of flood plains was that it represented wild population falling under agro-ecosystem and riparian habitat. Yamuna flood plain falls under semi arid habitat and consists of rocks, pebbles and sandy soil. The habitat is exposed to extreme whether temperature ranging between 2°C-20°C in winters to high as 47°C in summers with humidity varying between 25-95%. Collection methods like visual searching, hand collection and pit fall, and inverted umbrella methods were applied. A total of 40 species of spider belonging to 29 genera of 11 families-Salticidae; Oxyopidae; Araneidae; Thomisidae; Tetragnathidae; Hersiliidae; Lycosidae; Pholcidae; Gnaphosidae; and Sparasidae were recorded and analysed for richness and abundance using Shannon-weiner index/Simpson index.

Keywords- Spider, Araneae, Flood plains, Species richness, Biodiversity.

THE IMPACTS OF POLLUTION ON FISH HEALTH

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ABSTRACT

Globally, water bodies are primary means for disposal of waste especially. The effluents from industrial, municipal, sewage and agricultural practices near the water body. The harmful substances e.g. heavy metals, insecticides and hydrocarbons are often released in to the aquatic environment. When large quantities of pollutants are released there may be immediate impacts of measured by large scale sudden mortalities of aquatic organisms e.g. Fish kills resulting from contamination of water ways with agricultural insecticides. The end results, which may occur long after the pollutants have passed through the environment, include immunosuppressant, reduced metabolism, and damaged to gills and epithelia. Effluents and wastes produced by industries should be minimized by using low and non waste technologies; and effluents should be property treated before they are discharged in to aquatic environment.

Keywords: Pollution, fish, environment

THE EFFECTS OF SULPHUR DIOXIDE ON HUMAN HEALTH

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ABSTRACT

The atmosphere in a complex natural gaseous system, that is essential to support life on planet earth. Stratospheric ozone depletion due to air pollution has been recognized as a threat to human health as well as to the earth ecosystem. Air pollution is a significant risk factor for a number of health conditions including respiratory system, heart disease, COPD and Lung Cancer. The pollution in the air is a complex. Mixture or chemical substances of varying toxicity of which the sulphur dioxides are a principal components. Those components which pose the primary hazards to human health have not yet been fully identified, nor have their respective contribution to human disease been fully determined. Efficient and effective control strategies are dependent upon the identification and under standing of these toxic components.

Keywords: Air pollution, sulphar dioxide, human health

MALATHION INDUCED SUB-LETHAL RESPONSE ON HEMATOLOGICAL PARAMETERS OF LABEO ROHITA

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ABSTRACT

The effect of three different sub-lethal concentrations of Malathion pesticide was tested with two time intervals on the hematological parameters of Labeo rohita The hematological indices studied were: erythrocyte number (RBC), hemoglobin concentration (Hb), packed cell volume (PCV), mean corpuscular hemoglobin (MCH), mean corpuscular volume (MCV), mean corpuscular hemoglobin conceptration (MCHC) and differential counts (lymphocyte, monocyte and eosinophil). In both the time duration (6 days and 10 days) studies, the effect of pesticide was concentration dependent. In general, RBC, Hb, PCV, MCH, MCHC, monocyte and eosinophil count decreased significantly where as MCV and lymphocyte count increased significantly. The percentage changes in different indices were relatively higher in fish exposed to the pesticide for 10 days.

Keywords: Malethoin, hematology, *Labeo rohita*.

ANALYSING THE LOAD OF ORGANIC WASTE IN THE MANSI GANGA RESERVOIR IN DISTRICT MATHURA (INDIA) AND ITS EFFECT ON SOME PLANKTONIC POPULATIONS

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ABSTRACT

Mansi Ganga is a small water reservoir (lake) in the Goverdhan town of Mathura district (India). It has a great religious importance being associated with the childhood activities of Lord Krishna. The lake is grossly polluted due to religious activities and also with the continuous mixing of sewage and domestic waste. An attempt was made to analyze the organic pollutants in the lake. Important physico-chemical quality parameters of the lake water were tested over an entire year from January 2018 to December 2018. Simultaneously, the planktonic population of some selected microbes was also recorded to observe correlation between pollution load and survival rate of aquatic microbes. The study reveals that the reservoir is severely polluted with organic waste. Very high values of BOD, ammonia and sulphides contents were recorded. The condition was most deplorable in summers. The test organisms, especially *Arcella* and *Paramecium* spp. exhibited a severe negative trend with the rise in pollution load. *Chlorella*, *Pediastrum*, *Scenedesmus* and *Oocystis Spirogyra*, *Cladophora*, *Rhizo-clonium*, *Mougeotia*, *Zygnema* and *Hydrodictyon*.

Keywords: Organic pollutants sewage B.O.D. Coliform ammonia.

A LITERATURE REVIEW ON THE EFFECTS OF THE ELECTROMAGNETIC RADIATIONS FROM CELL PHONE TOWERS ON HEALTH

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ABSTRACT

Objective: This paper presents review of published scientific works on the effects of the electromagnetic radiations from mobile phone towers on health.

Methods: Publications were searched in Google Scholar, Research Gate, Pub Med, Jstor and some books and journals were consulted from library of Dr. BR Ambedkar University, Agra. Both field and laboratories studies were taken into consideration. Various parameters such as growth, behavior, reproduction and development, cancers etc. were considered.

Results: Information from publications on laboratory and field works was reviewed laying emphasis upon peer-reviewed publications of recent 10 years ago. At high as well as at low dosages no clear dose–effect relationship could be discerned.

Conclusions: Lack of standardization and contradicting results limited the possibility of generalizing results. More studies in future are proposed for repetitions of available standards as well as for reporting RF-EMR effects in the areas not exploited till now.

Keywords: Radio-frequencies, Electromagnetic field exposure, Mobile telecommunication, Cell tower, Health issues.

EPIDEMIOLOGICAL PROFILE OF TYPHOID FEVER IN DISTRICT ALIGARH

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ABSTRACT

Typhoid fever is a worldwide health problem. It is the result of systematic infection mainly by *Salmonella typhi*. Typhoid fever is endemic in India. The infective agent of typhoid fever is transmitted via the fecal-oral route or urine-oral routes. Present study was carried out to asses the current status and risk factor of typhoid fever in rural and urban population in district Aligarh. The overall prevalence of typhoid fever was recorded as 25.4% in the symptomatic patients investigated for Widal test. Prevalence of typhoid fever was significantly higher (χ^2 =8.82, d.f.=2, P<0.05) in low income group as compared to high income group. Odds ratio (OR) 0.11, 95% CI 0.02-0.50) also suggests that low income population is at greater risk as compared to high income group. Present author is of opinion that, poor sanitary conditions, poverty and lack of personal hygienic awareness are responsible for rural typhoid situations. Result of the present study suggests that the need for large community-based integrated study involving chemotherapy, keeping in mind in the diversity of socio-cultural factors prevailing in the country.

Key words: Salmonella, typhoid, risk factor, enteric fever

BIOCHEMICAL AND PHYSIOLOGICAL RESPONSES IN CICER ARIETINUM L. TO SULPHUR DIOXIDE (SO₂) EXPOSURE

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ABSTRACT

Biochemical and physiological responses in $Cicer\ arietinum\ L$. have been studied under various concentrations of sulphur dioxide. The observations revealed that SO_2 adversely affects the plants in different ways. When the plants were exposed to sulphur dioxide, they showed decrease in different physiological parameters like root and shoot weight, root and shoot length. The decline in these parameters was substantial in plants exposed to higher dose of sulphur dioxide. A decline in chlorophyll a, b was also recorded in the plants exposed to different concentrations of sulphur dioxide. The higher decrease of chlorophyll a and b was noted in the plants treated with sulphur dioxide.

Keywords : Air pollution, SO₂ pollution, Cicer arietinum, Chlorophyll, Physiological Parameters.

ENVIRONMENT EFFECTS ON HUMAN HEALTH

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ABSTRACT

Concern for health has traditionally underlain much of the political priority given to environmental issues in OECD countries. The impact of environmental risk factors on health use extremely varied and complex in both severity and clinical significance, for example the effects of environmental degradation on human health can range from death caused by cancer due to air pollution to psychological problems resulting from noise. A better understanding of the economic costs of environment related health loss can help to inform environmental policy design. Environmental degradation can have a significant impact on human health. Estimates of the share of environment related human health loss are as high as 5% for high income OECD countries, 8% for middle income OECD countries and 13% for non OECD countries.

Air pollution and expooune to hazardous chemicals are in portent causes of the environmental related burden of disease in OECD countries. The transport and energy sectors are major contribution to air pollution, while important sources of chemical pollution are agriculture, in dirty and waste disposal and incineration.

Opportunities for reducing environmental related health risk vise are considerable. The benefits of many environmental policies in term of reduced health care costs and increased productivity significantly exceed the costs of implementing these policies.

OECD- Organisation for economic cooperation and development.

A STUDY OF MALE AND FEMALE GENITALIA: A TAXONOMIC TOOL FOR THE IDENTIFICATION OF SAND FLY (DIPTERA:PHLEBOTOMIDAE)

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ABSTRACT

Sand flies are minute blood sucking flies and are of considerable medico-veterinary significance as these are the vector of several diseases viz., Leishmaniasis, Bartonallosis, Sand fly fever, Chandipura Encephalitis etc. They are found throughout the world's tropical and subtropical region. The correct identification of the species of this fly is very important for its control and epidemiological study. The structure of male and female genitalia is species specific and show extraordinary diversity. Thus the male and female genitalia are an important source of diagnostic features to separate the specimen at generic as well as specific level. Male genital armature of Phlebotomidae has occupied a right place in the studies of Phlebotomidae taxonomy but female genitalia is neglected by taxonomist as they used only the internal female genital structure in the Phlebotomid taxonomy. From the present investigation it has been revealed that both male and female genitalia show a large number of variation both externally and internally. Due to this, these genital characters in the family Phlebotomidae are very reliable tool for taxonomic studies and these characters can easily be used in the formulation of dichotomus keys for identification of different species of sand flies. The present investigation will be significant for the search and description of new species of Sand fly.

Keywords: Diptera, Phlebotomidae, Taxonomy, Genitalia, Leishmaniasis

NON-INVASIVE APPROACH FOR GENETIC PROFILING OF SELECTED AVIAN SPECIES OF UTTAR PRADESH

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ABSTRACT

Present day wildlife management and conservation genetics are emerging as the most arduous tasks for biologists. The extremely low numbers of the taxa in peril make the life of each individual a lot more precious. In such circumstances sacrificing animals for scientific research becomes unethical at the first glance as it is unsure of giving the results that the research intends to at the cost of what may look like a very tiny loss to biodiversity. Non-invasive genetic sampling is flourishing as a panacea to this malady. Under this approach the source of DNA for all genetic studies is the material left or shed by the animal during its normal course of life. This includes fecal matter, hair, feather, snake skin, egg shells and so on.

The two opposite standpoints about the non-conventional non-invasive approach of genetic sampling however, create a state of disbelief. While this approach has been mostly successful in giving positive results for species identification and phylogeographic studies, the traditional ways of DNA extraction and amplification do not serve to be the best way outs to concentrate the genetic material. Thus, errors such as allelic dropouts and false alleles hinder the correct elucidation of results. This research is an initiative to pave an obstruction less way for conducting experiments through non-invasive genetic sampling to aid wildlife conservation.

In the current research an attempt is being made to standardize DNA extraction and amplification from shed feathers of birds by modifying extant technologies. Appropriate changes were made at various steps to obtain optimum results, these included sample preservation, changes in constitution of the lysis buffer and increased incubation times. Furthermore, using multiple tube approach and hotstart PCR can result in clear and crisp amplification products and aid to wildlife management and conservation genetics without having to sacrifice biodiversity for the sake of scientific research.

Keywords: Non-invasive genetic sampling, wildlife conservation, DNA from feathers

ASSESS THE HEALTH PROBLEMS OF MALNOURISHED CHILDREN: PARTICULARLY INDORE CITY

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ABSTRACT

Malnutrition is a major public health problem in India among five years children. Malnutrition is caused by unabsorbed nutrients in body. It causes illness in body. It shows symptoms and diseases diarrhoea, measles, whooping cough etc. The state of Madhya Pradesh has 1.3 million severely malnourished children and mortality rate under 5 is 89 per 1000 which is the highest rate in India.

In the present study 200 severely malnourished children of 1-5 years were selected from different urban slum area of indore city by purposive sampling technique. Questionnaire method was used to collect the information regarding the health problems of children. In the present study result was found that 68.5% children were suffering from warm infestation 80% were found frequently ill and 32.5%, 9%, and 41.5% children were suffering from loose motions, fever and more than one problems such as vomiting, fever, loose motion and other respiratory infection etc. The conclusion is that the malnutrition can generate so many health problems in children.

EPIDEMIOLOGICAL PROFILE OF TYPHOID FEVER IN DISTRICT ALIGARH

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ABSTRACT

Typhoid fever is a worldwide health problem. It is the result of systematic infection mainly by *Salmonella typhi*. Typhoid fever is endemic in India. The infective agent of typhoid fever is transmitted via the fecal-oral route or urine-oral routes. Present study was carried out to asses the current status and risk factor of typhoid fever in rural and urban population in district Aligarh. The overall prevalence of typhoid fever was recorded as 25.4% in the symptomatic patients investigated for Widal test. Prevalence of typhoid fever was significantly higher (χ^2 =8.82, d.f.=2, P < 0.05) in low income group as compared to high income group. Odds ratio (OR) 0.11, 95% CI 0.02-0.50) also suggests that low income population is at greater risk as compared to high income group. Present author is of opinion that, poor sanitary conditions, poverty and lack of personal hygienic awareness are responsible for rural typhoid situations. Result of the present study suggests that the need for large community-based integrated study involving chemotherapy, keeping in mind in the diversity of socio-cultural factors prevailing in the country.

Keywords: Salmonella, typhoid, risk factor, enteric fever

TEMPERATURE AND ALTITUDE MODULATE BODY SIZE, FEEDING ATTRIBUTES AND ENERGY RESERVES OF MEXICAN BEETLE ON PARTHENIUM WEED

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ABSTRACT

The Mexican beetle, Zygogramma bicolorata Pallister is an effective biocontrol agent of Parthenium hysterophorus L. which is an alien invasive herbaceous weed with a pan-tropical distribution. The present study was designed to assess the effects of temperature and altitude on body size, feeding attributes (consumption rate, conversion efficiency and growth rate) and mobilization of nutrients (i.e. sugar, proteins and triacylglycerols) in adult beetles caught from the wild populations of Z. bicolorata inhabiting India and Nepal. The beetles were collected from three eco-climatic zones of NEPAL [Kathmandu (1400 mts, 24°C: warm temperate), Chitwan (415 mts, 25°C: upper tropical/sub-tropical), and Mahendranagar (229 mts, 34°C: humid subtropical)], and one of INDIA [Varanasi (81 mts, 36°C: humid subtropical)]. Results revealed that the beetles inhabiting areas of low temperature (24°C-25°C) and high altitude (415 m-1400 m) were large and had higher food consumption rates. They accumulated high concentrations of triacylglycerols in their body. In contrast, the beetles inhabiting areas of high temperature (34°C-36°C) and low altitude (81 m- 229 m) were smaller, had higher food utilization efficiencies and accumulated more concentrations of proteins and sugar in their body. Temperature between 27°C and 30°C was found optimal for Z. bicolorata adults to convert and utilize the food biomass to body mass. Above the optimal temperature the feeding attributes decreased. Present results therefore suggest that there exists a possibility for decrease in body size, and thereby weed biocontrol efficiency of Z. bicolorata adults with an increase in temperature due to global climate change.

Keywords: Weed biocontrol; Coleoptera; Global climate change

EFFECTS OF TOP FIVE PESTICIDES USED AGAINST SWARM CONTROL ON HUMAN HEALTH

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ABSTRACT

Environmental contamination by pesticides and other agro-toxichemicals is of growing concern in India and worldwide. Whole Worldwide use of insecticides of estimated at over one million tons annually, comprising some 28% of the total amount of pesticides used. Most of them are used as insecticides (60%) or pheromones to attract insects (14%), while some 24% are used to control other pest. Two Acridids i.e. *Schistocerca gregaria* and *Locusta migratoria* spot out in November, 2019 to mid January, 2020 in various states of India. Recently locust attack in western Rajasthan, Gujarat and some parts of Uttar Pradesh and destroyed approx. 3.9 lakh hectare agricultural vegetation. Our nation suffers one of the biggest problems from ancient time, not full controlled yet. Due to their polyphagous habit of grasshoppers, are the most destructive insect in the world and also known as 'Famine carriers'. They mainly effect crop of Triticum *aestivum*(Wheat), *Brassica juncea*(Mustard), *Cicer arientinum*(Gram) and *Hordeum vulgare*(Barley) etc. and destroyed 80-90% of its vegetation.

To control the swarm, our farmers extensively used very lethal pesticides like Fenitrothion ULV-96%, HCH, Malathion ULV-96%, Chloropyriphos-20% and BHC/Bendicarb/Propoxur dust etc. These agricultural pesticide applications represent serious hazards to ecosystem resources and directly affects human health and create so many dread diseases like cancer, respiratory diseases, muscle cramps and twitching, loss of consciousness, loss of coordination, abortion and premature delivery in females and finally death.

Keywords: *Schistocerca gregaria*, *Locusta migratoria*, Crop, Pesticides.

THERMAL EFFECTS ON LARVICIDAL ACTIVITY OF PHYTOEXTRACT AND FENTHION COMBINATIONS AGAINST MALARIA VECTOR

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ABSTRACT

Mosquitoes are most deleterious organisms present on the earth and accountable for the death of millions of people worldwide. They are vectors of various fatal diseases like Malaria, Dengue, Zika virus, Chikungunya, Filariasis, Yellow fever, Japanese Encephalitis. These epidemic diseases are transmitted in community in very short period of time consequently one of the biggest problems at national and international front. To control these dreadful diseases various pesticides are used but irregular application of pesticides cause extreme loss to mankind and environment. Hence, there is an alternative approach to use natural products which are plant originated and considered comparatively safe, effective, easily available and less expensive. Being a plant product, they possess low mammalian toxicity and constitute low or no health hazards to non-target organisms and environment. Thus in the present study, the synergistic approach of Solanum xanthocarpum and Fenthion has been evaluated against larvae of Anopheles stephensi. Furthermore, the effect of different temperature conditions on the efficacy of the most potent combination was also tested to establish the suitable temperature for the effective delivery. The larvicidal bioassay was performed in triplicate for six different concentrations of plant extract along with control and joint efficacy of phytoextract and fenthion was conducted at various temperatures such as 15, 20, 25 and 35°C as per WHO standard protocol. The combination 1:1 of phytoextracts and fenthion was observed the most effective and the temperature 35°C was found more appropriate than the other temperature conditions tested against the malaria vector.

Keywords: Phytoextract, Larvicidal, *Solanum xanthocarpum*, Fenthion, *Anopheles stephensi*, malaria vector

''पर्यावरण, पारस्थितिकी एवं जल संरक्षण तकनीकी के विकास में मुगल शासकों का योगदान : एक अध्ययन''

डॉ० गीता यादवेन्दु ऐसोसिएट प्रोफेसर इतिहास विभाग, आगरा कॉलेज, आगरा

सारांश

प्रकृति व पर्यावरण के प्रति अनुकूलता व सामंजस्य के प्रति गम्भीर चिन्तन की प्रवृत्ति मुगलकालीन वास्तुकला की एक अत्यंत महत्वपूर्ण विशेषता है। मुगलों के भारत आने से पहले भी यहाँ बाग—बगीचे होते थे परन्तु न तो वे ज्यामितीय आधार पर होते थे और न ही उनमें जलाशय होते थे। मुगलों ने अपने मकबरों में फारसी चार बाग पद्धित के चौकोर उद्यानों का निर्माण किया। चार बाग उद्यान पद्धित की शुरूआत भारत में बाबर ने की। इसमें बाग को चार बराबर भागों में बाँटकर बीचों—बीच भवन या मकबरा बनाया जाता था। इन उद्यानों में सुव्यवस्थित एवं सुनियोजित पानी की व्यवस्था होती थी। बिना सजावटी उद्यानों के वर्णन के मुगल स्थापत्य और भवन निर्माण कला का उल्लेख अधूरा रहता है। निर्दयों के किनारे इमारतों का निर्माण, उद्यानों, सिंचाई के लिए जलाशयों, कुओं की व्यवस्था, वर्षा जल के संरक्षण (Water Harvesting) की व्यवस्था मुगल शासकों के पर्यावरण प्रेम को दर्शाते हैं।

प्रथम मुगल शासक बाबर द्वारा यमुना के बाँए किनारे पर निर्मित आराम बाग जिसे आज रामबाग के नाम से जाना जाता है वर्तमान में भी आगरा का एक महत्वपूर्ण उद्यान है। वास्तव में बाबर ही वह प्रथम व्यक्ति था जिसने धूल व गर्मी से भरे आगरा शहर को एक बागों, झरनों, सुन्दर व उपयोगी वृक्षों से भरा हुआ शहर बनाने की परम्परा शुरू की जिसका पालन उसके उत्तराधिकारियों ने किया। बागों के डिजायनर व पानी की व्यवस्था के इंजीनियर का आपस में पूरा समन्वय रहता था। मुगल इमारतें अपने बागीचे के साथ ही संपूर्णता ग्रहण करती हैं। मुगलों की प्रथम उत्कृष्ट इमारत 'हुमाँयू का मकबरा' में फारसी चार बाग पद्धित के उद्यान के दर्शन होते हैं। सिकन्दरा, आगरा स्थित अकबर का मकबरा, लाहौर के शहदरा में नूरजहाँ द्वारा निर्मित जहाँगीर का मकबरा उद्यान के मध्य बने हैं। जहाँगीर ने कश्मीर में निशान्त बाग का निर्माण शुरू कराया जिसे शाहजहाँ ने पूर्ण कराया। ताजमहल एक विशाल उद्यान के मध्य बना है। शाहजहाँ ने ताजमहल के दूसरी तरफ 'मेहताब बाग' का निर्माण करवाया जिसमें 3 सीढ़ीदार कुएँ थे जिनमें से एक 'ग्यारह सीढ़ी' के नाम से प्रसिद्ध है। आईन—ए—अकबरी (अबुल फज़ल) के अनुसार अकबर ने 1594 ई0 में मध्य भारत में स्थित खानदेश को जीता। खानदेश में बुरहानपुर में मुग़लों ने 1615 ई0 में शहर को पानी की सप्लाई के लिए एक प्राकृतिक (Natural Recharge System) तैयार किया था जो आज भी सफलतापूर्वक कार्य कर रहा है।

अकबर (1556—1605 ई0) ने फतेहपुर सीकरी शहर बसाया। वह 1572 ई0 से 1585 ई0 तक यहीं रहा। फतेहपुर सीकरी में वर्षा जल संचयन की समुचित व्यवस्था की गयी। राजकीय रसोई के पास वर्षा जल संचयन के लिए टैंक बनाए गए जिनमें आज भी बारिश का पानी इकट्ठा होता है। जामा मस्जिद के प्रांगण में और शेख सलीम चिश्ती की दरगाह से वर्षा का पानी इकट्ठा कर एक अष्टकोणीय बाओली में जो कि बुलन्द दरवाजे के पश्चिम में स्थित है इकट्ठा होता था। जब फतेहपुर सीकरी को बसाया गया तो उसका निर्माण करने से पहले इंजीनियर्स इस तथ्य से पूरी तरह से अवगत थे कि उस क्षेत्र में कितना पानी उपलब्ध है और शहर में बसने के पश्चात कितने पानी की आवश्यकता होगी और फिर उसी आवश्यकता के अनुसार अकबर के इंजीनियर्स ने पानी के टैंक, बाओली और वर्षा जल संचयन की व्यवस्था की। इस प्रकार मुगलों की पर्यावरण के प्रति जागरूकता, बाग—बगीचों से उनके अतिशय स्नेह और वर्षा जल संचयन की उनकी तकनीक आज के संदर्भ में भी प्रासंगिक है जबिक हमारा पर्यावरण दिन पर दिन दूषित हो रहा है और हमारे पानी के स्रोत खत्म होने के कगार पर आ गए हैं। मुगलों की इन संरचनाओं को देखकर हम आज भी विस्मित हो उठते हैं और कह उठते हैं—

"ये सुन्दर से बाग—बगीचे ये पानी के बहते झरने जल—संरक्षण के तौर—तरीके इनसे धरती सुन्दर लगती रहने लायक जगह है बनती।"

Keywords : चार बाग, ग्यारह सीढ़ी, आईन-ए-अकबरी, खानदेश, बुरहानपुर, बाओली

ULF WAVE AND ITS THEORITICAL DISCRIPTION

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ABSTRACT

Ultra low frequency (ULF) waves incident on the Earth are produced by processes in the magnetosphere and solar wind. These processes produce a wide variety of ULF hydromagnetic wave types that are classified on the ground as either Pi or Pc pulsations (irregular or continuous). Waves of different frequencies and polarizations originate in different regions of the magnetosphere. The location of the projections of these regions onto the Earth depends on the solar wind dynamic pressure and magnetic field. The occurrence of various waves also depends on conditions in the solar wind and in the magnetosphere. Changes in orientation of the interplanetary magnetic field or an increase in solar wind velocity can have dramatic effects on the type of waves seen at a particular location on the Earth. Similarly, the occurrence of a magnetospheric substorm or magnetic storm will affect which waves are seen. The magnetosphere is a resonant cavity and waveguide for waves that either originate within or propagate through the system. These cavities respond to broadband sources by resonating at discrete frequencies. These cavity modes couple to field line resonances that drive currents in the ionosphere. These currents reradiate the energy as electromagnetic waves that propagate to the ground. Because these ionospheric currents are localized in latitude there are very rapid variations in wave phase at the Earth's surface. Thus it is almost never correct to assume that plane ULF waves are incident on the Earth from outer space. The properties of ULF waves seen at the ground contain information about the processes that generate them and the regions through which they have propagated. The properties also depend on the conductivity of the Earth underneath the observer. Information about the state of the solar wind and the magnetosphere distributed by the NOAA Space Disturbance Forecast Center can be used to help predict when certain types and frequencies of waves will be observed. The study of ULF waves is a very active field of space research and much has yet to be learned about the processes that generate these waves.

Keywords: cavity modes, file line resonances, MHD, magnetic storm, magnetosphere, pulsations,

ON SOME STATISTICAL TOOLS TO ASSESS THE IMPACT OF AIR POLLUTION

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ABSTRACT

Urban air pollution is a serious environment problem. Humanity is constantly under its threat. As the urban air quality declines, the risk of stroke, heart diseases, lung cancer, and chronic acute respiratory diseases increases. Harmful effects of air pollution are widely studied. There is a need to develop necessary mathematics so that air pollution data can be analysed and interpreted with much precision and consequently the policies for remedial measures can be formulated. The present paper focuses on the development of such statistical tools, using multivariate statistical data on air pollution.

Keywords: air pollution, statistical tools, respiratory diseases.

EFFECT OF PARTICULATE MATTER POLLUTANT ON ENVIRONMENT

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ABSTRACT

Particulate matters are basically microscopic particles or liquid matter suspended in air. These sources can be both natural and anthropogenic, and have the adverse effects on both climate and human health. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles.

The size of particles is directly linked to their potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller because those are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. High levels of particulate matter can cause visible air pollution, not only affecting our health, but our natural scenery as well. PM10 is particulate matter between 10 and 2.5 micrometers (from about 25 to 100 times thinner than a human hair). PM10 is considered "inhalable coarse particles," and can be found near roadways and dusty industries.

Keywords: Particulate matter, Environment, Climate, Nitrates

ENVIRONMENTAL IMPACTS AND ANTIMICROBIALE ACTIVITIES OF SOME NEWLY SYNTHESIZED THIOHYDRAZONES

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ABSTRACT

Hydrazones are the class of organic compounds which are physiologically and environmentally active and has several applications in various fields. Substituted hydrazones have also been used in treatment of Schizophrenia, leprosy and mental disorder. Several hydrazones and thiohydrazones have been synthesized by the condensation of hydrazides and thiohydrazides with different carbonyl compounds and were characterized by their repeated M.P determination, TLC for single spot elemental analysis, IR and NMR spectral data. All the compounds were screened for their antimicrobial activities against two bacteria *Staphylococcus aureus* and *Esherichia coli* and two fungi *Aspergillus niger* and *Aspergillus flavus*, All the synthesized compounds showed appreciable activities in comparison to the constituting fragments.

Keywords: Thiohydrazides, Thiohydrazones, Melting Points, TLC, IR, NMR and Antimicrobial Activities.

CONSEQUENCES OF CROP RESIDUE BURNING

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ABSTRACT

India is one of the leading countries in production of crops such as wheat, rice, sugarcane and many more. It also generates a large amount of agricultural waste. Waste materials derived from various agricultural operations are defined as agricultural wastes including crop residues. Due to high amount of crop residues it becomes difficult for the farmers to dump that waste. Farmers generally gather crop residues and burn them in the fields. Crop residues burning is a common post-harvest practice in many parts of the world mainly developing countries to eliminate waste after harvesting. This practice mostly carried out in Punjab, Haryana and Uttar Pradesh responsible to the worse winter pollution in the city of Delhi. Crop burning contributes to atmospheric pollution leading to the environment degrading phenomena such as air pollution, global warming, smog and climate change. Large amounts of toxic pollutants like methane, carbon dioxide, carbon monoxide, nitrous oxide, Sulphur dioxide and sub-micron aerosols are released in the atmosphere. After release in the atmosphere these pollutants disperse in the surroundings form a thick blanket of smog causing adverse effect on human health. Crop residues burning destroys the nutrients in the soil, making it less fertile, leading to loss of moisture and useful microbes present in the upper layer of soil. Due to the loss of friendly pests, there is a tremendous increase in enemy pests making crops more prone to disease. The government of India has attempted to curtail this problem by enforcing various laws and imposing penalty on any farmer. However, government implementation lacks strength. Now the time has come that integrated approach should be started to spread awareness on scientific crop residues management.

Keywords: Crop residue, Agricultural waste, Air pollution, Smog, Crop residues managent.

PROLIFERATIVE ACTIVITY OF MURRAYA KOENIGII ON SPLEEN CELLS

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ABSTRACT

The aim of this study was to evaluate and validate the Immunomodulating potential of medicinal plants *Murraya koenigii* which is known in Ayurvedic literature for the remedy of various alignments. Many alkaloids are found in the plant and Carbazole have been accounted for their anti-cancer, anti-nociceptive ,anti-bacterial, anti-diabetic, anti-diarrheal ,cytotoxic, anti-ageing, anti-oxidant ,nephroprotective and lipid lowering activities. The plant extract was prepared through hot aqueous extraction method using Soxhlet apparatus. Spleen cells was isolated from albino wistar rats. The effect of this plant species on cell mediated immune responses was evaluated by Spleenocyte proliferation assay using MTT dye. Spleen cells were cultured in the presence of different concentration of the *Murraya koenigii* in the presence of ConA mitogen(10 microgram/ml). 100 microgram/ml of *Murraya koenigii* extract showed highest proliferation of 42.37% of spleen cells.

Keywords: *Murraya koenigii*, cell mediated response, hot aqueous extraction,

FLORISTIC DIVERSITY OF PATNA BIRD SANCTUARY, ETAH, INDIA

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ABSTRACT

The vegetation of the area has been classified under two categories Ie (1) – The permanent vegetation occurring throughout the year, is represented by trees, shrubs and perennial herbs, and (2) – The ephemeral vegetation consisting of the annual grouse mainly during the short rainy season. The permanent vegetation is mesophytic in character but xerophytic features are also found.

It has also been observed that the Fabaceae and Poaceae are the largest families in Dicots and Monocots respectively. All the plants mentioned above were collected from this site only. Number of species collected from the small area is much higher. However sediment and regional climatic conditions also determine the overall floristic content of the area.

SUSTAINABLE MANAGEMENT OF SEWAGE AND WASTE WATER

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ABSTRACT

Industrial and agricultural pollution, city storm waters and human sewage create acute health and pollution issues in an increasingly urban world. Rough estimates suggest that 80-90 percent of wastewater in developing countries is discharged directly into rivers, lakes and seas, causing water-borne diseases, hindering tourism and economic development while severely damaging the environment. Wastewater management and pollution prevention requires a cost effective approach along with sustainable financing models. Part of the economic equation must include pollution prevention which can enhance the productivity of industry and agriculture. Treated water can be re-used and is a potential source of 'new' water thereby reducing the demand of cities, farms, and industries for more drawdown on the environment. After treatment, urban wastewater treated to an appropriate standard can be reused for industry and urban agriculture. In order to develop sustainable wastewater treatment it is needed to view the wastewater treatment systems in a broad sense. In addition to cost and treatment performance energy aspects, recycling and social issues are important when evaluating sustainability of a wastewater treatment system and selecting an appropriate system for a given condition. This requires a multidisciplinary approach where engineers cooperate with social scientists, economists, biologists, health officials and the public.

EFFECT OF DISTANCE AND HEIGHT BETWEEN PLANTS AND AUTOVEHICULAR ROAD ON CROSS-POLLINATION IN

Boswellia Serrata Roxb. ex Colebr

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ABSTRACT

Boswellia Serrata Roxb. ex Colebr. belongs to family Burseraceae is an endangered, deciduous and medium sized tree of hot hills, highly valued for its gum-oleresin. The gumoleoresin is known as "loban." It is obtained by tapping the bark. The oleoresin is used as in cense and in the preparation of ointments, paints, varnishes and spirit polish (Hocking, 1993). Plant lovers have always shown a keen interest in the reproductive biology of plants and mechanism of fruiting. Plants with their often elaborate and specialized floral designs and animals with their complex systems of behavior as well as environmental conditions are ideal for exploring the process of adaption for cross-pollination. Much the early researches in pollination biology mainly effect of auto-vehicular smoke i.e. air pollution was devoted to describing adaptations for their yields and selective forces presumed about to bring them. Various environmental factors operate the movement of pollen grains to the stigma. The effect of auto-vehicular smoke and distances between road and height of the plant Boswellia Serrata at Jaigarh and Jhalana hill forest of Jaipur district Rajasthan studied and it reveals that the visiting behavior of pollinators to flowers of the plant affected by certain environmental conditions out of which more distance shows maximum percentage of fruiting or number of fruits as well as cross pollination.

ENLIGHTENMENT OF SLUM POPULATION FOR PRESENCE OF MOULDS & AFLATOXIN IN PROCESSED FOODS & MITIGATION STRATEGIES FOR IT'S PREVENTION & CONTROL

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ABSTRACT

Processed food articles constitute an important fraction of human diet. They are stored for quite long duration under discrete storage conditions. Hence, liable for development of moulds & formation of aflatoxins. Chronic exposure to even low levels of aflatoxins from consumption of contaminated commodities over a prolonged period increases the risk of liver cancer.

Prevention of aflatoxin formation in the supply chain is a challenge but the risk of contamination during food production & storage can be reduced using following mitigation strategies. The consumers are advised to eat well dried, clean & sorted food products free from mouldy growth. Avoid old & damaged bags used for storage as they may be infested with pests. Close containers tightly immediately after use & avoid unnecessary stock piling. If bread & top layer of pickles in a container show mould growth, immediately discard the complete product. Processor/Manufacturer should maintain a clean & dry working environment & use good quality equipment i.e. stainless steel. Food preservatives/additives should be added to minimize the contamination.

Keywords: Moulds, Aflatoxin, Processed foods.

EVALUATION OF ANTIMICROBIAL ACTIVITY OF ROOT EXTRACT OF SAFED MUSLI (CHLOROPHYTUM BORIVILIANUM SANT F.)

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ABSTRACT

Environmental pollution caused due to increase use of chemicals such as fungicide and bactericide etc. against various plant diseases is a serious concern today. So, it is the need of time to find green solutions as an alternative to harmful chemicals in preventing plant diseases. This study focused on exploring the antimicrobial properties of safed musli (*Chlorophytum borivilianum* Sant F.), an important medicinal plant, against many plant pathogens. The methanolic extract of root tubers of *Chlorophytum borivilianum* Sant F. were investigated for antifungal activity using agar disc diffusion method. The root extract showed overwhelming antifungal property, inhibiting the growth of common pathogens viz. *Alternaria solani, Alternaria alternata, Colletotrichum* sp., *Fusarium oxysporum* and *Cercospora* sp. Thus, the present study opened a possibility of using botanicals against various plant pathogens and could play a significant role in reducing chemical burden on toppling environment.

Keywords: Anti-microbial, fungicide, root tubers, safed musli etc.

ENVIRONMENT CHALLENGE AND HUMAN HEALTH

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ABSTRACT

Human health is defined as the state of well-being with regards to the mental, physical and social aspects of the human condition. A person cannot be called healthy merely because of the absence of disease; he or she needs to be doing well in all ways to actually qualify as healthy. Many factors play a role in determining our health – biological, nutritional, psychological and chemical. These factors can be influenced by internal and external conditions. Externally, the biggest factor that influences our health is our environment.

Our environment isn't merely the air we breathe, although that is a major component; it ranges from the water we drink to the soil we grow our food in to the sounds and noises in our surroundings. Each part affects us and thereby our health. With emissions from vehicles, factories and fires, our air supply is full of toxic chemicals that present the risk of lung cancer, heart disease and asthma. The food we eat is covered in pesticides that make soil less fertile and can be carcinogenic for us. The human body needs water to survive but our water sources are full of human and industrial wastes that create serious health issues.

Problems with this have been going on for quite some time. We use pesticides on our food crops because the chemicals kill the pests that could destroy the crops. However, those pesticides remain on the food when we consume them causing health problems ranging from skin problems to cancer. The pesticides also reduce the fertility of the soil ensuring that the next crop isn't as bountiful.

Environmental scientists have been raising the alarm for some time, but things are very critical now. Our unchecked activities have had adverse effects on the ecosystem and some of that damage is now irreversible.

भारत में पर्यावरण संरक्षण : विधायी नीति एवं न्यायालयों की भूमिका

फिरोज अंसारी असि. प्रोफेसर विधि संकाय, आगरा कॉलेज, आगरा।

सारांश

पर्यावरण संरक्षण व्यक्तिगत से लेकर राष्ट्रीय स्तर तक एक मूलभूत आव"यकता है। अर्थिक विकास की प्रक्रिया में एवं राष्ट्रीय उत्पाद को बढाने के लिए प्रकृति प्रदत्त संसाधनों, वन सम्पदा, खनिज सम्पदा और जल संसाधनों आदि का भारत एवं वि"व स्तर पर लगातार दोहन हो रहा है। इसमें जहाँ एक ओर पर्यावरण को नकसान पहँच रहा है. वहीं पारिस्थितिकीय संतुलन पर भी प्रतिकूल प्रभाव पड़ रहा है। इसी सन्दर्भ में पर्यावरण संरक्षण एवं संसाधनों के अनकलतम उपयोग की आव"यकता को राष्ट्रीय एवं वैि"वक स्तर पर आव"यक रूप से महसूस किया जा रहा है। भारत सरकार ने राष्ट्रीय स्तर पर संरक्षण पर्यावरण और विकास से सम्बन्धित नीतिगत व्यौरा 1972 और जुन 1992 में स्वीकृत किया। इस सन्दर्भ में विधायी नीति को अग्रसारित करते हुए विभिन्न विधायी कानून (पर्यावरण संरक्षण अधिनियम, 1986, जैव-विविधता अधिनियम, 2002, जल प्रदूषण (निवारण एवं नियंत्रण) अधिनियम, 1974 एवं वन अधिनियम, 1980) प्रतिपादित किये गये हैं। जैव विविधता और पर्यावरण संरक्षण हेतु अनुच्छेद 32 के तहत सर्वोच्च न्यायालय में और अनुच्छेद 226 के अन्तर्गत उच्च न्यायालय में लोकहित याचिकाएँ दायर कर पर्यावरण उल्लंघनों को चुनौती दी गयी। इसी सन्दर्भ में उच्चतम न्यायालय व उच्च न्यायालयों द्वारा पर्यावरण संरक्षण के सम्बन्ध में समय-समय पर महत्वूर्ण दि"॥-निर्दे"। एवं मार्गदर्शक सिद्धान्त प्रतिपादित किये गये है।

Keywords: पर्यावरण संरक्षण, विधायी नीति, न्यायालयों की भूमिका

INSECT BIODIVERSITY OF SUR SAROVAR BIRD SANCTURY, KEETHAM, AGRA (U.P.)

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ABSTRACT

Earth's myriad life forms comprise an intricate web of life that has been in existence for more than 3 billion years of evolutionary change. Every component of the biological diversity including the insects, is unique in its own way and has an important ecological role in the survival of life on Earth.

Insects as agreed by many biologists are by for the most divers group of animals on earth. They are thus important contributors to biodiversity in the present study, the insect. Biodiversity of sur sarovar bird sanctuary has been estimated and studied in detail.

- 1. Insect are extremely diversed and highly important to conserve the ecosystem.
- 2. The biodiversity is the study of species richness and their compatibility the present study is aimed to investigate number of insect species in sur-sarover bird sanctuary. Number of insect species of sur sarovar bird sanctuary is as:

Lepidoptera - 87, Orthoptera - 65, Hemiptera - 173, Diptera - 71, Coleoptera - 86, Hymenoptera - 56, Neuroptera - 02, Dermeptera - 02, Dictyoptera - 03, Odonata - 58. Overall I have found Hemiptera species in number of 173 families around these.

CARBON DIOXIDE CAPTURE AND SEQUESTRATION

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ABSTRACT

The prospect of global warming is a matter of genuine public concern. The most important source of global warming is tropical deforestation, raising the release of different gases into the atmosphere, burning of fossil fuels etc. The greatest contributor to global warming over the past century has been carbon dioxide. The concentration of carbon dioxide in the atmosphere has been increasing since industrialization in the 19th century was 280 ppm which increased by 413.50 ppm till date. Increase in carbon dioxide emission will produce more heat, thereby directly affecting our natural resources which results in more disease and increase in water level. To mitigate climatic changes, it is necessary that carbon dioxide should be removed from the atmosphere. One of the methods for the removal of carbon dioxide from atmosphere is CO₂ sequestration (CCS) also known as carbon capture and storage. CCS technology is use to reduce the emission of carbon dioxide in the atmosphere. In this the carbon dioxide will be capture and separated from the other gases. Then it will be purified, compressed and transported to the sequestration sites. Carbon dioxide sequestration can be done chemically and enzymatically both.

Keywords: Anthropogenic CO₂ emission, Carbon capture and storage, CO₂ Sequestration.

BIODIVERSITY OF HYMENOPTERAN INSECT POLLINATORS IN DISTRICT BARAMULLA OF JAMMU & KASHMIR

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ABSTRACT

The present study was carried out in Baramulla district of North Kashmir to investigate the comparative pollination potential of various hymenopteran insects. For this purpose some crops on the basis of their agricultural/horticultural importance were selected. A total of 12 species of insects belonging to order hymenoptera comprising of 06 families i.e. Apidae (*Apis cerana indica*, *Apis mellifera*, *Apis dorsata*, *Bombus haemorrhoidalis*, *Bombus lepidus*), Vaspidae (*Vespa velutina*, *Vespa affinis*, *Polister wetti*); Formicidae (*Camponotus* sp.); Halictidae (*Halictus* sp.); Xylocopidae (*Xylocopa violacea*) and Ceretinidae (*Caratina hieroglyphica*) were recorded. The most prevalent insect visitors were the members of family Apidae followed by Vaspide. The result showed that among the selected crops, almost 80% were found to be mainly pollinated by honey bees.

Keyword: Pollination, hymenoptera, apidae.

ASCORBIC ACID: A PHYTOCHEMICAL USED AS A STRONG FREE RADICAL SCAVANGER FOR HUMAN BODY

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ABSTRACT

Various Phytochemicals i.e, plant-derived compounds have therapeutic activities such as anticarcinogenic, antimutagenic, antiinflammatory, and antioxidant properties. Vitamin C is important for bones and connective tissues, muscles, and blood vessels. Vitamin C also helps body to absorb iron, which is needed for red blood cell production. Ascorbic acid is used to treat and prevent vitamin C deficiency. Ascorbic acid ((5R) - [(1S)- 1, 2-Dihydroxyethyl] - 3, 4-dihydroxy-2H -Furan-5-one) is a naturally occurring organic compound having antioxidant properties, found in both animals and plants. Vitamin C (Ascorbic acid) acts as a redox buffer which reduces and thereby neutralizes reactive oxygen species. Ascorbic acid is a hexose (6 carbons) derivative and closely resembles mono saccharides in structure. The acidic properly of vitamin C is due to the enolic hydroxyl groups. As an antioxidant, ascorbic acid (Vitamin C) reduces the risk of cancer, cataract and coronary heart diseases. (About 40-50 mg, Vitamin-C intake per day will meet adult requirement). Antioxidant effects demonstrated as increased of R.B.C to free radical attack in elderly persons and reduced activated oxygen species in patients receiving chemotherapy and radiation.

Antioxidant acts as "free radical scavengers" because it can prevent damage to cells caused by free radicals.

Keywords: Vitamin C, Ascorbic acid, Antioxidant, Free radical

ASSESSMENT OF WATER CONSUMPTION IN DIFFERENT DOMESTIC ACTIVITIES IN VILLAGES OF AGRA

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ABSTRACT

The study was conducted in the 20 Villages situated near by the Agra region to estimate the water consumption in the domestic activities at household level & capita level. Whole experimental area is divided into 5 main sites comprising 4 villages each site. Participatory Rural Appraisal (PRA) technique was used for collecting data through personal interview, focussed group discussion & direct observation. The Average consumption of water per household per day in different domestic activities at different sites was found 577.2 liter/day & Average consumption of water per capita per day in different domestic activities at different sites was estimated 77.8 liter/day which was just double from given Ideal village standards in villages of Agra(National rural drinking water program.2010).

Keywords: Water, Agra, consumption, Village.

MHD CONVECTIVE FLOW OF VISCOUS FLUID THROUGH A POROUS MEDIUM BOUNDED BY AN OSCILLATING POROUS PLATE IN SLIP FLOW REGIME WITH MASS TRANFER

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ABSTRACT

An analysis of velocity, temperature and mass distribution, skin friction and rate of heat and mass transfer of the flow of a viscous incompressible fluid of small electrical conductivity in a porous medium near an oscillating infinite porous flat plate in slip flow regime under influence of a transverse magnetic field of uniform strength. The effects of Modified Grasholf number (G'), Hartmann number (M) and Rarefraction parameter (R) on velocity and skin friction are discussed with the help of graphs and tables. The effect of Schmidt number (S_c) on concentration of fluid is also discussed.

SUGAR MILL EFFLUENT INDUCED HISTOLOGICAL CHANGES IN HEART OF CHANNA PUNCTATUS

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ABSTRACT

Sugar mill effluents are not so toxic like pesticides but they contain many organic and inorganic reactive compounds which can affect the life of the organisms. These reactive compounds accumulate and retard physiological activities in human beings also. Histological biomarkers can be indicators of the effects on organisms of various anthropogenic pollutants on organisms and are a reflection of the overall health of the entire population in that ecosystem. The alterations in cells and tissues in fish are recurrently used biomarkers in many studies as such changes occur in all the invertebrates and vertebrates inhabiting aquatic basins. Histological biomarkers embody tissue lesions arising as a result of a previous or current exposure of the organism to one or more toxins. In other words it can be stated that these compounds act as slow poison. Keeping these points in view, the effect of sugar mill effluent is observed on histology of heart of freshwater fish *Channa punctatus*. (Bloch)

ENVIRONMENTAL POLLUTION AND HUMAN HEALTH

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ABSTRACT

Environmental pollution is one of the greatest challenges that the world is facing today. Air pollution is one of the most important environmental issue. Economic development, urbanization, energy consumption, transportation and rapid pollution growth are major driving forces of air pollution, especially in megacities. Air pollution level in developed countries have been increasing by in energy consumption and waste discharge. Increased combustion of fossil fuels in the last century is responsible for the progressive change in the atmospheric composition. Air pollution, such as carbon monoxide (CO), carbon dioxide (CO2), sulphur dioxide (SO2), nitrogen dioxide (NO2), methane (CH4), hydrogen sulphide, volatile organic compounds (VOCS), ozone (O3), heavy metals and respirable particulate matter (PM 2.5 and PM 10) differ in their chemical composition, reaction properties emission, time of disintegration and ability to diffuse in long or short distance. Air pollution has both acute and chronic effects on human health, affecting a number of different organ system. These gases are the cause of many respiratory and other diseases. Some significant measures should be taken and some strict laws should be made to prevent environmental pollution.

Keywords: Air pollutants, Human health, Detoxification, Public health effect.

DUCKWEED (WOLFFIA MICROSCOPICA) AS A POTENTIAL SOURCE OF NUTRITION FOR HUMANS

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ABSTRACT

Species of the genus *Wolffia* (Duckweed) are traditionally used as human food in Asian countries, is a tiny free floating fastest growing aquatic plant, belongs to the family Lamnaceae. It has approximately 20-30% protein, 10-20% starch, 1-5% fat, 25% fiber, minerals, carotenoid, phytosterols and tocopherols. It's protein contains high concentration of essential amino acids, which is close to the requirement of young children according to standards of World Health Organization. Although the fat content was low, but the fraction of polyunsaturated fatty acids was above 60% of total fat. The content of macro- and microelements (minerals) not only depended on the cultivation conditions but also on the genetic background of the species. Because of the fast growth and high nutritional value, Wolfia may be potential source of nutrition for human beings, which may help to overcome the problem of malnutrition in developing countries.

Keywords: Protein, starch, fat, fibers, malnutrition.

IMPACT OF SURFACTANTS IN AQUATIC LIFE

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ABSTRACT

Surfactants are becoming increasingly important in technological and academic fields on account of their unique characteristic due to the presence of both lyophilic and lyophobic moieties in the same molecule. Surfactants have found large number of applications in the field of industries, pharmacy, agriculture, plastic, textile as an emulsifiers, germicides, insecticides, cosmetics, medicines, thickeners, water proofing and wetting agents as well as in household detergents include laundry detergent, home cleaning supplies, and personal toiletries. When these different form of surfactant like insecticides, cosmetics, germicides, laundry detergent and household detergent all these discharged, develop the negative impact on environment and can cause water pollution problems. The damage degree of surfactants to aquatic plants relates to its concentration. When the content of surfactants is high in the water, it will affect the growth of algae and other microorganisms in water, resulting in decreased primary productivity of water bodies and undermining the food chain of aquatic organisms so the material exosmose and cell structure gradually disintegrate and the death of plants as well as animals microbes form the natural habitat and cause the extinct of different small species. The accumulation of surfactants increase with time. From the chemical structure, the relationship between the chemical structure of surfactants and the toxicity of water to aquatic organisms can be summarized as that the toxicity of ionic surfactant is greater in comparison to nonionic surfactant to aquatic organisms, plants and humans.

Keywords: Surfactant, water pollution, accumulation, aquatic life

CATALYST..... RECYCLES GREENHOUSE GAS INTO FUEL AND HYDROGEN GAS

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ABSTRACT

Scientist have taken a major step towards a circular carbon economy by developing a long lasting, economical catalyst that recycles green house gases into ingredients that can be used in fuel, hydrogen gas, and other chemicals . The results could be revolutionary in the effort to reverse global warming, according to the researchers.

The catalyst made from inexpensive and abundant nickel, magnesium, and molybdenum, initiates and speeds up the rate of reaction that converts carbon dioxide and methane into hydrogen gas. It can work efficiently for more than a month. This conversion is called "Dry Reforming" where harmful gases, such as carbon dioxide, are processed to produce more useful chemicals that could be refined for use in fuel, plastics, or even pharmaceuticals.

Other researchers had previously proposed nickel as more economical solution but carbon byproducts would build up and the surface nanoparticles would bind together on the cheaper metal, fundamentally changing the composition and geometry of the catalyst and rendering it useless. The difficulty arises from the lack of control on scores of active sites over the bulky catalyst surfaces because any refinement procedures attempted also changes the nature of the catalyst itself. The researchers dubbed the catalyst Nano catalysts on Single Crystal Edges (NOSCE). The magnesium oxide nanopwder comes from a finely structured form of magnesium oxide, where the molecules bind continuously to the edge. There are no breaks or defects in the surface, allowing for uniform and predictable reactions. This study involves a number of challenges as (NOSCE) mechanisms will improve other inefficient catalytic reactions and provide even further savings of greenhouse emissions.

This work was supported, in part, by the Saudi-Aramco-KAIST CO₂ Management centre and the National Research Foundation of Korea.

Keywords: Recycles, Carbon dioxide, Greenhouse gases, By-products

POTENTIAL OF SALIVARY BIOMARKERS FOR DIAGNOSIS AND MONITORING OF BRAIN HEALTH

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ABSTRACT

Human saliva may appear somewhat uninteresting, but it is actually a complex liquid composed of various enzymes, hormones, antibodies, antimicrobial constituents, and growth factors. Human saliva may contain more than 2000 proteins. Neurological disorders, especially neurodegeneration is caused by a progressive loss of certain classes of neurons that affect motor skill, memory, and overall cognition. Several neurological disorders might be resultant of up-regulation or down-regulation of certain proteins and similarly the same might be reflected in salivary proteins. Thus checking the altered behavior of such salivary proteins would reflect the diagnosis and prognosis of neurological diseases. This can highlight the urgent requirement for the development of easily accessible, non-invasive and cost-effective diagnostic tests that aim at early identification of neurological diseases. Indeed the salivary biomarkers, in their initial stages will not be able to solely detect neurological pathologies, but instead, these biomarkers shall serve towards in diagnosis, or simply replacing another invasive test. Brain derived neurotrophic factor (BDNF) acts on certain neurons of the CNS and PN, helping to support the survival of existing neurons, and encourage the growth and differentiation of new neurons and synapses and thus overall affect brain health. The scientific exploration towards non-invasively detecting BDNF through human saliva, mirror the brain health.

Keywords: Saliva, Proteomics, Brain, and BDNF

EFFECT OF MALATHION ON SERUM BIOCHEMISTRY OF FRESH WATER FISH Clarias batrachus (Linn.)

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ABSTRACT

Pesticide pollution is the pollution of the environment (land, water, air) by different kinds of pesticides that are used to kill pests. Thousands of years ago since the man declared a war against the pesticides who survived for several million years in spite of the fact that their greatest enemy, the man, has been exploring very possible means to eradicate them. It is beyond the man's power to estimate exactly the damage caused by these pests. So, it becomes necessary to control the pests for the benefit of the society by using different kinds of pesticides. Carbofuran and malathion are broad spectrum carbamate (CB) and organophosphate (OP) pesticides, respectively, that are widely used in agricultural practice throughout the world.

The serum total protein and albumin depletes significantly with increasing malathion exposure. This may be due to the pesticidal toxicity of malathion which leads to the nephrosis and an excessive renal excreation (albuminuria).

Keywords: Pesticide, Pollution, Protein, Nephrosis, Albuminuria.

TRANSCRIPTOME ANALYSIS OF DEVELOPING ROOT NODULE IN CHICKPEA (CICER ARIETINUM L.)

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ABSTRACT

A hallmark trait of legumes is to develop root nodules that fix atmospheric nitrogen in symbiosis with compatible rhizobia. Chickpea (Cicer arietinum L.) has the capability to fix large quantity of N₂ in association with Mesorhizobium ciceri. Therefore, the molecular dynamics of nodule development in chickpea needs to be investigated. To get an overview of the transcriptional flux during nodule development, the transcriptomes of nodules at early, middle and late stages of development were sequenced using the Roche 454 platform. Reads were assembled into transcripts and annotated using Gene Ontology (GO), Cluster of Orthologous Groups (COG) and Kyoto Encyclopedia of Genes and Genomes (KEGG) metabolic pathways analysis. Putative nodule specific transcripts were identified and enriched for GO categories that revealed a number of groups to be enriched such as transcription regulators and transporters. Differential expression analysis was carried out that revealed transcriptional flux during root nodule development. Differentially expressed genes were further analysed to identify enriched metabolic pathways, transcription factors and other important gene families. One of the important families of TFs, found up regulated was the Barley B Recombinant/ Basic Penta Cysteine (BBR-BPC), and hence is being characterized to analyze its role in nodule development. In conclusion, this study will help in enriching the transcriptomic resources implicated in understanding of root nodulation events in chickpea.

THE NEGATIVE EFFECTS OF MOBILE PHONES

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ABSTRACT

People are using cell phones in their everyday lives. It has become an essential item to be carried around. It is unusual and considered strange to not own a mobile phone. The scourge of excessive mobile phones is visible all around us. Children used to go outside their homes to parks and sports-fields when they were free from homework and studies. However, now children demand to play games on cellular phones causing obesity and lack of concentration.

A mobile phone performs many of the functions of a computer, typically having a touchscreen interface, internet access, and an operating system capable of running downloaded applications. Negative effects of smartphones include nerve cell damage in human brains. The radiation of the cell phone could be cancerous and have long-term effects. Data show that mobile phones in the upper pocket easily lead to heart disease. In addition, if there is a malfunction in the charger or the phone's hardware while the phone is being charged at the head of the bed, it may cause injuries. Prolonged mobile phone play can lead to dry eyes, sore eyes, and other eye diseases. Frequent keystrokes hurt your thumb. Excessive use of mobile phones and frequent texting can cause discomfort such as sore thumbs, numbness or swelling.

Keywords: Negative, excessive, mobile phones, lack of concentration, radiation, malfunction, discomfort, prolonged, injuries, diseases.

LAND CONVERSION BY HUMANS INFLUENCES WILD LIFE POPULATIONS IN INDIA

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ABSTRACT

Species of living beings are being lost each year at a fast pace. It is difficult to access the total number of species that exist. Cities are expanding at alarming rates and stretching beyond their original borders. Housing developments are infringing upon plant and animal homes by covering the earth with concrete, bulldozing hills to create flat lots of land, and damming rivers and streams to produce hydro-electricity. Land conversion by humans, resulting in natural habitat loss, is most evident in tropical forests and is less intensive in temperate, boreal and arctic regions. We have lost one half of the animal population and knowing this is driven by human consumption, . Human population growth, for example, has resulted in people settling in once-open areas, exacerbating conflict with wildlife. This paper deals with the problems and conservation of environment and living beings.

Keywords: Population, Consumption, wildlife, species, etc

STATUS OF SYNTHETIC PESTICIDE AND PLANT EXTRACTS AGAINST SITOPHILUS ORYZAE (COLEOPTERA) OF STORED FOOD GRAINS

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ABSTRACT

Bioassay studies were carried out in the laboratory to determine the toxicity of malathion and methanol extracts of corinader seeds, *Coriandrum sativum*, black pepper seeds, *Piper nigrum*, Clove buds, *Eugenia caryophyllata* and Cinnamon bark, *Cinnamomum zeylanicum*, against adult of *Sitophilus oryzae*. The treatment of wheat grains was carried out by dipping wheat grains in aqueous solution of malathion at concentration levels of 5, 10 and 20 mg/L and botanical extracts at the concentration level of 100, 300, 500ppm. Each concentration was applied in three replicates and each replicates contained 20gm of wheat grains. Then, 10 adults of *Sitophilus oryzae* were transferred to treated wheat grains which were put in a 85x75mm glass jar and kept at 30+2°C and 70%+5 RH, according to the method described by Kestenholz et al. 2017.

The efficacy of the plant extracts and malathion against *Sitophilus oryzae* adults by means of mortality was observed. The result show that *Cinnamomum zeylanicum* was the most effective treatment against *Sitophilus oryzae* adults followed by *Coriandrum sativum*, *Eugenia caryophyllata* and *Piper nigrum* and malathion. The mortality percentage of *Sitophilus oryzae* were significantly increased in the second week relative to the first week at all tested treatments. Increasing the concentration level of all tested treatments increased the mortality of *Sitophilus oryzae* adults even more (Concentration dependent).

Keywords: Synthetic pesticides, plant, extracts, plant products, *Sitophilus oryzae*.

BLUE PEAFOWL (PAVO CRISTATUS) POPULATION ESTIMATION IN AGRA FOREST DIVISON, UTTAR PRADESH, INDIA

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ABSTRACT

India declared the Blue Peafowl (*Pavo cristatus*) as National Bird of India in 1963. In India, it is given the utmost protection by its inclusion in the Schedule I of Wildlife (Protection) Act, 1972. They are omnivorous and feed on a variety of animal and plant material. They play an important role in regulating the ecosystem balance and are of religious importance. We carried out field survey from Jan 2018 to Dec 2019 to monitor the population status (*Pavo cristatus*) Agra forest division, Uttar Pradesh. The status of (*Pavo cristatus*) Based on transect count. This paper deals with the status of *Pavo cristatus* in Agra.

Keywords: Pavo cristatus, Transect count, wildlife, etc

IMPACT OF SULPHUR DIOXIDE ON CHLOROPHYLL CONTENT OF LENS CULINARIS L.

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ABSTRACT

The undesirable changes in the physical, chemical and biological characteristics of air land and water is pollution. The pollution is result of increased human population, rapid industrialization, urbanization and technology advancement. Sulphur dioxide is a hazardous pollutant which affects the plants is different way. The Sulphur dioxide produces visible as well as invisible effects. Sulphur dioxide causes a heavy loss to crop when it is present environment in higher concentration the effect of different concentration of SO₂ fumigation on the chlorophyll content of Lens culinaris L. was examined in the present study. Reduction in total chlorophyll was observed at higher concentration and there was no impact at lower concentration.

Keywords: Sulphur dioxide Fumigation, Lens culinaris L, Chlorophyll content

STUDIES ON THE VULNERABILITY OF BIODIVERSITY TO THE IMPACTS OF CLIMATE CHANGE

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ABSTRACT

The vulnerability of biodiversity to the impacts of climate change can be considered in terms of resistance and resilience to the changing climatic conditions. Predicting the responses of biodiversity to climate change had become an extremely active field of research. Climate change can have significant negative impacts on the natural environment including the significant loss of biodiversity and changes in ecosystem structure and services. Studies suggest that climate change has surpassed the habitat destruction as the greatest threat to biodiversity. Hence, there is an urgent need of time to review our current understanding of the effects of climate change on biodiversity and our capacity to project future impacts using ecological models. To this end, we have reviewed resistance and resilience stability and its possible impacts of climate change that operate at individual, species, community, ecosystem and biome levels and the different responses that could occur at individual, population or species levels.

Keywords: resistance stability, resilience stability, community, ecosystem.

ROLE OF SOME HYMENOPTERAN PARASITOIDS IN BIOLOGICAL CONTROL OF CHILLI THRIPS, SCIRTOTHRIPS DORSALIS, THYSANOPTERA: THRIPIDAE

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ABSTRACT

Chilli, *capsicum annuum*, belongs to the family solanaceae. All over the world, near about 105 million hectare area is for chilli production from which near about 7 million tons of chilli is produced. The main chili producing countries of world are India, Pakistan, Indonesia, Korea, Sri Lanka, and turkey.

Chilli is an important agricultural food crop which have great nutritional and also the medicinal value, as it serves as anti-cancer, anti-ulcer, analgesic, anti-inflammatory, anti-epileptic and anti-hemorrhoid agents so that it recognized beneficial for human health.

Chilli is considered as commercial vegetable as well as spice crop. In India, the main chilli growing states are- Karnataka, Orissa, Andhra Pradesh, Uttar Pradesh, Rajasthan, Maharashtra, Tamil Nadu and West Bengal.

Chilli thrips, *Scirtothrips dorsalis* is major constraints for a good production of chilli, because these pests suck and attack the crop at seeding stage and continue till first harvest.

It is observed that parasitoids are most effective in controlling the population growth of thrips. Their attack on thrips gives better results for the crop production of chilli. On the basis of results obtained, we observed that the roll of parasitoids as biological agents in the control of chilli thrips, *Scirtothrips dorsalis* is most effective.

DEVELOPMENT OF MENTHANE BASED DIMERIC BIS-π-ALLYLPALLADIUM CATALYST: ASYMMETRIC ALLYLATION OF IMINES.

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ABSTRACT

 η 3- π -Allylpalladium chloride dimers were first prepared by Hüttel¹ and Hafner² independently in 1959. The development of this chemistry was carried out by Tsuji and Trost Where they combined both Hüttel's method of preparation and Tsuji's allylation and disclosed the synthetic potential of these species. This chemistry today is widely referred to as "Tsuji-Trost" reaction.

Yamamoto and co-workers³ reported the first catalytic enantioselective synthesis of homoallylamines by the use of various chiral- π -allylpalladium catalysts prepared from different chiral moieties. Considering the limited chiral frameworks examined by Yamamoto and coworkers and low overall yield in catalyst preparation^{4,5,6}. In 2012 we reported the improved synthesis of π -allylpalladium chloride complexes based on pinene skeleton and also achieved higher enantioselectivity up to 99:1 er. In the same year, we also developed the first menthane-based chiral π -allylpalladium catalysts; since before the menthane moiety had been used extensively as a chiral auxiliary. The menthane-based chiral catalyst effected asymmetric allylation of imines up to 89:11 er. There are various monomeric $\eta 3-\pi$ allylpalladium complexes have been reported, but there was no report on η3 -π-bisallylpalladium chloride complexes till date to the best of our knowledge. Knowing that monomer complexes exist as dimers through chloride bridges, the proposed synthesis of biscomplexes intrigued us to study their formation and dimerization similar to the monomeric complexes. We have studied nature of dimerisation of our synthesized $\eta 3$ - π -bisallylpalladium chloride catalyst and also utilized it for the asymmetric allylation of imines similar to monomeric catalyst.

Keyword: Asymmetric alkylation/ Allylic alkylation/ Dimeric catalyst

STUDY OF DIFFERENT GENERATIONS PER YEAR OF CHRYSOCORIS STOLLI WOLF (HETEROPTERA- PENTATOMIDAE–SCUTELLERANE)

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ABSTRACT

Insecta is the largest class of phylum arthropoda and members of this class are characterized by the presence of three pairs of legs; hence, called Hexapod, Besides, these tracheate organisms have usually one or two pairs of wings. Insects always have been associated with mankind in one way or the other as some of them are beneficial other are pests of crops and house hold articles. Chrysocoris stolli Wolf (Heteroptera- Pentatomidae-Scutellerinae) The seasonal occurrence of Chrysocoris stolli was studied on Cassia occidentalies, Crotonsparisi florum, Bajra and Litchi plants from 2005 to 2006 at Saharanpur Nagal, Nakur, Behat, Sarsawa where the aforesaid plants are present in abundance (Plate-1). The rearing was done in hurricane lamp chimneys and wooden wire gauge cages as mentioned under rearing heading of biology chapter. Croton sparisiflorum and Cassia occidentalies were supplied as food and water was also kept in watch glass. Observation on copulation, egg laying and nymphal period were recorded and data are presented in table-1. The pair copulated on 1-3-2005 at 4.00 a.m. and copulation was ended at 10.00 a.m. Thus, copulation lasted for six hours. 27 eggs were laid in chimney in two batches of 14 and 13 at an interval of 12 hours on 3-3-2005and 4-3-2005. Eggs lying were observed for two days after which the couple was removed from the chimney. During this period, the female copulated with male few times. All the eggs laid on 3-3-2005 and 4-3-2005 hatched on 12-3-2005 and 13-3-2005 respectively. The first instars moulted on 19-3-2005 and 20-3-2005, Seconds in stars on 27-3-2005 and 28-3-2005, third instars on 4-4-2005 and 5-04-05. Fourth instars on 12-4-2005 and 13-4-2005 and fifth in stars on 26-4-2005 with six male and six female. Thus, they completed their life cycle in 54 days.

Keyword : Generations, per year of, *Chrysocoris stolli* .

AVIAN FAUNA OF JODHPUR JHAL IN THE PERSPECTIVE OF HUMAN THREATS

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ABSTRACT

This study is based on the issues related threats of human to birds and its habitat. This study is focused on resident and migratory birds and its environment at Jodhpur Jhal , Farah, Mathura , Uttar Pradesh (India). In this study we have collated the information of fauna and flora and human interference in birds habitats from field observations, surveys and interaction with locals. Conclusions based on the observed data.

As we know that some human activities are harmful for nature, birds, habitat and water. Birds do not require the human disturbance in feeding and breeding. Water pollution due to industrial discharge, destroying the habitat by human for illegal encroachment of forest land, Use of water of ponds or lakes for crops , tree and plants using for wood fuel by rural locals , grasses are using for cattle feeding , Shepherd set fire to birds habitats. Given the aforementioned problems are threats form human activities. The jodhpur jhal is unprotected area , so these human activities are harming birds and habitats. So this study is very important to protect the area of Jodhpur Jhal.

This study highlights the ways the local community, Irrigation Department, bird watchers and organizations participate in protecting the birds from harm. Through this study we suggesting to Irrigation and Forest Department to help the birds during their breeding periods and protect the habitat of these birds. This study area is not protected by the government. This study identifies the ecological importance of this water body and habitat respect to birds and threats by locals, and need to protection of this place for further expansion.

Keywords: Habitats, Birds, Human threats, water body, ecological importance.

PHOTOPERIODIC EFFECTS ON PHYSIOLOGICAL AND BIO-MOLECULAR CHANGES IN BLACKHEADED MUNIA (LONCHURA MALACCA MALACCA)

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ABSTRACT

Background: In nature, the daily light period changes across the seasons. A critical day length (threshold photoperiod) is referred to as the 'minimum' day light period that will induce a photoperiodic response to half-maximum.

Aim and objectives: It was aimed to determine the critical day length and photoinductivity in bio-molecular and physiological changes in blackheaded munia.

Methodology: Blackheaded munia were exposed to various day lengths (9, 10, 11, 12, 13, 14, 15, 16 h) and with a particular time interval different physiological parameter body mass, body molt, molt primaries and gonadal growth were measured. Blood samples were collected at time intervals.

Results: The body molt, molt primaries and testicular volume in *L. malacca malacca* didn't change under short (SD 9-13 h) photoperiods but in longer (LD 14-16 h) photoperiods, significant changes were found. Thus, the critical day length for this species is ~14 h. The eight-photoinductive cycles were needed to determine the critical day length. Thus, the critical photoinductive cycle of *L. malacca malacca* were observed in three Long photoperiodic cycles (LD). On the other hand, we determined the reversion phenomenon of physiological change in this experiment, when they were transposed to non-photoinductive photoperiod of 9-13 h day-length. We didn't observe the sexual immaturities, physiological character and bio-molecular changes in these birds.

Conclusion: This experiment shows that the Lonchura malacca malacca is a long day species.

Keywords: Critical day length, Short day, Long day, Body molt, Molt primaries, Testicular volume

SYNTHESIS AND CHARACTERIZATIONS OF MXENES FOR DEGRADATION OF DIFFERENT POLLUTANTS

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ABSTRACT

Photo catalysis is a low cost and environment-friendly technique to purify the wastewater from pollutants such as the organic dyes thus, splitting out the compounds to form water molecules and carbon monoxide. In the developing society, water pollutants and environmental pollution are becoming more and more serious. In recent years, photo catalytic has shown great potential as a low-cost, environmental-friendly, and sustainable technology. Here, a simple method to synthesize highly efficient catalytic compounds named as self-assembled MXene nanocomposites and self-reduction compounds has been proposed. MXenes have been demonstrated to adsorb a variety of environmental pollutants, including heavy metal ions, organic dyes, radionuclides, and gas molecules, and thus can be used for the removal of pollutants and even sensing. Palladium nanoparticles were grown in situ on MXene nanosheets to form MXene. MXene composites with different reaction times were prepared by adjusting the reduction reaction time. M_{n+1}AX_n (MAX) phases are nanolaminated compounds based on a transition metal (M), a group A element (A), and carbon or/and nitrogen (X), which exhibit a unique combination of ceramic and metallic properties. The conventional preparation method is limited by conditions such as cumbersome operation, high energy consumption, and high pollution. There is the urgent need to develop a new type of sustainable green material for degradable pollutants. We review the classification of current photo catalysts and the methods for improving photo catalytic performance; we also further discuss the potential industrial usage of photo catalytic technology. This review also aims to provide basic and comprehensive information on the industrialization of photo catalysis technology. Fast and efficient degradation of organic molecules is caused by different factors, which makes the Mxene monohybrid a highly efficient photo catalyst and a promising candidate for much future applications.

Keywords: MXenes, Nano and Green Materials, pollutants and photocatalyst.

MEDICINAL ASPECTS OF INVASIVE ALIEN PLANT SPECIES OF INDIA

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ABSTRACT

Invasion by the alien plant species were increased rapidly throughout the world during present days. Invasive Alien Plant species are threat to biodiversity and native flora .The invasion by these plants are also responsible for extreme economical loss of the country. Eradication of these alien species are very expensive and almost impossible task. Proper management strategies are required to take benefit from beneficial aspects of these plants. Recently the trend of herbal medicine is emerging in pharmaceutical industry as an growing prospect. Till now, a total of 173 invasive alien plant species have been identified in India; out of these 120 plant species belonging to 35 families have been found to possess significant medicinal properties such as anti-cancerous, anti-diabetic, anti-inflammatory, anti-bacterial, anti-helminthic, anti-pyretic and anti-oxidant. Out of 173 Invasive alien plant species 53 species are not reported with significant medicinal properties. These 53 species are interest of future research from medicinal point to take benefit from these plants.

Keywords: Invasion, Invasive alien plant species, Herbal medicine, Medicinal properties.

BIODIVERSITY RICHNESS OF FUTURE CITIES: CONSERVING PEACOCK

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ABSTRACT

Digital cities are being developed all over the world. Digital Life connects via advanced technology, currently it lacks provision for relevant information about our precious environment and biodiversity. Peafowls are national bird of India. They can reduce the use of harmful pesticides used on crops by consuming crop destructive pests- a direct benefit for Digital Farming aspirants. To successfully thrive of peafowl in digital city we should know the ethology of peafowl. To analyse the behavior of peafowls in a natural condition we can use different digital apps, softwares and tools like as Observer XT, Boris, iNaturalist app, Optical zoom camera, Binoculars. Behavioral data of both peafowls and wildlife can reduce risk of disasters by 40%, if online platforms for updates on environmental indicators will be maintained through trusted digital communication tools- both online and offline.

Keywords: Softwares, digital cities, conserving, peacocks,

COGNITION IN MACAQUES WITH URBANIZATION IN DIGITAL CITY

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ABSTRACT

Digital city is a strategy of smart and digitalized urban development is used to improve the quality of life in the cities. It provides information about various apps and software based technologies but not much information provides about biodiversity and ecosystem stability. Many species are currently in decline but the populations of Rhesus macaques continue to thriving in human-altered habitats because of their great adaptability and high dietary flexibility. Rhesus macaques take advantage of new resources and opportunities associated with human altered habitat, as a result they are often in conflict with humans and treated as a nuisance. To analyse the cognitive behavior of macaques in a natural condition we can use different digital apps, softwares and tools like as Observer XT, Boris, iNaturalist app, Optical zoom camera, Binoculars. Research has been conducted on several aspects of Macaca mulatta behavior quantitatively and qualitatively, although there are no studies done which cover all behaviors. Foraging behavior of this species has been extensively studied but several reproving gaps in knowledge exist, regarding in their cognitive abilities as a 'vermin' or nuisance species or the effect of such abilities on the adaptations to human disturbed habitats. Use of modern technology like behavior coding software for hypothesis testing of Rhesus macaque behavior is less reported. Therefore, there is a need to study all the behaviors and cognitive skills of Rhesus macaques by employing modern technologies for accurate results.

Keywords: Macaques, conflict, behavior, cognitive, conspecifics, nuisance.

EFFECT OF ORGANIC MEDIA ON DEVELOPMENT OF EISENIA FOETIDA DURING VERMICOMPOSTING

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ABSTRACT

Vermitechnology is a Promising technique that has shown its potential in certain challenging areas like waste recycling, management of solid wastes etc. In this present work, we deal with the management and decomposition of organic wastes by using vermicomposting technology to produce nutrient rich worm substance. Two types of livestock manure in combinations with agro/kitchen wastes were used for culturing the earthworm *Eisenia foetida*. The growth and development of an epigeic earthworm *Eisenia foetida* was studied under identical laboratory conditions .Physico-chemical characteristics of two livestock manures, Cow and Buffalo were noted. The concentration of total organic carbon and total potassium were higher in Cow manure as compared to Buffalo manure .As a result the development of *Eisenia foetida* were found higher in combination of Gram bran mix with Cow dung.

Keywords: Organic wastes, Vermitechnology, kitchen waste, Agro-waste, Eisenia foetida.

ULF WAVE AND ITS THEORITICAL DISCRIPTION

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ABSTRACT

Ultra low frequency (ULF) waves incident on the Earth are produced by processes in the magnetosphere and solar wind. These processes produce a wide variety of ULF hydromagnetic wave types that are classified on the ground as either Pi or Pc pulsations (irregular or continuous). Waves of different frequencies and polarizations originate in different regions of the magnetosphere. The location of the projections of these regions onto the Earth depends on the solar wind dynamic pressure and magnetic field. The occurrence of various waves also depends on conditions in the solar wind and in the magnetosphere. Changes in orientation of the interplanetary magnetic field or an increase in solar wind velocity can have dramatic effects on the type of waves seen at a particular location on the Earth. Similarly, the occurrence of a magnetospheric substorm or magnetic storm will affect which waves are seen. The magnetosphere is a resonant cavity and waveguide for waves that either originate within or propagate through the system. These cavities respond to broadband sources by resonating at discrete frequencies. These cavity modes couple to field line resonances that drive currents in the ionosphere. These currents reradiate the energy as electromagnetic waves that propagate to the ground. Because these ionospheric currents are localized in latitude there are very rapid variations in wave phase at the Earth's surface. Thus it is almost never correct to assume that plane ULF waves are incident on the Earth from outer space. The properties of ULF waves seen at the ground contain information about the processes that generate them and the regions through which they have propagated. The properties also depend on the conductivity of the Earth underneath the observer. Information about the state of the solar wind and the magnetosphere distributed by the NOAA Space Disturbance Forecast Center can be used to help predict when certain types and frequencies of waves will be observed. The study of ULF waves is a very active field of space research and much has yet to be learned about the processes that generate these waves.

Keywords: cavity modes, file line resonances, MHD, magnetic storm, magnetosphere, pulsations,

ई-वेस्ट (इलेक्ट्रॉनिक अप शष्ट) "भ वष्य की महामारी, कल के ख़तरे को लाने में हम सबकी भागीदारी"

डाॅं0 सुनीता यादव असिस्टेंट प्रोफेसर, चित्रकला विभाग आगरा कॉलेज, आगरा

सारांश

कहाँ कल तक एसटीडी की दुकान पर लोगों की लंबी कतार लग जाती थी और 05 मिनट की कॉल को करने में एक से दो घंटे इंतज़ार करना पड़ता था, वहीं आज खाने की टेबल पर बुलाने के लिए एक कमरे से दूसरे कमरे तक जाने तक की जरूरत नहीं पड़ती। बस एक कॉल ही काफी हो जाती है। दूर बैठे दोस्त से फोन पर है ही क्लास का पूरा चैप्टर डिस्कस हो जाता है। माचिस की डिब्बी जैसे कमरों के लिए पहाड़ से लगते वो पुराने टी वी आज छोटे शहरों में भी नज़र नहीं आते। एल सी डी ने भी एल ई डी के आगे घुटने टेक दिये। आज का खरीदा हुआ चाहे मोबाइल हो या कोई घरेलू उपकरण, केवल छह महीने बाद तकनीकी के मामले में सदियों पुराना दिखाई देने लगता है। ऐसे ही न जाने कितने उदाहरण हैं जो विश्वभर में लोगों की उस नयी विचारधारा को सामने ला रहे हैं जिसमे नए को पुराना होने में ज्यादा समय नहीं लगता। Obsolete (out dated) और Updated, ये दो ऐसे शब्द हैं जिनको इंसानों ने या तो अपने बचाव या बहाने के लिए कुछ इस तरह से पकड़ लिया है कि उसकी ये परिवर्तनशील विचारधारा का नकारात्मक प्रभाव किसी को नज़र नहीं आ रहा। इंसान का ये बचाव या बहाना उसे एक ऐसी बीमारी के पालन पोषण के लिए प्रोत्साहित कर रहा है जो आज तो उसे नज़र नहीं आ रही लेकिन भविष्य में एक ख़तरनाक महामारी के रूप में जरूर आगे आएगी। बस कुछ धीमी रफ़्तार या कम्पनियों के आकर्षित विज्ञापन के बहकामें में आकार पुराने को भूल कर नए के साथ आगे आने में इंसान ये कभी नहीं सोचता कि जिस पुराने को उसने स्क्रैप में छोड़ दिया है वो उसके लिए कितना घातक सिद्ध हो रहा है या होने वाला है। ई-वेस्ट पर्यावरण व मानवीय स्वास्थ्य दोनों के लिए बहुत हानिकारक है जिसका मुख्य कारण इलेक्ट्रोनिक उपकरणों के घटक तत्व है जो बह्त जहरीले श्रेणी के होते हैं, लीड, मरकरी, कैडियम, बेरियम, ब्रोमीन इत्यादि। जब इलेक्ट्रॉनिक्स ठीक से पूनर-नवीनीकरण नहीं किया जाता है तो इलेक्ट्रॉनिक्स कचरा आस-पास के क्षेत्र में फैल सकता है और फसलों, पशुधन और वन्य जीवन को दूषित कर सकता है। परित्यक्त इलेक्ट्रॉनिक्स लैंडफिल का हिस्सा तो बन जाता है लेकिन गर्मी में इसके घटक तत्व पिघलकर जमीन और पानी में मिल जाते हैं फिर उस जमीन व पानी के प्रयोग की फसलों में ये प्रवेश कर जाते हैं। इस सभी माध्यमों के द्वारा जब इसका उपभोग किया जाता है तो विषाक्त तत्व मानव शरीर में पहुँच कर कैंसर व तंत्रिका संबंधी बड़ी बीमारियों को जन्म देते हैं। इस प्रकार हमारा लगाया गया बीज़ हमे उसी तरह का फल प्रदान करता है। भले ही कोई कितना भी ज़ोर लगा कर कहे कि इलेक्ट्रॉनिक्स का रिसाइक्लिंग किया जा रहा है और सभी इलेक्ट्रॉनिक्स उपकरण कंपनियाँ इसका पालन कर रही हैं लेकिन हम सभी ये समझ सकते हैं कि कबाड़ी को दी गयी हमारी प्रानी वॉशिंग मशीन हो या पुराना फ्रीज़, उसका कितना रिसाइक्लिंग हुआ होगा। अतः केवल रिसाइक्लिंग के नाम से हम अपनी जि़म्मेदारी से नहीं बच सकते। अतः अपनी आदतों और सोच को पहले बदलना होगा ताकि ई-वेस्ट को कम किया जा सके और आने वाली बीमारी को आज ही रोका जा सके।

ECONOMIC EVALUATION OF WATERSHED DEVELOPMENT IN THE HIMALAYAN STATE OF UTTARAKHAND

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ABSTRACT

The economic evaluation of watershed development in the Himalayan state of Uttarakhand has been evaluated in a 'pre project' and 'post project framework. This study used primary data from randomly selected 75 farm families and secondary data from different sources. Descriptive data analysis method was used. Overall, the watershed development programmes increased agricultural land, productivity and cropping intensity in all cropping seasons. The watershed development programme increased the number of technology users and household income in all categories of farmers. Majority of them had expressed "lack of subsidized rate input supply", as one of the major constraint followed by others. Frequent visits of the extension worker and expansion of agriculture infrastructure should be encouraged to help increase benefit from watershed development.

ENVIRONMENT THREAT, MERCURIC CHLORIDE TOXICITY ASSESSMENT IN RATTUS NORVEGICUS

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ABSTRACT

Exposure of mercuric chloride can disturb the metabolic activity of a particular organ. Hence present study is designed to find out changes in hepatic biochemistry, histochemistry and histopathology besides serum enzyme levels after acute (6 hrs, 12 hrs and 24 hrs) and subacute (7 ds, 14 ds and 28 ds) treatment of mercuric chloride in Rattus norvegicus. Mercuric chloride was given orally 0.926 mg/kg body weight for acute and 0.330 mg/kg body weight for sub-acute set after LD₅₀ (9.26 mg/kg body weight) determination by Probit analysis. The control groups received distilled water only. The result revealed that mercuric chloride caused fall in glycogen content, while elevation in cholesterol, total lipid, free fatty acids and protein level after acute and sub acute treatment, while serum biochemistry showed significant increase in alanine aminotransferase (ALT), aspartate aminotransferase (AST) and alkaline phosphatase (ALP). On the other hand histochemical results revealed reduction in the presence of glycogen and protein in hepatic lobules after mercuric chloride intoxication, while histopathological study shows pyknotic nuclei, degenerative nuclei, fat droplets and hepatocellular fluid accumulation inside centrilobular space. On the basis hepatobiochemical, histochemistry, histopathological and serum biochemistry alterations it becomes clear that mercuric chloride is a environment threat.

Key words: *Rattus norvegicus*, periodic acid shiff's reagent, by bromophenol blue reagent

MERCURIC CHLORIDE INDUCED NEURODEGENERATIVE CHANGES: AN ASSESSMENT BASED ON NEURONAL CELL ARCHITECTURE IN ALBINO RAT

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ABSTRACT

Mercury is a heavy metal that has been reported to cause devastating health problems in developed and underdeveloped world. This work studies the effect of mercuric chloride on the histoarchitectural changes on the cerebrum of the adult albino rats. Twenty five female rats were divided into five groups of five rats each. Group I serves as control which receives normal water. Group II served as acute (1d) and received 10.3 mg/kg b.wt. of mercuric chloride orally, while group III, IV and V served as sub acute (7, 14 and 21ds) received 1.47, 0.73 and 0.49 mg/kg b.wt. of mercuric chloride. Animals were etherized and brains were dissected out after dismantling of cranium. The brains were fixed in Bouin's fluid and tissues were processed histologically using H and E stain. Histological observation of the cerebrum showed a normal architecture in group I while group II showed degenerative changes, necrosis, pyknosis in neurons and group III, IV and V exhibited hypertrophy in microglial cells, clumping of glial cells pyknosis and necrosis in neurons. It was concluded from the present study that mercuric chloride treatment has neurodegenerative effects on the cerebrum, a part of central nervous system pertaining to memory and learning.

Key words: mercuric chloride, cerebrum, neurodegeneration, hypertrophy, albino rat

THE STUDY OF IMPORTANT ROLE OF VEGETATION IN CLIMATE CHANGE

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ABSTRACT

A change in the type, distribution and coverage of vegetation may occur given a change in the climate. Some changes in climate may result in increased precipitation and warmth, resulting in improved plant growth and the subsequent sequestration of airborne CO2. A gradual increase in warmth in a region will lead the earlier flowering and fruiting times, driving a change in the timing of life cycles of dependent organisms. Conversely, cold will cause plant bio-cycles to lag. Larger, faster or more radical changes, however, may result in vegetation stress rapid plant loss and desertification in certain circumstances. An example of this occurred during the Carboniferous Rainforest Collapse (CRC), extinction even 300 million years ago. At this time vast rainforests covered the equatorial region of Europe and America. Climate change devastated these tropical rainforests, Abruptly fragmenting the habitat into isolated 'islands' and causing the extinction many plant and animal species Satellite data available in recent decades indicates that global terrestrial n emery production increased by 8% from 1992 to 1999, with the largest portion at increase in tropical ecosystems, then decreased by 1% from 2000 to 2009 and highly degradation in last 20 years.

COORDINATING TRADITIONAL KNOWLEDGE WITH COMPUTER SCIENCE FOR THE CONSERVATION OF BIODIVERSITY

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ABSTRACT

The craft of following, as rehearsed by San tracker gatherers of the Kalahari, likely could be the root of science. Trackers increase an itemized comprehension of creature conduct through the translation of tracks and signs. Right now data can be gotten that would some way or another stay obscure, particularly on the conduct of uncommon also, nighttime species that are not frequently observed. The best trackers, nonetheless, are found in tracker gatherer networks with oral conventions and can't peruse or compose. The creators have built up a hand-held field PC with a UI that empowers trackers who can't peruse or set up to account every one of their perceptions. PC perception permits researchers to examine information gathered by trackers. When chasing with bows and bolts are declining, the craft of following can be rejuvenated and formed into another science with numerous functional applications in the preservation of biodiversity.

CHEMOTYPIC DIVERSITY OF GENUS OCIMUM L. FROM INDIA

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ABSTRACT

Medicinal and aromatic plants are the reservoirs of many secondary metabolites useful for humans. Essential oils and their aroma constituents have great importance in several fields such as food, flavour, perfumery, fragrance, pharmaceuticals, as spices and natural food preservatives, for aromatherapy and related medicinal uses. The genus *Ocimum* comprises more than 150 pecies and is considered as one of the largest genera of family Lamiaceae. Ocimum spp (Lamiaceae), commonly known as 'Basil', are annual or perennial, highly aromatic, branched herb or shrub native to the tropical and subtropical regions of Asia, Africa, and Central South America. The member of the genus Ocimum are annual or perennial, highly aromatic herbs or shrubs including important essential oil yielding spp. such as Ocimum basilicum L., Ocimum tenuiflorum L., Ocimum gratissimum L., Ocimum americanum Sims, Ocimum kilimandscharicum Guerke, and Ocimum micranthum Willd. cultivated globally for their dry herbs, essential oils and high-value aroma chemicals. Moreover, Ocimum spp. are accredited with diverse medicinal properties, and extensively used in traditional and indigenous medicines for the treatment of abdominal pains, colds, coughs, measles, insomnia, rheumatism, sunstroke, gonorrhea, inflammation, snakebite/insect bites, stomach and kidney malfunctions etc. The chemical composition of essential oils of Ocimum spp. has been well studied reporting a wide array of chemical constituents depending on environmental and agricultural conditions as well as due to existence of numerous chemotypes/cultivars. However, lack of scientific knowledge on such variability often limits the optimal use of plant species. The natural variability in genus Ocimum and their wide distributions throughout the world provide a wide range of biotype/chemotypes for selection and subsequent breeding, varietal and agrotechnology development programmes. CSIR-CIMAP developed and promoted high essential-oil and constituent's specific varieties for commercial cultivation and essential oil production in India.

Key Words: Biodiversity Chemotypes, *Ocimum* spp., CIMAP cultivars.

HEPATOPROTECTIVE EFFECT OF ALOE VERA AGAINST MERCURIC CHLORIDE INDUCED ALTERATIONS IN RATTUS NORVEGICUS (BERKENHOUT)

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ABSTRACT

Mercury, a heavy metal, causes serious health problems in living systems. Mercury exists in three physical states viz., elemental, inorganic and organic. All the states of mercury cause severe damage to the central nervous system also. The present study has been conducted to demonstrate the protective effect of Aloe vera against mercuric chloride induced toxicity in albino rats. The twenty four albino rats were grouped in three sets- control set (1) were kept in control conditions, while, experimental set (2) was exposed to 0.49 mg/kg/day b.wt. of mercuric chloride for 30 and 60 days, experimental set (3) were exposed to to 0.49 mg/kg/day b.wt. of mercuric chloride with oral administration of Aloe vera fruits extracts (200mg/kg b.wt.) for 30 and 60 days respectively. The experiments were conducted as per OECD guidelines. The morphometric changes showed marked decrease in body and brain weight (p<0.05) when compared to control. The results of the present findings indicate that mercuric chloride causes significant increase in total bilirubin (p<0.05), conjugated bilirubin (p<0.05) but non-significant increase in unconjugated bilirubin level in liver as well as significant decrease in serum total protein (p<0.001), serum albumin (p<0.05), globulin (p<0.05) and significant increase in serum enzymes AST(p<0.01), ALT(p<0.001), GGT(p<0.01) and ALP (p<0.001) in albino rats. Oral administration of *Aloe vera* recovers all these alterations at their normal level which is an indication of remedial effect of A. vera on mercuric chloride induced toxicity.

Keywords: Albino rats, Mercuric Chloride, *A. vera*, Serum Bilirubins, Total Protein, Serum enzymes

BEHAVIORAL ECOLOGY OF TURDOIDES STRIATUS

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ABSTRACT

The genus, Turdoides comprises open country birds. 30 species from the Turdoides genus are reported in the Indian subcontinent and Asia. The jungle babblers (*Turdoides Striatus*) commonly occur in groups of seven hence called seven sisters. These are beneficial to agricultural lands as they feed on crop-pests. They live in groups of two to twenty throughout the year and defend the common territory. The social behavior within groups of animals suggests higher cognitive abilities of jungle babblers.

Keywords: babblers, subcontinent, crop-pests, territory, cognitive

MEDICINAL VALUE OF CARICA PAPAYA & TINOSPORA CORDIFOLIA IN DIABETES MELLITUS

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ABSTRACT

Diabetes mellitus is a global health problem which is fast-growing with huge social and economic consequences. To date there is no satisfactory treatment to cure the diabetes days, medicinal patients completely. Now plants with antihyperglycemic activities are being searched to meet the need to treat diabetes mellitus. In ayurveda and recent modern researches, antidiabetic properties of Tinospora cordifolia and Carica papaya are highly appreciated. In in-vitro studies aqueous extract of C. papaya (leaves) and methanol extract of T. cordifolia (stem) were found to significantly decrease the blood glucose levels in diabetic rats. Furthermore, it also decreased cholesterol, triacylglycerol and aminotransferases blood levels in the rats. The level of insulin in plasma in diabetic rats did not change after treatment, but significantly increased in non-diabetic animals. In the histological analysis of pancreatic islet cells in non-diabetic treated animals were found normal, whereas in diabetic treated rats, extracts could help islet regeneration, which is manifested as preservation of cell size. Treatment of the diabetic rats also, prevented hepatocytes disruption, as well as accumulation of glycogen and lipids in their liver. These both extracts also showed antioxidant effect and improved lipid profile in diabetic rats. In addition, the leaf extract positively affected the integrity and function of both liver and pancreas. The study suggests that the aqueous extracts of C. papaya and T. cordifolia may improve the metabolic disruption produced in diabetes. However, detailed research is needed to gain a better understanding of its therapeutic potential, phytochemical constituents and the exact mechanism of action.

Keywords: Antihyperglycemic, hepatocytes, cholesterol, antidiabetic, phytochemical.

CLIMATE CHANGES AND VECTOR BORNE DISEASE IN INDIA

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ABSTRACT

Vector borne diseases have been the major concern in the last convention of Biotechnology, Govt. of India, New Delhi and it was concluded that coming 25 years belong to vector borne diseases. Localized climatic factors play a very important role in the regulation of vectorial capacity of the vector species. The interactions between the atmosphere, oceans, terrestrial and marine biospheres and land surface regulate the Earth's surface climate. The concentrations of greenhouse gases, including carbon dioxide, methane, and nitrous oxide are increasing day by day, chiefly because of human ventures, viz. usage of fossil fuel, rough land use & agriculture practices and many more. An increase in greenhouse gases elevates the warming of the atmosphere and the Earth's surface. Studies suggested that the average global temperatures have risen by 1.1 °C during 2010-2019, increasing the occurrence of various vector-borne diseases in new geographical areas. Moreover, the global mean sea level rise is about 3.3 mm per year which directly affects the moisture contents of the soil, favoring the flourish of the insect vectors. The vast effect of climate change on transmission is observed at the antipodes of the range of temperatures at which transmission occurs; for instance, the development of new foci of Leishmaniasis in the Himalayan states of India. Currently, more than a billion people are infected and about a million people die annually from vector-borne diseases including Malaria, Dengue, Schistosomiasis, Leishmaniasis, Chagas disease, Yellow fever and Lymphatic filariasis. Various species of Diptera are accountable for transmitting most of vector-borne diseases and are sensitive to temperature changes as on their immature stages in the aquatic environment and adults in terrestrial system. When water temperature rises, the larvae will take lesser time to mature and thereby there is a higher opportunity to produce more offspring during the transmission period of the vector which finally enhances cases of vector borne disease. Current study suggests that the inter-annual and inter-decadal climate variations have a direct impact on the epidemiology of vector-borne diseases as there is a co-relation between the climate change and the incidence of vector borne disease.

Keywords: Climate, Epidemiology, Green house gases, Vector

EFFICACY OF ALCOHOLIC BARK EXTRACT OF TERMINALIA ARJUNA IN CIGARETTE SMOKE EXPOSURE MEDIATED ALTERATIONS IN SERUM ENZYMES IN RATS

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ABSTRACT

The purpose of the present study was to determine the efficacy of alcoholic bark extract of *Terminalia arjuna* in cigarette smoke exposure mediated alterations in serum enzymes in rats. A total number of fifteen healthy albino rats were grouped in to three groups (1,2 and 3) comprising five rats each. Group (1) served as normal control without exposure to cigarette smoke. Group (2) received cigarette smoke exposure (6 filtered cigarettes) for one hour / day for 30 days and group (3) was exposed to cigarette smoke along with oral administration of alcoholic bark extract of *Terminalia arjuna* (5 mg/rat/day) for 30 days. The results indicate, that a significant increase in Aspartate amino transferase (AST) and alanine amino transferase (ALT) after exposure to cigarette smoke in comparison to control group (1), while a significant decrease in Aspartate amino transferase (AST) alanine amino transferase (ALT) after exposure to cigarette smoke along with oral administration of alcoholic bark extract of *Terminalia arjuna* in comparison to group (2). This is due to the efficacy of alcoholic bark extract of *Terminalia arjuna* possess potent antioxidant activity due to presence of flavonoids, triterpenoids, glycosides, polyphenols which reduce the levels of AST and ALT.

Keywords: Albino rats, cigarette smoke, serum enzymes, alcoholic bark extract of *Terminalia arjuna*.

ASSESSMENT THE WATER QUALITY WITH THE HELP OF PLANKTONIC DIVERSITY OF THE SUSHWA RIVER, DEHRADUN

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ABSTRACT

The samples were collected monthly from selected two site of Sushwa River from December 2015 to May 2016. During the investigation period various water parameter was analyzed, Air & Water temperature, ph, Turbidity, EC, TDS, DO,FCO₂, Total Hardness, etc. Totally 29 Spices was recorded from two sites throughout the study period, In present study Palmer, (1969) Algal Species Pollution Index were employed to study the water quality of Sushwa river. The most abundant taxon was Chlorophyceae (44%), Bacillarophyceae (29%) & Zooplankton (27%). The total score of Algal Spices Pollution Index of Site-1 (upstream) and Site-2 (Downstream) were 75.5 and 46.1 respectively. The total score of each site was greater than 20 indicating the confirmed high organic pollution. Considering all the water parameters and pollution index it was clearly shown that that, the higher score for Palmer index at upstream indicating high organic pollution. While the total scores of Downstream was less indicating probable moderate organic pollution. The results of the present study revealed that the surface water quality was affected from domestic uses at the upstream of the river. Thus, algal communities were used as bioindicator of organic pollution of river Sushwa, Dehradun.

Keyword: Water quality, organic pollution, Palmer Pollution index, planktonic diversity, Sushwa River.

BIOREMEDIATION: PROSPECT AND PERSPECTIVES

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ABSTRACT

Biotechnology has emerged as an applied discipline of biological research with its application in agriculture, forestry, industry as well as medicine. An equally important area of global concern that has emerged only recently is the environmental applications of biotechnology. It has been recognised that biological systems, primarily of microbial origin could prove potential means of degrading some such complex environmental pollutants as well as preventing pollution through waste treatment. Such environmental applications of biotechnology emerged into a new area of research and development, bioremediation. Most bioremediation processes involve oxidation-reduction reaction where either an electron acceptor (commonly oxygen) is added to stimulate oxidation of a reduced pollutant (e.g. hydrocarbons) or an electron donor (commonly an organic substrate)is added to reduce oxidized pollutants(nitrate, oxidized metals, chlorinated solvents, explosives and propellants etc.). In both these approaches, additional nutrients, vitamins, minerals and pH buffers may be added to optimize conditions for the microorganism. Bioremediation has potential to provide a low cost, non-intrusive, natural method to render toxic substances. But of course bioremediation is not yet optimized and needs to be improved by further research.

Keywords: Environment pollution, biotechnology, bioremediation, toxicants

भारत में पर्यावरण संरक्षण संबन्धी अधिनियमों एवं सरकारी नीतियों का क्रियान्वयनः विश्लेष्णात्मक अध्ययन

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सार

भारत प्राकृतिक संसाधनों का धनी दे"। है। भारत में अपार प्राकृतिक सम्पदा विद्वमान रही है। जबकि भारत पर कई आक्रान्ताओं ने कई आक्रमण किए और भारत से अपार धन दौलत के अतिरिक्त अपार प्राकृतिक संसाधनों का दोहन किया और लूट कर ले गए। इसके बाबजूद भी भारतीय भूमि में आज भी अपार प्राकृतिक संसाधन मौजूद है। 'पर्यावरण' शब्द विस्तृत अर्थ वाला है जिसका तात्पर्ये उस हर चीज से है, जो विद्वमान है चाहे सजीव हो या निर्जीव। पर्यावरण को प्रदृषित करने वाले कई कारक हैं। प्राकृतिक आपदाएं जैसे भुकम्प, बाढ एवं तुफान आदि पर्यावरण प्रदुषण के बड़े कारक हैं इसी के साथ-साथ मानवीय क्रियाएँ भी पर्यावरण प्रदूषण में महती भूमिका निभाती हैं। प्राकृतिक आपदाओं को रोकने के लिए तो विधियां नहीं बनायीं जा संकती परन्तु मानवीय क्रियाओं को नियन्त्रित करने के लिए नियम, कानून बनाए जा सकते हैं। मानव विकास के साथ-साथ ही पर्यावरण प्रद्षण में वृद्धि हुई इसलिए धर्मों के उदय के साथ ही साथ पर्यावरण प्रदूषण को रोकने लिए धर्म शास्त्रों में नियम बनाए गए। राज्यों के अस्तित्व में आने पर राजा, महाराजा तथा प्र"ाासकों ने पर्यावरण प्रदुषण को नियन्त्रित करने या कम करने के लिए कई प्रयास किए। भारतीय विधानमण्डल ने अब तक दो सौ से अधिक कानुनों को अधिनियमित किया है। केन्द्रीय सरकार ने राष्ट्रीय स्तर पर और राज्य सरकारों ने राज्य स्तर पर पर्यावरण प्रदुषण को कम करने के लिए कई आदे"। तथा निर्दे"। जारी किए हैं तथा कई अधिनियम पारित किए हैं। उच्च न्यायपालिका ने पर्यावरण प्रदुषण को कम करने के सम्बन्ध में कई मामलों में केन्द्रीय सरकार तथा राज्य सरकारों को कई निर्दे"। जारी किए हैं। राष्ट्रीय हरित न्यायाधिकरण ने (ग्रीन बैंच) ने पर्यावरण को नुकसान पहुचाने वाली संस्थाओं के विरूद्ध कठोर कार्यवाही करते हुए भारी जुर्माना लगया है। केन्द्र एवं राज्य की सरकारों ने कई नीतियां भी बनाई हैं। शोधार्थी ने अपने लेख में पर्यावरण प्रदूषण निवारण सम्बन्धी अधिनियमित विधियों, नीतियों एवं योजनाओं के क्रियान्वयन पर वि"लेष्णात्मक अध्ययन किया है।

सार शब्द:- प्राकृतिक संसाधनों, आक्रान्ता, सम्पदा, निर्जीव, सजीव, मानवीय क्रियाएं, नीति एवं योजना

SPICES ARE POTENTIAL AGENTS FOR THE TREATMENT OF VARIOUS CANCERS

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ABSTRACT

Cancer is one of the most devastating disease and a global health problem, despite good understanding of its molecular basis and advance in treatment, according to WHO it accounts for 63% of death globally. It has been estimated that 30-40 % of all cancers can be prevented by life style and the diet rich in fruits and vegetables. Anticancer drug used for the treatment of cancers suffers from generally inadequate efficacy and number of serious adverse effects in human health, so there has been a great switchover in the universal trend of medicine selection from synthetic to herbal. Medicinal plants have been best known in all over the world as a rich source of therapeutic agents. Approximately 3,500 plant species have been found to have anti cancerous activity. Spices have been widely used in food flavouring and as folk medicine for thousands of years. Numerous studies have documented the antioxidant effect of spices such as Capsicum annuum (red chilli), Centratherum anthelminticum (black cumin), Coriander sativum, Curcuma longa (turmeric), Piper nigrum (black pepper), Syzygium aromaticum (clove), Zingiber officinale (ginger) which contain many bioactive compounds namely capsaicin and myriceti (bioflavonoid), vernodalin, αpinene, limpnene, γterpinene, p-cymene and flavonoids, α-turmerone, curcuminoids and curcumin curcumin, pellitorine, betulinic acid, gingerol which might be helpful in prevention and treatment of several cancers including lung, liver, breast and stomach. The main mechanism of action included apoptosis, inhibiting proliferation, migration and invasion of tumours etc. This review summarized recent studies on some species for prevention and treatment of cancers, and special attention was paid to bioactive components and their mechanism of action.

Keywords: Cancer, spice, antitumor agents, antioxidant, apoptosis.

SPICES ARE POTENTIAL AGENTS FOR THE TREATMENT OF VARIOUS CANCERS

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ABSTRACT

Cancer is one of the most devastating disease and a global health problem, despite good understanding of its molecular basis and advance in treatment, according to WHO it accounts for 63% of death globally. It has been estimated that 30-40 % of all cancers can be prevented by life style and the diet rich in fruits and vegetables. Anticancer drug used for the treatment of cancers suffers from generally inadequate efficacy and number of serious adverse effects in human health, so there has been a great switchover in the universal trend of medicine selection from synthetic to herbal. Medicinal plants have been best known in all over the world as a rich source of therapeutic agents. Approximately 3,500 plant species have been found to have anti cancerous activity. Spices have been widely used in food flavouring and as folk medicine for thousands of years. Numerous studies have documented the antioxidant effect of spices such as Capsicum annuum (red chilli), Centratherum anthelminticum (black cumin), Coriander sativum, Curcuma longa (turmeric), Piper nigrum (black pepper), Syzygium aromaticum (clove), Zingiber officinale (ginger) which contain many bioactive compounds namely capsaicin and myriceti (bioflavonoid), vernodalin, αpinene, limpnene, γterpinene, p-cymene and flavonoids, α-turmerone, curcuminoids and curcumin curcumin, pellitorine, betulinic acid, gingerol which might be helpful in prevention and treatment of several cancers including lung, liver, breast and stomach. The main mechanism of action included apoptosis, inhibiting proliferation, migration and invasion of tumours etc. This review summarized recent studies on some species for prevention and treatment of cancers, and special attention was paid to bioactive components and their mechanism of action.

Keywords: Cancer, spice, antitumor agents, antioxidant, apoptosis.

STUDY OF SOCIO-ECONOMIC CHARACTERISTIC AMONG FARMING COMMUNITY AT FIROZABAD

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ABSTRACT

The India is largest population country. 57% population depends on agriculture. India has fully democratic country and the rural progress of the country directly depends upon progress of theses village. Leadership plays an important role in shaping the social, political and economic life of the people. The present study was carried at Firozabad district Uttar Pradesh, India. During present study socio-economic characteristics were studied by interview schedule. It was revealed that the social awareness, social participation and education are the important factor of rural leadership.

Keywords: Leadership, Socio-economic, Social awareness, Social participation.

EFFECT OF POTASSIUM BROMATE ON RENAL FUNCTIONS OF ALBINO RAT

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ABSTRACT

In the present study serum sodium were increased, while potassium and calcium levels were decreased after potassium bromate treatment. Sodium, portassium and calcium levels are regulated by the kidney. The enhancement in serum level of sodium and together with reduction of serum potassium reflects the toxic effect of potassium bromate on the kidney tubules which change the permeability of tubular cell membrane. Probably the reactive oxygen species generated from potassium bromate might be a principle agent for that provoked oxidative stress.

In the present study serum urea, uric acid and creatinine levels were increased after potassium bromate treatment. Increased activities of serum enzymes have been reported in conditions of tissue damage. The pronounced alteration in enzyme activity may be attributed to the fact aht the latter has a major role of detoxification and hence capable of handling toxic compounds such as potassium bromate. The probably due to renal damage as reflected by high level of urea and creatinine. The increase in serum levels of urea and creatinine in this study are indication of renal toxicity.

BIODIVERSITY LAWS IN INDIA

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ABSTRACT

The environment has been defined as that outer physical and biological system in which man and other organisms live as whole. The entire system is a complicated one as it has many interacting components. These components of the environment generally include: its rocks, minerals, soils and waters, its lands and their present and potential vegetation, its animal life and potential for livestock husbandry, and its climate. There is a close and complicated interaction amongst these various components which, tend to produce some kind of equilibrium in the scheme of nature what is usually termed as ecological balance. In India many Biodiversity Laws are such as the Biological Diversity Act 2002, The Indian Wildlife (Protection) Act 1972, Environment (Protection) Act 1986 and Foreign Trade (Development & Regulation) Act 1972. To maintain the biodiversity provision of Section 9 the prohibition of hunting The Wild Life (Protection) Act 1972.

ENVIRONMENTAL IMPACT OF SOLAR ENERGY AT PRESENT TIME IN NORTH REGION

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ABSTRACT

At present time in India Solar energy is the best source of electrical energy. Solar systems/power plants do not produce air pollution, water pollution, or greenhouse gases. Using solar energy can have a positive, indirect effect on the environment when solar energy replaces or reduces the use of other energy sources that have larger effects on the environment. However, some toxic materials and chemicals are used to make the photovoltaic (PV) cells that convert sunlight into electricity. Some solar thermal systems use potentially hazardous fluids to transfer heat. Leaks of these materials could be harmful to the environment. India environmental laws regulate the use and disposal of these types of materials. As with any type of power plant, large solar power plants can affect the environment near their locations. Clearing land for construction and the placement of the power plant may have long-term effects on the habitats of native plants and animals. Some solar power plants may require water for cleaning solar collectors and concentrators or for cooling turbine generators. Using large volumes of ground water or surface water in some arid locations may affect the ecosystems that depend on these water resources. In addition, the beam of concentrated sunlight a Solar power tower creates can kill birds and insects that fly into the beam. There are some good and bad effects of solar energy on climate changes and global warming.

DOMINANT MELOIDOGYNE SPECIES INFESTING CASH CROPS AND VEGETABLE CROPS OF BULANDSHAHR REGION

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ABSTRACT

Bulandshahr region is a hub of vegetable and flower growers and produces vegetables and cut flowers for its own consumption as well as for the area around it. A large part of the vegetables and flowers grown here are consumed in the NCR region as well. The area though, quite fertile, is plagued with a wide range of pests, the root knot nematodes being one of them. This genera is formed of one of the most widely spread pests limiting world agricultural productivity. The parasite is a nefarious one and is a pest of a wide range of crops and effects indiscriminately. A survey was carried out to identify and determine the infestation level of the of the dominant *Meloidogyne* species effecting the area. The samples studied showed that two species of *Meloidogyne*, *M. javanica* and *M. incognita* almost codominated the area with *M. javanica* having a slightly higher edge. Other than these two species a few samples of *M. hapla* were also observed.

Keywords: Meloidogyne, Bulandshahr, Vegetable Crops, Cash Crops, M. incognita

डाॅं भीमराव आम्बेडकर जी के पर्यावरण के सम्बन्ध में विचार

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ABSTRACT

भारत के राजनितिक इतिहास के एक केन्द्रीय, बहु—आयामी व्यक्तित्व डॉ० भीमराव आम्बेडकर जी को दे"। का पहला अस्पृ"य नेता, भारतीय संविधान के निर्माता और एक महान राजनितिक विद्धान, एक सम्मानित अर्थ"॥स्त्री आधुनिक भारत के निर्माता आदि से नवाजा जाता है। पिछले तीन द"ाकों में आम्बेडकर के विचारों के विभिन्न पहलओं पर बेहतर अध्ययन प्रकािंगत हुये है लेकिन उनके पर्यावरण सम्बन्धी विचारो पर अधिक अध्ययन प्रकाित नहीं हुए हैं। आम्बेडकर जी प्रकृति और पर्यावरण पर काफी कुछ कहते है। उन्होंने प्रकृति के इस बाह्य स्वरूप को पृथ्वी से उपयोगी पदार्थ, मिट्टी या, जल, िंकार, पंगुपालन खनन या लकडी काटना भौतिक दुनिया से ऐसे उपयोगी पदार्थी का निचोड जो मनुष्य के जीवन यापन के बुनियादी स्त्रोत के रूप में चित्रित किया है। दूसरा सर्वत्यापक प्रकृति चीजें जिसका समाज मे आधिपत्य है। आम्बेडकर जी के विचार थें कि मानव की अवधारण प्रकृतिक समानता पर आधारित है जो उसे प्रकृति को निर्मित और पुननिर्मित करने की क्षमता देती है। आम्बेडकर के लिए स्पष्ट रूप से मानव के अन्तर्गत प्रकृति निहित है और प्रकृति सामाजिकीकरण होता है और वह मानव के सामाजिक जीवन में रूपान्तरित होती है उतना ही दूरगामी परिवर्तन सामने आता है और इससे प्रकृति का जीवन मण्डलीय जैविक चेतन भाग भी रूपान्तरित होता है। आम्बेडकर जी सार्वजनीन और सामाजिक प्रकृति के विचार धाराओं के मुखर आलोचक थे क्योंकि इसमें दमनकारी जातिवादी सम्बन्धों के इतिहास और राजनितिक को प्रायः छिपाया और दबाया जाता रहा है। उनके तर्क और न्यायसंगत विचारों का मकसद था भौतिक मानवीय प्राकृतिक विभाजन मिटाना और उसके पार जाना क्योंकि आम्बेडकर जी ने लगातार प्रकृति की रचना और पुर्नरचना की। इसके साथ ही उन्होंने प्रायः प्राकृतिक संसाधनो पर अपनी चिन्ताओ को नागरिक अधिकार मुद्दो के तौर पर प्रस्तुत किया। आम्बेडकर के विचारों में भारतीय कृषक समाज में परिवर्तन के लिए भूमि और खेती का केन्द्रीय महत्व था उन्होंने प्रकृतिक भौतिक और समाज विज्ञान की कई शाखाओं में अपनी भागीदारी दी।

TOXICITY OF IODOCHLOROHYDROXYQUINOLINE IN SUPPRESSING THEMITOTIC INDEX IN THE PLANT SYSTEM

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ABSTRACT

The Exposure of the plant system to Iodochlorohydroxyquinoline (an Antiprotozoal agent) and their cytotoxic studies has provide an important area of research. In the present investigation the suppression of mitotic index by the Iodochlorohydroxyquinoline has resulted might be due to prophase poisoning and thus prevent normal prophase cells from passing on to metaphase. Presence of a Chromosomal break in a nucleus, even without loss of chromatid, may cause physiological disturbances ,which may be related to mitotic inhibition. Chemical mutagen (drug) which prevent cells for entering mitosis inhibit the division of the cell, nucleus and chromosomes. Mitotic index has shown a decrease in the test plant with the increase in the drug concentration and duration in root tip treatment as compared to seed soaked treatment.

Keywords: Cytotoxic, Mitotic index, Iodochlorohydroxyquinoline

CLIMATE CHANGE: THREATS TO BIODIVERSITY

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ABSTRACT

More than two decades ago, E.O. Wilson (1988) warned that global biodiversity, defined as the variation of all life on earth and the ecological complexes in which they occur, faced an unprecedented threat from habitat loss and other anthropogenic stressors. Thus humankind was in a race to describe, classify, and preserve global biodiversity before it was lost forever through extinction. Since then, advances in scientific research and technology have greatly improved our knowledge of the vast array of animals, plants, fungi, invertebrates, and microorganisms that comprise the earth's ecosystems; yet threats to biodiversity resulting from a suite of human activities including habitat loss and degradation, introduction of nonnative species, overexploitation, pollution, and disease have only accelerated since Wilson's call to arms.

Biodiversity is fundamental to ecosystem structure and function, and underpins the broad spectrum of goods and services that humans derive from natural systems. Declines or loss of any aspect of biodiversity can have direct or indirect impacts on ecosystem function, persistence, and services. Keystone or foundation species play a central role in ecosystems, either through trophic processes (for example, as dominant primary producers; major predators or prey), by providing structure (for example, habitat forming), or as ecological engineers (for example, by moderating the availability of resources to other species). Many such species also provide beneficial services to humans in the form of food (for example, fisheries), storm and flood protection (for example, mangroves), and/or maintenance of water quality. However, in many cases there is limited understanding of the functional or interactive role a species or group plays in a system, which in turn limits our ability to predict how the system will respond to changes in climate and other anthropogenic stressors, and ultimately affect the societal benefits they support.

Threats to biodiversity Climate change are having widespread impacts across multiple scales of biodiversity including genes, species, communities, and ecosystems. Biological responses to climate change vary widely among species and populations; some responses are positive, leading to increased growth rates or range expansions, while others are negative, resulting in localized or widespread declines. Many species have already shifted their geographical ranges, generally poleward, towards higher elevations, or to deeper depths in marine environments. Species have altered the temporal patterns of seasonal migrations and other life cycle events (phenology), showed changes in population demographics, or in some cases are adapting in place to the new environmental conditions. These shifts will likely bring about new assemblages of species, cause novel interspecific interactions, and in worst case scenarios result in some extinction.

EFFECT OF SUGARMILL EFFLUENT INDUCED HISTOLOGICAL CHANGES IN KIDNEY OF CHANNAPUNCTATUS (BLOCH.)

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ABSTRACT

In the case of fishes, tissue changes in liver are linked with histological abnormalities of kidney and gill. Once absorbed, toxicant is transported by blood circulation to liver for transformation or storage, and if transformed in the liver it may be excreted trough the bile or pass back into blood for possible excretion by kidney or gill. Histological changes in kidney the of *Channapunctatus* exhibiting degeneration and dissolution of epithelial cells of renal tubules, hypertrophy and necrosis following subtle exposure to phenolic compounds. Interestingly, most of the alterations in the kidney of fish in the present study were seen in the tubular cells rather than in the glomeruli, which were spared. Moderate to marked cellular infiltrations comprised mostly of mononuclear cells were discernible in the interstitium, which might be explained as a defence mechanism in the fish to counter toxic metabolites. Morphological kidney changes give the pathologist more specific information concerning the type and duration of toxicant exposure, segmental nephron damage is characteristic of some compounds, as are intra-nuclear inclusions. As the kidney contains a large amount of lymphoid tissue, this is an excellent opportunity for the pathologist to superficially view the immune system. In the present studies it was noted that hyperplasia and inflammation of the kidney cells due to the presence of intoxicant reduce kidney function. Blockage of circulation in the major arteries of the kidney can occur. Migration of intoxicant molecule through the hematopoietic tissue of the kidney contribute to reduced erythropoiesis and possibly renal failure.

ऐतिहासिक ग्रन्थों में भारत की सामाजिक व्यवस्था

मिथलेश केन

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सार

भारतीय हिन्दू समाज की आधार े ला हिन्दू सामाजिक वर्ण—व्यवस्था है, जो हिन्दुत्व की विचार धार पर विकास हुई एक सामाजिक व सांस्कृतिक व्यवस्था है, जिसकी हिन्दू धर्म ग्रन्थों व शास्त्रों में कुछ मान्यताएँ व प्रवृतियाँ जिनका विस्तार से विवरण ऐतिहासिक ग्रन्थों में दिया गया है। कर्म विभाजन के विषय में महाभारत के तहत गीता के अ. 4 के श्लोक 13 में भगवान कृष्ण ने कर्म योग की व्याख्या करते हुए अर्जुन से इस प्रकार कहा कि— चातुर्वर्ण मया सृष्टं गुण कर्म विभाग । तस्य कर्त्तारमिप मां विद्धम कर्त्तारभव्ययम।। ब्रह्मम्ण, क्षत्रिय, वै"य एंव शूद्र इन चार वर्णों का समूह गुण—कर्म के विभागानुसार मेरे द्वारा रचा गया है। शंदोग्योपनिषद में तो ऐसी कथा का उल्लेख किया गया है जिसके अन्तर्गत एक ब्राह्मण द्वारा एक निम्न जाति वर्ग को वेदों की भिक्षा प्रदान करते हुए और इसके बदले में उसे मूल्यवान उपहारों को ग्रहण करते हुए और उसकी कन्या के साथ विवाह तक करते हुए दिखाया गया है। अलबक्तनी की यात्रा वृतांत (1007 ई. से 1033) के मध्य भारत का भ्रमण किया। महात्मा बुद्ध(500 ई.पू.) को प्रथम सामाजिक एंव धार्मिक सुधारों का प्रणेता कहा जा सकता है। उन्होने सर्वप्रथम जन्म पर आधारित हिन्दू जाति— व्यवस्था को अस्वीकार कार अस्पृ"यों को नये धर्म में प्रवे"। करने का मार्ग प्र"। न्त किया।

EFFECT OF AIR POLLUTION ON OUR HEALTH

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ABSTRACT

Our physical and psychological well-being is affected differently by the kind of air pollution we are exposed to. There are many organs and bodely functions that can be harmed, some of the consequences including: Respiratory diseases, cardiovascular damage, fatigue headaches and anxiety, irritation of eyes, nose and throat. Damage to reproductive organs, harm to liver, spleen and blood. Nervous system damage.

Urban populations are more exposed to suffer the effects of air pollution and, in the context, people who are already ill are particularly more children and elders.

Keywords: Pollution and health

COMBINED IMPACT OF ANTIHYPERTENSIVE AGENT, B-BLOCKERS WITH HYDROCHLOROTHIAZIDE DRUG COMPOUND ON HISTO- ARCHITECTURE OF KIDNEY OF ALBINO RAT

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ABSTRACT

The Histo-Architecture alteration has been observed in the kidney after 10, 20, 30 and 40 days of Propranolol and Hydrochlorothiazide combined drug treatment. The mammalian kidney is a structurally complex organ that has evolved to subserve a number of important functions, excretion of the waste products of metabolism, regulation of body water and salt, maintenance of appropriate acid balance and secretions of a variety of hormones and autocoids. Kidney plays a major role in the regulation of blood pressure. The diseases of kidney are as complex as its structure, but their study in facilitated by dividing them into those that affect the four basic morphological components. Glomeruli, tubles interstition and blood vessels their traditional approach is useful because the early manifestation of disease that affects each of these components tents to be distinctive. After 10, 20, 30 and 40 days, it was inhibited the pathogenisis of many of these lesions the renal tubules are less defected but they showed miled and focal convoluted tubular necrosis. The proximal tubule exhibited obliterations in their epithelial cells alongwith nuclear pyknosis and shape. glomerulus debris is also observed. In the cortex, there was dilation of tubule with miled interstitial lesions the most prominent swollen was observed in macula dens and widening of capsular space, where there was diffuse swelling and hyperplasia of collecting duct epithialial cells with interstial widening and mononuclear cells infilteration were frequently observed. The histological abnormalities include in kidney focal and segmental glomerular hyalinosis and sclerosis with increased mesangial matrix substance in wich obliteration of glomerular capillaries lumen and adhesion to bowman,s capsule were frequently observed the renal lesion were more characterized by focal glomerular sclerosis. Most of glomerulii showed segmental or global sclerosis with collapace and obliteration of glomerulus tuft. Hyaline deposition in glomerular tuft and adhesion of the tuft to bowman,s capsule were observed. The section also showed, the degree of tubule interstitial changes including tubular dilation, atrophy, proteinaceus costs and patchy mononecular cell infiltrate.

Keywords: Kidney, Albino Rat, blood pressure, Propranolol and Hydrochlorothiazide

A REVIEW ON THE EFFECTS OF CADMIUM TOXICITY ON RAT LIVER

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ABSTRACT

Cadmium is an inorganic toxicant of great environmental and occupational concern, which was classified as a human carcinogen in 1993. The present study, we aimed to evaluate the effects of cadmium on rat liver tissue. Male albino rats were used by several researcher for the study. Cadmium was administered to rats via consumption water daily. Histopathologic changes have included vacuolar and granular degenerations inhepatocytes, heterochromatic nucleuses and sinusoidal and portal widenings. Central vein diameters were normal in Cadmium exposed group. MDA was used as a marker of oxidative stress-induced liver impairment in cadmium exposed rats. Superoxide dismutase (SOD) and catalase (CAT) activities were also measured to evaluate the changes in antioxidative system in liver tissues. MDA levels were increased and SOD and CAT activities were decreased in cadmium exposed group compared to control group. In conclusion, these data based review suggest the role of oxidative mechanisms in cadmium-induced liver tissue damage.

Keywords: Cadmium, Histopathologic changes, Liver, Oxidative stress, Albino rats

ROLE OF RENEWABLE ENERGY IN SUSTAINABLE DEVELOPMENT

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ABSTRACT

Energy is the golden thread that connects economic growth, increases social equity and an environment that allows the world to thrive. Development is not possible without energy and sustainable development is not possible without sustainable energy. Achieving solutions to environmental problems that we face today requires long-term potential actions for sustainable development. In this regard, renewable energy resources appear to be the one of the most efficient and effective solutions. That is why there is an intimate connection between renewable energy and sustainable development.

This paper will give a comprehensive overview of renewable energy as a means to enable sustainable development at a global scale. It will present the case for how renewable energies represent both an environmental necessity and an economic opportunity.

SAFETY FROM RADIATION HAZARDS MUST BE CONSIDERED IN ADMINISTRATION OF RADIOPHARMACEUTICALS IN IMAGING AND THERAPY

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ABSTRACT

Radiopharmaceuticals are using for the treatment and imaging of various cancers with novel radionuclides, radiobioconjugates and administration techniques. The therapy with radiopharmaceuticals is to optimise the relationship between tumour control probability and potential complications in normal organs and tissues. Currently there are three principal methods of treating cancer viz. Surgery, chemotherapy and external radiation therapy. Each of these has its limitations. There is much interest today in the development of a new mode of therapy viz. the administration of radio labelled bioconjugates in nuclear medicine for the selective delivery of radiation to the cancer cells while sparing the normal cells.

Safety issues in radiopharmaceutical administration for both diagnosis by imaging as well as therapy of tumours involve consideration of both radiation hazards as well as biohazards. Radiation hazards are relevant for the administration team but not for the patient who is benefiting from the therapy on the other hand Biohazards are important specially for the patient. Minimisation of staff exposures includes consideration of equipment design, proper shielding and handling of sources, and personal protective equipment and tools, as well as education and training to promote awareness and engagement in radiological protection.

Key Words: Radiopharmaceuticals, Therapy, Radiation hazards, Biohazards.

NEED TO IMPROVING THE ENVIRONMENTAL HEALTH

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ABSTRACT

Environmental health is the field of science, that studies how the environment influences human health and diseases. Environment in this context means things in the natural environment like air, water, soil & food and also all the physical, chemical, biological and social features of our surroundings.

Our environment plays a vital role in our health. In order to have good health, we need to eliminating environment related risk –factors. These factors can be physical such as pollution, toxic chemical & food contaminants or they can be social, such as poverty, urban sprawls, poor housing conditions, etc. The environmental health always looks of an individual. It also helps to the quality of life of people. So as human being, we have responsibility to preserve the actual value of nature both for ourselves and for future generations.

Keywords: Environmental health, urban Sprawls, risk factors.

EFFECT OF CIGARETTE SMOKE AND α-TOCOPHEROL ON BLOOD PLATELET COUNT IN ALBINO RAT

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ABSTRACT

In the present study, the effect of cigarette smoke and an antioxidant α -tocopherol on blood platelet count has been investigated in albino rat. Eighteen healthy adult albino rats were kept in laboratory conditions, fed on pellet diet and water was given at *ad libitum*. Three groups (I, II & III) were designed having six rats in each. Group (I) was unexposed; group (II) was exposed to cigarette smoke alone, while group (III) was exposed to cigarette smoke along with supplementation of an antioxidant α -tocopherol (2.5mg/rat) for one hour/day for 28 days. Blood platelets count were increased in cigarette smoke exposed rats (6 cigarette/rat/day) in comparison to control rats, induced inflammatory response, results thrombocytosis in albino rats, while significant decrease after cigarette smoke along-with α -tocopherol in comparison to cigarette smoke exposed rats, due to the ameliorative role of α -tocopherol in maintaining the oxidative damage through blocking the chain reaction of free radicals caused by cigarette smoke.

Keywords: Cigarette, α-Tocopherol, Blood platelet count and albino rat.

EFFECT OF CLIMATE CHANGE ON THE BIODIVERSITY

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ABSTRACT

Climate change is the shift or abnormal change in climate patterns. Rising levels of greenhouse gases are responsible for the change in climate globally. All the species require a particular habitat to breed and are adversely affected by the change in the climate. Changes in climate can also intensify droughts, decrease water supply, threaten food security, erode and inundate coastlines, and weaken natural resilience infrastructure that humans depend on. Ecosystems and biodiversity will be forced to fluctuate along with the regional climate, and that could harm many species. Climate change is predicted to become a major threat to biodiversity around the globe. Immediate measures need to be taken by the government, local communities and scientific organizations to conserve the biodiversity.

EFFECT OF INDUSTRIAL DUST ON VEGETATION

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ABSTRACT

Environment is the important most issue which confronts industry and business in today's time on daily basis. Though industries are very important for the growth of any nation but unfortunately they are severely degrading the environment simultaneously. Almost every industrial activity is causing harm to various environmental components like air, water, soil, animals and plant vegetation. Industrial dust is produced by different activities happening inside the industries continuously like cutting, grinding, crushing and handling of organic and inorganic matter such as coal, metal, rock, wood, ore etc. The major sources of dust pollution include suspension of soil, agriculture-related different activities, road-side dust, vehicular exhaust, power stations, various construction activities, open fires, brick kilns, cement factories and volcanoes. Industrial dust may affect various biological processes in plants like respiration, photosynthesis, transpiration etc. Present study attempts to focus on effect of industrial dust on different growth and yield parameters of plant vegetation. Industrial dust had a significant effect on the plant growth.

Keywords: Industry, degrading, vegetation, dust, coal, suspension, agriculture, photosynthesis

EFFECT OF PHORATE ON THE BLOOD BIOCHEMISTRY OF FRESHWATER FISH CLARIAS BATRACHUS (LINN.)

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ABSTRACT

During past decades industrialization and agricultural development paralleled with increased health care have changed life in various ways. Average life expectancy raised due to lower infant mortality and better control of epidemics and infectious disease. In the developed world the threats, which were initiated decades ago, are well recognized. Phorate is an organophosphate used as an insecticide and acaricide.

The present investigation showed a significant increasing trend in blood glucose, blood urea, serum glutamate oxaloacetate transaminase and serum glutamate pyruvate transaminase but decreasing trend in serum cholesterol with the increasing exposure to Phorate. Effect of Phorate on the given blood biochemical parameter is duration dependent.

Keywords: Pesticide, Phorate, Toxicity, Blood, Biochemical Parameters.

EFFECT OF TEMPERATURE ON AEDES MOSQUITOES

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ABSTRACT

Mosquitoes pose a significant threat to public health globally. Aedes mosquitoes is responsible for causing deadly disease in the form of Dengue Fever and Dengue Heamorrhagic Fever. In India, an estimated 33 million dengue cases occur annually. Changes in environmental factors like warm temperature and high humidity is one of the cause of increase in the longevity of adult mosquitoes leading to increased transmission intensity.

Aedes mosquitoes have adapted indoor conditions which leads to withstand the extreme climatic conditions. Eggs can withstand dessication during low temperature even upto months. Favourable conditions like suitable temperature, availability of stagnant water and other ecological conditions lead to egg hatching and development of adult mosquitoes resulting in increase in dengue cases.

There is clear dependency of dengue cases with temperature. There is an urgent need to develop a weather based programme in controlling the vector and decreasing vector transmission.

Keywords: Aedes, Dengue Fever, Dengue Haemorrhagic Fever, Transmission, Dessication, Temperature.

ENVIRONMENT POLLUTION AND IMPACT ASSESSMENT ON THE HUMAN HEALTH OF INDIANS

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ABSTRACT

Environment is defined as all the physical, chemical and biological factors external to a person, and all the related behaviours. Human exposure to these factors present in the environment can have a profound influence on public health. Since many of these factors are manmade, protecting the environment is not only in man's best interest, it is also a good investment from the health point of view. Since a healthy environment is a prerequisite for a healthy population, and environmental factors are at the root cause of significant burden in terms of mortality and morbidity in the developing world, a holistic, comprehensive and integrated approach to health and environment is required to protect both the environment and public health. Progress in mortality reduction has although accelerated in recent years, the improvements have been uneven and large variations in health status persist both between and within countries³. Given also that the environment is linked with most of the Millennium Development Goals (MDGs), without proper attention being paid to the environmental risk factors and their management. Forums such as the Rio +20 United Nations Conference on Sustainable Development in June 2012 in Brazil, as a follow up to the environment and development summit held in 1992 offer an opportunity to countries to deliberate on the issues associated with the environment and health and to agree on policies and programmes that will contribute towards saving the environment, and at the same time, protecting human health especially of the poor living in developing countries. Among the 27 principles agreed 20 years ago, the first was that "Human beings are at the centre of concern for sustainable development. They are entitled to a healthy and productive life in harmony with nature". Greater political commitment underpinned by better understanding of the health impact of various environmental factors can help countries use such data for designing and implementing their national environment and health policies based on scientific evidence. This paper reviews some of the evidence on the common environmental risk factors that affect human health and proposes a few strategic approaches to protect human health from these risk factors.

EFFECTS OF FLUORIDE IN DRINKING WATER

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ABSTRACT

The contamination of water with fluoride is one of the major effects on public health in India. Exposure can occur through dietary intake, inhalation and various natural and anthropogenic sources. However, drinking water is the most important exposure of fluoride. The permissible limit set by WHO as well as Bureau of Indian Standards (BIS) for fluoride in drinking water is 1.5mg/L. At its low level in drinking water ,fluoride has beneficial effects on teeth and bone development, but excessive exposure can give rise to a number of adverse effects which include teeth decay, osteoporosis and harm to kidney, bones, reproductive organs, nervous system and muscles. The adverse effects ranges from mild dental fluorosis to crippling skeletal fluorosis as the level & period of exposure increases. A range of technologies are available for excess fluoride removal from watersuch as coagulation-precipitation, ionexchange, layered double hydroxides (LDHs), reverse osmosis. Recent studies has revealed the use of graphite based nanomaterials, carbon nanotubes, magnetic nanoparticles etc. Future researches are needed to be addressed on the two worldwide health problem, the necessity to reduce dental caries and need to mitigate the effects of excessive fluoride intake. Although, removal of excessive fluoride from drinking water maybe difficult and expensive, low-cost solution that can be applied at a local level are use of bone charcoal contact precipitation and the use of activated alumina.

Keywords: Fluorosis, coagulation-precipitation, carbon nanotubes, reverse osomosis.

EFFECTS OF INDOOR AIR POLLUTION ON ENVIRONMENT

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ABSTRACT

Indoor exposure to air pollutants causes very significant damage to health globally, specially in developing countries. Some of the important indoor air pollutants are carbon monoxide (CO), particulate matter (PM), CH₂O, NO₂, polycyclic aromatic hydrocarbons, radon, trichloroethylene and tetrachloroethylene. Most of the PM are generated from house ash. In India and other developing countries more than 90% households use traditional chulhas and burn unreasoned fuelwood and cook 2 to 3 meal per day in rural area. More than 70% of rural households use biomass (63% fuel wood, 1.5%crop residues, 3.9% cow dung cake), usually emits very high levels of smoke containing a wide array of potentially hazardous pollutants, especially PM varying according size, composition & origin. PM_{2.5} and PM_{1.0} can penetrate deep further into the lung and blood stream. The traditional chulha produces high carbon emission which causes indoor air pollution that led to effect on human health. Short term effects of indoor air pollution is eye and throat irritation and long term effects are respiratory diseases and cancer. High level exposure of some pollutants, such as COcan result in immediate death. CO is produced indoors by combustion sources (cooking and heating). Combustion of low-grade solid fuel and biofuels in a small stove or fireplace can generate high CO emissions, which may become lethal to occupants unless the flue gases are vented outdoors via a chimney throughout the entire combustion process. At the beginning of combustion, the pollutants released are dominated by PM (elemental and organic carbon) but CO dominates towards the end. We can reduce the indoor air pollution by impoved stoves, venting stoves for cooking, regular maintance of cooking applicances etc. Smokeless chulha uses 50% less fire wood, a rural household using this chulha will save 1500 kg for firewood in a year, more tree saved means improved environment and reduced pollution means less emission of CO and PM.

Keywords:- PM,indoor air pollution, carbon monoxide, smokeless chulha

IMPACT OF GLOBAL WARMING ON FRESHWATER SNAKEHEADED MURRAL, CHANNA PUNCTATUS

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ABSTRACT

Now a days global warming is the matter of great discussing issues for the environmentalists to gain more relevant information on tolerance of the organism to the temperature. Temperature as an abiotic factor showed influence on the physio-chemical parameters of all living organisms. The present study was to explore the likely effects of global warming on the freshwater fish, *Channa punctatus*. For the study fish were collected from different localities of Aligarh district (UP) in different seasons; in summer (July) and in winter (December). The highest temperature (Atmospheric temperature = 36°C; Water temperature = 33°C) recorded in July and lowest (Atmospheric temperature =12°C; Water temperature=8°C) recorded in December. At higher temperature fish showed increased respiratory rates, swimming activities, gulping of air, surfacing activities as well as metabolic activities as compared to normal while at very low temperature these activities found to be decreased. Alteration of the rising temperature will affect fish population and its physiology because *Channa punctatus* is a cold-blooded fish and their physiological mechanism are directly or indirectly temperature dependent. Thus, the study reflects the global warming will affect fish population, behavioural patterns as well as the physiology of *Channa punctatus*.

Keywords: Global warming, Atmospheric temperature, water temperature, *Channa punctatus*

ENVIRONMENT AND BIO DIVERSITY: A CONCERN TOWARDS AILING PLANET

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ABSTRACT

If an alien from a distant galaxy were to visit our planet earth; the first thing that would amaze and baffle him would most probably the enormous diversity of life that he would encounter. Even for human, the rich variety living organism with which they share this planet never ceases to astonish and fascinate us. The common man would find it hard to believe that there are 20,000 species of ants, 3,00,000 species of beetles, 28,000 species of fishes nearly 20,000 species of orchids. Ecologists and evolutionary biologists have been trying to understand the significance of such diversity by asking important questions – why are there so many species? Did such great diversity exist throughout earth's history? How did this diversification came about? How and why is this diversity important to the biosphere? Would it function any differently if the diversity was much less? How do humans benefit from the diversity of life?

The present research article is trying to put a bird's eye view with special reference to NaniPalkhiwala's article published in the newspaper "The Indian Express" on November 23, 1994. It also focuses on the factors that are responsible for the declining health of the earth. In our biosphere immense diversity {or heterogeneity} exists not only at the species level but at all levels of biological organization ranging from macromolecules within cells to biomes. Biodiversity is the term popularized by the socio-biologists Edward Wilson to describe the combined diversity at all the levels of biological organization.

It has taken millions of years of evolution, to accumulate this rich diversity in nature, but we could loss all that wealth in less than two centuries if the present rates of species losses continue. Biodiversity and its conservation are now vital environmental issues of international concern as more and more people around the world begin to realize the critical importance of biodiversity for our survival and well-being on this planet.

Keywords: Galaxy, enormous, organism, fascinate, species, ecologists, diversification, biosphere, evolution,

ENVIRONMENT AND BIODIVERSITY : CHALLENGES AND STRATEGIES IN 21ST CENTURY

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ABSTRACT

All biotic and abiotic factors which constitute the enviornment and have their impact over each other whether living organism from micro organism to human or any non living factors which shape our ecosystem are today emerged as burning issue in 21st century.

As evident from classical text of the vedic period India has a long history of conservation and sustainable use of natural resources and its participation in various international conventions, treaties and protocols shows its pro active role for environmental concern .As we know that rich biodiversity of region indicates abundance of natural resources which provides a country potential to achieve its growth and targeted goals .

As Gandhi ji rightly observed: 'The earth has enough resources to meet the needs of all but not enough to satisfy the greed of all.'

Insensitivity of policy makers toward the environmental concerns and indiscriminate exploitation of natural resources for fulfilling the demands of uncontrolled population give rise to many environmental concern like:

- 1. Increase in global average temperature of earth
- 2. Extreme weather events like drought and flood
- 3. Decline in crop yield
- 4. Disease induced by environmental changes
- 5. Others like: natural disaster ...etc

From time to time different government took various initiatives to save environment by enacting suitable legislations and extending protection to different trees and animals and started different projects and programme for conservation purpose but success of these initiatives is depend upon truly implementation of the law in letter and spirit.

The need of the day is effective implementation of international conventions, agreements, treaties and protocols and strict adherence to already given norms.

If management of natural resources will extend to grassroots level like community led management could bring a desirable and suitable changes, chipko movement is best and ideal example of this kind.

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future, which envisages the 17 Sustainable Development Goals which requires cooperation and collective efforts by all countries whether developed and developing by fulfilling their moral obligation toward mother earth for shared and common future.

ENVIRONMENT AND WELL-BEING

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ABSTRACT

The term environment refers to our surrounding which includes physical, biological, and socio-cultural aspects. The non-living things like air, water, land, etc come under living things like socio culture aspects. Well- being is the experience of health, happiness, and prosperity. It includes having good mental health, life satisfaction a sense of meaning and ability to manage stress. Environment is a fundamental and high quality asset that provides a strong foundation for healthy life. Our most basic needs are clean air, safe drinking water and healthy food. The quality of each one of these is directly influenced by the quality of the environment. It follows that preventing damage to the environment arising from human activities also helps to protect our health and well-being.

ENVIRONMENT: ISSUES & SOLUTIONS

Shruti Johari

ABSTRACT

It is rightly said: "Humans do not have the right to destroy what can't create". Environment is the natural habitat to millions of species. But humans have negligently affected the environment, endangering human survival at the end. The 21st century is the era of rapid technological development. Since the beginning of this century, humans have achieved many milestones in technological and scientific development. But we understand the "Development & Biodiversity" are relative terms. But humans have forgotten the environment belong to all. To fulfill their selfish, greedy wishes and fantasies, humans are causing tremendous harm to its nature. Since money has become god for a civilized man, he has not his contact with nature and god. 'Humanity can redeem itself 'and can possibly delay the end of the world. But there are number of challenges which we have to overcome. Depletion of ozone layer, global warning, deforestation, ecological imbalance, exhaustion of natural resources, depletion of ecosystem, extinction of species etc. are some of the deep-rooted challenges which are a growing concern. 'Best solution is no pollution' thus, we need to adopt some strategies to protect our biodiversity and habitat. By promoting afforestation, using nonconvection sources of energy like solar energy, geothermal energy etc., building biosphere reserves, ban on poaching etc. are some of the ways which every country should adopt. Government need to focus on biodiversity as a whole. Government should place some restrictions on the use of forest produce by industrialist. Government should strictly ban monoculture, practice since it destroys a large biodiversity.

As citizens, we should try to spread awareness among people about the need to conserve our environment. We should plant small plants during Van Mohotsav. And take care of them. We should remember that 'We have inherited the earth from our elders and we should try to give a more beautiful earth to our new generation'. 'CREATE AN ENVIRONMENT THAT DOSEN'T NEED PROTECTION'

ENVIRONMENTAL CHALLENGES AND LAWS IN INDIA

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ABSTRACT

Environment implies all the external factors-"living and non living, material and non material"-which surround man. In modern concept environment include not only water, air and soil but also socio and economic conditions under which we live.

Environment has been divided into two components

- *Physical*: water ,air, soil, waste
- Biological: plant and animal life including bacteria, insect, animals

Human population size has grown over enormously over the last hundred years. This has led to increase in demand for food water home automobiles and other commodities. These demands are exerting tremendous pressure on the natural resources and also contributing to pollution. The need of hour is to check the degradation and depletion of our natural resources and pollution without halting the process of development.

Environmental challenges

- 1. Air pollution
- 2. Water pollution
- 3. Soil pollution
- 4. Loss of biodiversity
- 5. Climate change
- 6. Resource depletion
- 7. Forest and agricultural land degradation

Environmental laws in India

- The Air (Prevention and Control of Pollution) Act, 1981
- The National Green Tribunal Act ,2010
- The Water (Prevention and Control of Pollution) Act, 1974
- The Environment Protection Act, 1986
- The Biological Diversity Act, 2002
- The Wildlife Protection Act, 1972
- The Forest Conservation Act, 1980

Policies to protect environment in India

- National Conservation Strategy and Policy Statement on Environment and Development, 1992
- Policy Statement for the Abatement of Pollution, 1992
- National Environment Policy, 2006

A STUDY ON ENVIRONMENTAL COMPLIANCE OF LEATHER TANNERIES AT KANPUR (UTTAR PRADESH) AND THEIR FAR-REACHING IMPACT ON LEATHER EXPORTS

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ABSTRACT

The Indian Leather Industry specially tanneries at Kanpur, Uttar Pradesh has been hit by several environmental bans and regulations since1990s and these bans continue till present day. As each day, the tanneries pump out about 30 crore litres of polluted water into the adjacent Ganges river. The city's water treatment unit, however, has a capacity of treating 17 crore litres per day. Kanpur also generates 400 tonnes of solid waste. The rampant pollution has contaminated ground water sources. There are reports of increasing deformities among new born babies. Farmers complain their fields are turning toxic. Keeping this water pollution in mind Uttar Pradesh green watchdog National Green Tribunal (NGT) and subsequently UP Pollution Control Board (UPPCB), has ordered the closure of leather tanneries in Kanpur from 10th January 2020 to 21st February 2020.

A thirteen month lockout of Kanpur leather tanneries in 2019 had pulled down India's finished leather exports by nearly 29 per cent during April-August 2019 compared to the corresponding period last financial year 2018-19. While, India exported finished leather worth \$million 334.6 during Apr-Aug 2018, the offshore consignments fell by 29 per cent to \$million 237.7 in the corresponding period in the current fiscal year. Kanpur leather industry, including tanneries and leather goods manufacturers, estimated at Rs 12,000 crore, provides direct and indirect employment to a million people in Kanpur and Unnao districts. The cluster generates Rs 6,000 crore worth of exports to the Gulf, Europe, China, Iran etc. and closing down of tanneries resulted in massive revenue losses.

On one hand, the apparently bright export scenario (as cited by Council of Leather Exports), on the other hand the environmental compliance of this pollution intensive industry, has motivated the authors to priorities this issue for analysis. This paper will trace few relevant matters of environmental standards imposed on Leather Industry specially the tanneries at Kanpur (Uttar Pradesh) and the consequential impact on export prospect of Indian Leather Industry, highlighting on different polluting stages. Thus, far reaching impact on the export sector of Indian Leather Industry environmental compliance will be studied.

ENVIRONMENTAL EDUCATION

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ABSTRACT

Environmental Education is a multidisciplinary field that integrates subjects such as Biology, Ecology, Geography, Earth Science, physics, chemistry, mathematics and others. It aims to teach how the natural ecosystem functions and how it can be managed effectively to create a sustainable environment for all to live in. The Human impact on the earth's ecosystem has led to the constant degradation of the environment which has resulted in a global climatic change. The UNESCO (United Nations Educational, Scientific and cultural Organization) states that in order to safeguard the future Global developments of societal quality of life, a widespread environmental awareness has to be enhanced. Environmental Education can help to make the people aware of how their actions impact the environment and how it can be minimized. Environmental Education is not just a part of the school curriculum that is taught to students but it also includes generating public awareness by the use of print media, media campaigns, websites and others. Many zoos, aquariums, parks and observatories include information about the environment and their impacts on the life forms that is imparted to the visitors.

Environmental education has been added to the school curriculum in many countries to encourage an in-depth understanding of the environment from a young age. Environmental Education policies extend assistance in organizing and developing education programs that are targeted not just at the school or college students but for all the citizens.

There are various types of pollution which affect our lives on daily basis. Environments pollution is one of the most significant challenges that the world is facing in our day. Without a doubt Environmental pollution has existed for centuries. But it began to be a severe issue following the industrial revolution in the 19th century pollution generally takes place when pollutants pollute the natural surrounding and it can bring about changes that affect our everyday lifestyles unfavorably.

ENVIRONMENTAL EFFECTS ON INSECTS AND THEIR POPULATION DYNAMICS

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ABSTRACT

Global changes are responsible for wide range of anthropogenic and natural environmental variation. These climatic and weather changes not only affect the status of insect pests but also affect their population dynamics, distribution, abundance, intensity and feeding behaviour. Erosion of natural habitats, urbanization, pollution and use of chemicals in agroecosystem manifold the intensity of environmental variations. Abiotic (temperature, humidity, light etc.) and Biotic (host, vegetative biodiversity, crowding and diets etc.) stresses significantly influence the insects and their population dynamics. It can affect their ovulation, rate of fecundity, development, survival, multiplication, various immune and genetic responses. In biotic stresses certain plant characters (anti-xenosis, anti-biosis), nutritional modifications, variation in flora (landscape diversity, cover crops) and insect crowding influence insect multiplication, emergence and migration.

ENVIRONMENTAL MONITORS IN SOOR SAROVAR BIRD SANCTUARY, KEETHAM, AGRA

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ABSTRACT

The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty which entered into force on 21 Mar, 1994. Its objective is to stabilize concentrations in the atmosphere at a level that would prevent dangerous anthropogenic influence with the climate system. The framework sets non-binding limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. Instead, the framework outlines how specific international treaties (called "protocols" or "Agreements") may be negotiated to specify further action towards the objective of the UNFCCC.

Birds play a great role in monitoring the environment. Every species has its own significance and their presence or absence in a particular habitat has a specific importance. They effectively forecast an environmental setup in the region.

The Soor Sarovar Bird Sanctuary lies between latitudes 27.26-27.53 N and longitudes 77.80-77.88 E. A large number of migratory birds arrive in this wetland every year.

It is noticed that the metabolic rate of birds is much higher than that of humans. As a result they suffer from pollution much before it affects humans. Birds have a close reciprocal relation with the environment. During survey from Jan 2019-20, more than 100 species of migratory birds have reported. They migrated from Mongolia, Russia, Siberia, China and the Himalayan regions to Soor Sarovar Bird Sanctuary. This migration is in search for food and protection for their lives as temperatures in their native place drops below freezing point.

Some of the main wetland birds observed in Dec 2019 are Anser indicus, Anas acuta, Platalea leueorodia. Migratory birds with their offspring return to their natural habitat once spring starts. Next season the offspring will return, with or without their parents, as reported by the DFO, Agra on 2nd Feb 2020. It is very surprising to see that Pelican and Cormorant have friendship, as the latter catches fish from the Keetham lake and provide these to the Pelicans. The Pelicans build their nests near the lake for laying their eggs.

During June, 2019 the appearance of owls was symbolic of bad weather or an unfavourable environment. While in August, the appearance of peacock signified rains and a good environment. The presence of parrots indicated the presence of guava and berry fruiting. The close relationship between birds and environment has also been established by their presence in specific regions. Soor Sarovar Sanctuary is an ideal habitat for Sarus carne. During summer when the water becomes a limiting factor, the Keetham lake favours the habitat of comb duck, spotbilled duck, whistling toad and herons grey.

Keywords: Convention, Environment, Habitat

ENVIRONMENTAL PSYCHOLOGY

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ABSTRACT

Environmental Psychology refers to behavior in connection with the environment. In this idea behavioral maps are represented on the basis of environment and aesthetic preferences. Environment influences behavior in many ways at different grades. Immediate behavior is a function of the setting in which it occurs. The personification of natives of a country is transformed and shaped by the nature and type of environment in which they have been surviving since their birth. In artificial or limited conditions organisms show 'behavior deformity and starvation 'leading to their behavior collapsed. Anthropogenic pressure and the artificial charisma of urban circumstances might be the causes for the increased rates of criminal and illegal human activities vis a vis incidences of psycho-mental disorders of societies living in urbanization era. By implementing Environmental Psychology attempts are being made to provide standard and norms for better supervision and management of the environment for betterment of livelihood of society and flourishment of biodiversity all around which ultimately leads to personality development of human and positive attitude of biological entities. It studies effective ways of promoting conservation of the natural environment and resources and better ways of conniving buildings, roads, bridges, towns and cities, taking the consideration in minds the behavioral needs and responses of people.

Keywords: personification, starvation, anthropogenic pressure

ENVIRONMENTALISM THROUGH VILLAGE INDUSTRY

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ABSTRACT

India is a country of villages where different castes, communities, creeds, races, and religious faiths reside together; but simultaneously in spite of this regional distinctness; it's known for its unity in diversity. This diversity also sets the occupational economic structure of rural India; where agriculture is a backbone of the economy. Agriculture produces raw materials for the village industries like rubber, fisheries, poultry, tobacco, jute, tea etc. In return village industries provide huge employment to the downtrodden people at their own locale. That is why, agriculture is vital for the economy because and it contributes about 16 per cent of total GDP and around 40 per cent share of small-scale industry in economy. It is also evident that village industry also protect environment because it accounts meager environmental pollution. So, village industry is not only building to economy but also protecting environment at large level.

Thus, the idea of environmentalism advocates the preservation, restoration and improvement of the natural environment and start movement to control pollution. It is an effort to balance relations between economic development and sustainability of environment. In this context, village industry is a medium to propel human-economic development through sustainability of environment i.e. environmentalism.

This paper explores the discourse on the idea of environmentalism and village industry in Indian scenario. It will incorporate empirical research through the field view,

Keywords: Village Industry, Agriculture, Economic Development, Environmentalism.

BIOLOGICAL STUDY OF TRICHOPLUSIA NI AND ITS CONTROL BY PLANT EXTRACT PARTHENIUM HYSTEROPHORUS

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ABSTRACT

Trichoplusia ni (Cabbagelooper) is a serious pest of Brassica oleracea var capitata (cabbage). The adults are dark brown with a wing spread of about 1.5 inches and have a small alongate silvery spot in the middle of each front wing. The under wings are relatively large and strikingly coloured. The hind wings are usually brightly coloured. Cabbage (Brassica oleracea var capitata) is and important vegetable crop, commercially grown as leafy vegetable in India. Amongst various pests attacking cabbage in Uttar Pradesh, Trichoplusia ni is most important of them. Several workers Rangaraian et. al. (1982), Benerjee and Haque (1983), Bhumannavar (2000) and P. Das et al. (2002), reported 57 insect pest attacking to cabbage. Therefore there is need to adopt eco-friendly agropractices for preserving environment and protecting human health by reducing the use of toxic chemical pesticides and replacing them botanical and microbial pesticides to the extent possible (Tripathi and Tripathi 2000). Result of the present study on the pesticidal properties of plant extract, (Parthenium hysterophorus) against the insect pest (Trichoplusia ni) have beeb discussed.

Keywords - Cabbage, Trichoplusiani, Pesticide, Mortality, LC 50

ANTIMICROBIAL ACTIVITY OF SOLVENT EXTRACTS OF EUCALYPTUS GLOBULUS (EUCALYPTUS) AGAINST MULTIDRUG RESISTANT STAPHYLOCOCCUS AUREUS

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ABSTRACT

Eucalyptus globulus (Eucalyptus) belongs to the family Myrtaceae. The leaf extract obtained from the leaves of Eucalyptus globulus has been reported to possess antibacterial, mosquito repellent, antifungal and antioxidant properties. The leaves of Eucalyptus globulus were extracted in various solvents viz. methanol, ethanol, hexane and water. The present study investigated the antimicrobial activity of Eucalyptus globulus leaf extract against multidrug resistant Staphylococcus aureus. The solvent extracts of leaves of Eucalyptus globulus exhibited inhibitory effect against tested pathogenic microorganism (multidrug resistant Staphylococcus aureus) at various concentrations. The bacterial strains tested were more susceptible to methanol and ethanol extracts and the least effective was hexane and aqueous extract. The observed antibacterial activity of the extracts were dependent on its concentration.

Keywords: *Eucalyptus globulus*, multidrug resistant *Staphylococcus aureus*, antibacterial activity, leaf extract.

EVALUATION OF THE THERAPEUTIC POTENTIAL OF APIGENIN ON THE TRANSGENIC *DROSOPHILA* MODEL OF ALZHEIMER'S DISEASE

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ABSTRACT

Apigenin is a 4', 5, 7-trihydroxyflavone synthesised by many plants as a secondary metabolite. It belongs to the flavone class of flavonoids and is abundantly present in plants such as parsley, thyme, onions, mint, olive oil etc. Alzheimer's disease is a progressive neurodegenerative disorder with no permanent cure so far. A transgenic fly line expressing wild type human Abeta-42 were exposed to apigenin mixed in diet at final concentrations of 10, 15 and 20 µM. The climbing assay, activity pattern, life span, along with the estimation of protein carbonyl content (PCC), glutathione-S-transferase (GST) activity, glutathione (GSH) content, lipid peroxidation (LPO), acetylcholinesterase activity (AChE), caspase activities in the brain of treated as well as untreated AD flies (Positive control) were studied. Histopathology of *Drosophila* brain sections was done by performing thioflavin-S and modified Bielschowsky staining. A dose dependent increase in the life span was observed in AD flies exposed to different doses of apigenin. A significant dose dependent delay in the loss of climbing ability was observed compared to unexposed AD flies. A dose dependent reduction in LPO, PCC, GST, AChE, caspase-9 and caspase-3 activity and an increase in the GSH content was also observed. Histopathological examination of fly brains using thioflavin S staining as well as modified Bielschowsky staining has revealed a significant dose dependent reduction in the expression of Aβ-42 aggregates in the brains of AD flies exposed to 10, 15 and 20µM of apigenin. 10µM dose of memantine, an FDA approved drug for treating AD also showed protective effect on transgenic AD flies.

खिलाडियों के लिए खेल वातावरण की आवश्यकता एवं उसका प्रभाव

डा० सुनील बाबू चौधरी एसोसिएट प्रोफेसर, शारीरिक शिक्षा विभाग बीoवीoआरoआई०, बिचपुरी, आगरा

सांराश

आज के आधुनिक भाग दौड की जिन्दगी में खिलाडियों के लिए खेल वातावरण का होना बहुत आवश्यक है। क्योंकि प्रत्येक खिलाडी को आगे बढ़नें की चेष्टा होती है और वह अपना श्रेष्ठ खेल प्रर्दे"ान करना चाहता है। यह कार्य तभी संम्भव हो सकता है। जब खेल वातावरण खिलाड़ी के अनकल होता है। यदि खिलाड़ी दिषत वातावरण में खेलते है तो उनमें खेल प्रर्द"ान पर बुरा असर पडता है। जिससे खिलाडियों को निरा"ा। हाथ लगती है। और उसका मनोबल गिर जाता है। क्योंक इस आधुनिक खेल जगत मे प्रतिदिन अन्तर्राष्ट्रीय स्तर पर खेल प्रतियोगिताओं में भाग लेने वाले दे"ों की संख्या लगातार बढ रही है। एक दे"ा की टीम दूसरे दे"ा मे आयोजित खेलो में भाग ले रही है। वि"व के दे"ों की जलवाय एवं भौगोलिक भिन्नता पायी जाती है, कही ऊँचाई है तो मौसम ठण्डा और कही गर्म, भारत की जलवायू की तीनों द"गाओं जैसे गर्म, ठण्डी और आर्द्रमयी वातावरण से खिलाडियों को गुजरना पडता है। इन सब कारणों का प्रभाव खिलाडी के शारीरिक गतिविधियों, खेल प्रिताक्षण एवं खेल प्रदर्शन पर पडता है। जिसका उदाहरण सन 2004 के एथन्स ओंलम्पिक में देखने को मिला वहाँ पर यूरोपिय दे"ोा की अपेक्षा अधिक दुषित वायु और अत्यधिक गर्मी मे भी अभ्यास करना हानिकारक तथा कभी-कभी घातक (Fatal) हो सकता है। ऐसी द"। में गर्मी में ऐंडन (Heat eramps) गर्मी में निटाल होना (Heat exhaustion) व गर्मी को आघात हो सकता है। ठण्डी जलवायु में अभ्यास के परिणाम स्वरूप फॉस्टवाइट (Frostbite) व को "ाकाओं का विना"। हो सकता है। खिलाडियों को शारीरिक स्वास्थ सम्बन्धी खतरों से दूर . रखने के लिए अच्छें खेल वातावरण का होना आव"यक है। यदि अच्छा वातावरण नहीं है तो खिलाडियों के स्वास्थ्य से सम्बन्धित खतरे बढने की संम्भावना बढ जाती है। जैसे कि समुद्र तल से अधिक ऊँचाई पर अभ्यास करना खतरनाक हो सकता है। क्योंकि ऐसी जगहों पर अभ्यास करने से हाइपोक्सिया (Hypoxia) हो सकता है और अन्य बीमारियाँ भी हो सकती है जैसे माउनटेन सिकनेस, फेफडों का ओडिमा, लाल रक्त कणिकाओं की संरचना की असमानता तथा वाय प्रदेषण से खिलाडियों में गम्भीर समस्या भी हो सकती है। जैसे ब्रोकाइटिस, अस्थमा आदि वायु प्रदुषण अन्य बीमारियों की अपेक्षा अधिक खतरनाक हो सकता है। क्योंकि खिलाडी में खेल के दौरान श्वसन दर अधिक होती है। जल प्रदुषण से टाईफाइड, पीलिया जैसी बीमारियों के खतरें भी हो सकतें

सन् 1968 में ओंलम्पिक खेलों का आयोजन मॉस्को शहर में हुआ जो समुद्र तल से 7347 फीट की ऊँचाई पर स्थित है। उस समय भी इस बडी समस्या से खेल प्रि"क्षिकों का ध्यान गया। सामान्यता मनुष्य के शरीर का सामान्य तापमान 37° C (98.6° F) होता है। शरीर का ताप व्यायाम, बीमारी और बाह्य ताप के कारण बढ और घट सकता है जब वातावरणीय ताप शरीर ताप से अधिक होता है। तो व्यक्ति का शरीर उच्च स्तर पर ऊष्मा की प्राप्ति करता है जिससें शरीर का ताप बढता है और जब शरीर ताप वातावरणीय ताप सें अधिक होता है तो शरीर से ऊष्मा की हानि होती है। व्यायाम या प्रि"क्षिण के दौरान शारीरिक क्रियाओं के लिए उत्पन्न ऊर्जा ऊष्मा के रूप में रूपान्तरित नहीं होती है। तो शरीर ताप में वृद्वि होती है। मनुष्य की प्रदूषित वातावरण के कारण निर्जलीकरण, ऊष्मा, थकान, ऊष्मा आघात आदि समस्या उत्पन्न होती है। उपरोक्त विवरण के आधार पर अनेक प्रकार के खतरों से बचने के लिए अच्छें खेल वातावरण का होना अत्यन्त आव"यक है। जिसमें खिलाडी के खेल स्तर में सुधार, व्यक्ति विकास खेल चोटों से बचाव शारीरिक, मानसिक स्वास्थ्य महिलायों की अच्छी भागीदारी आदि में सहायक हो सकता है।

INDIA'S VISION FOR ELECTRIC MOBILITY AS TOOL FOR SUSTAINABLE DEVELOPMENT

Dr. Rachita Sharma¹

ABSTRACT

India is witnessing the era of the growing pollution problems. Ecosystem which is powered by fossil fuel is environmentally unsustainable, due to wide range of reasons. The increasing public consciousness on the adverse health effects of air pollution combined with robust policy framework for EV_S has translated to the emergence of a fast growing private sector ecosystem. India has its own vision for electric mobility: as a member of the eight-country Clean Energy Ministerial, a high-level forum to promote clean energy policies and programmes, India aims to achieve a 30 per cent electric vehicle penetration by 2030. This goal is inspired not only by the promise of curtailing its crude oil dependence, but also for environmental sustainability. By 2030, India is anticipated to have an estimated 400 million customers in need of mobility .For one of the largest auto markets in the world ,fossil fuel – led mobility will imperil environmental sustainability.

This paper attempt to find out how India's e-mobility sector is taking cues, insights and knowledge from global counterparts and adapting best practices to an Indian context.

Keywords: Electric Mobility, Eco system, Environmental Sustainability

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ENVIRONMENTAL IMPACTS OF FIRE IN AUSTRALIAN FORESTS

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ABSTRACT

Wildfires in forests of Australia have emerged as the biggest environmental hazard of 21st century. These wildfires have destroyed trees, plants and other life forms in a vast area of about 1.5 million hectares. More than 10 million wild animals and birds along with large number of Kangaroos have lost their lives due to this fire. Spread across the eastern and southern parts of Australia, this wildfire has not only caused a colossal loss of about 5 billion dollars to the economy of Australia, but also caused huge air pollution due to the smoke emitted. Conditions have worsened to the extent that Melbourne has been named the world's most polluted city. Not only Australia, but the air quality of a number of cities in New Zealand has also decreased. The colour of some glaciers also has turned pale. The reasons being named behind the wildfire in Australia include climate change and mining of coal. Extremely heavy mining of coal has dried up the forests to such an extent that the dryness of woods creates wildfires and even small fires do not cease easily and turns into huge wildfire. The present study is based on the wild fire of Australia in the year 2019-20 along with its causes, impact on the environment and to provide solutions for this crisis.

Keywords – Australia, wildfires, coal mining, air pollution etc.

FUNGAL TREATMENT OF TEXTILE WASTEWATER FROM DYEING PROCESS IN DECOLOURIZATION AND DETOXIFICATION

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ABSTRACT

The huge amount of wastewater containing dyes which pollute water, soil, mainly having adverse effects on human health, animal and plants. Due to the dyeing processes, approximately 10-15% is synthetic dyes released into industrial wastes, which causes serious environmental problems like flora and fauna of the aquatic ecosystem, as well as the terrestrial ecosystem. Fungal strains Bjerkandera adusta (Willdenow) P. Karsten MUT 3060, tested in different cultural conditions for real potential for bioremediation of textile wastewater for both decolorization and detoxification. The fungus efficiency of decolorization (color removal) is up to 96% for wastewaters that mimic the recalcitrant of real ones for pH values, the concentration of dyes, additives, and salts. The fungus then tested against a real effluent, which was collected from the wastewater treatment plant before and after tertiary treatment (ozonization) by comparing the two technologies in chemical and toxicological parameters. The fungal treatment is less efficient than ozonization, which is good in decolorization of the effluent. Detoxification caused both by fungal and ozonization but only for the one among three organisms for the ecotoxicological tests. In the ecotoxicological analysis, these results have crucial importance in assessing the applicability of wastewater treatment.

Keywords: Effluent, decolorization, detoxification, toxicological, wastewater

FUTURE GOAL TO SURVIVE ON EARTH," SUSTAINABLE DEVELOPMENT

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ABSTRACT

Sustainable development goals have set the 2030 agenda to transfer our world by tackling multiple challenge. Humankind is facing to ensure well being, economic profitability and environmental protection. In contrast to conventional development agenda focusing on a restricted set of dimensions, the sustainable development provide a comprehensive multidimensional view on development. Hence interaction among the sustainable development goals (SDGs) interactions. We organise the identification of alliance and trade offs, using officials SDG manifestation data for 227 countries. A remarkable positive interaction between indicator pair were found to be outbalance the negative ones in most countries. Among SDGs the positive and negative interaction between indicator pairs allowed for the identification of particular global patterns. SDP1 (No poverty) has synergetic relationship with most of the other goals, whereas SDG12(Responsible consumption and production) is the goals can be anchoraged. In addition the highlighted trade offs, which constitute obstacles in achieving the SDGs need to be short out and made structurally non obstructive by great changes in forthwith scheme. Only on this basis can we develop a clear vision of sustainable development for the 21st century. That vision needs to incorporate and build upon the rich output of diverse global assessments - including climate change, water, energy, and ecosystems - as well as the policy assignment from experience, respond to the evolving nature of the challenges, and draw upon the latest research on integrating sustainability and development into a common agenda. It also needs to recognize and prompt the contribution of all inhabitants of planet earth. The SD21 project is built around a series of studies that will inform a synthesis report, "Sustainable development in the 21st century" (SD21). The SD21 body of studies is expected to become an important methodical and political endowment in its own right. Studies under the SD21 project will cover the following topics: assessment of progress since the Earth Summit; proceeding issues; long-term sustainable development scenarios; tools for managing sustainable economies; national and international institutions for sustainable development; and sector evaluation.

Keywords: SDP (Sustainable development), trade offs, obstacles, evaluation.

GLOBAL WARMING

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ABSTRACT

Global warming is a gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of greenhouse gases. It is a major aspect of climate change. Global Warming and Climate Change are often used interchangeably. But more accurately, global warming is the mainly human-caused increase in the global surface temperature and its projected culmination, while climate change includes both global warming and its effects. The term Global Warming was first used by Wallace Smith Brocker in 1975 in a science paper called "Climate Change: Are we on the Brink of a Pronounced Global Warming?" The effects of global warming or climate change include far reaching and long lasting changes to the natural environment to the ecosystems and to the human societies. The effects of global warming include rising sea levels, regional changes in precipitation, more frequent extreme weather events, expansion of deserts, ocean acidification, melting of glaciers, more rain and snowfall, droughts, wildfires, diminished crop yields, flood, extinction of many species. Increase of infectious diseases, and increase in aggression level and several other devastating effects. Mitigation of an adaptation to climate change are two complementary responses to global warming. Successful adaptation is easier if there is substantial reduction of the emission of greenhouse gases. Climate engineering is the deliberate modification of the climate. It has been investigated as a possible response to global warming by NASA. The United Nations Framework Convention on Climate Change is trying to prevent dangerous human interference with the climate system. The purpose of this paper is to bring awareness about the climate change and seek solution to this problem.

GREEN CHEMISTRY CAN BE TODAY'S REMEDY

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ABSTRACT

Green Chemistry is also referred as Sustainable Chemistry. It will create the future of chemical products in a Safe direction by applying innovative Scientific Solutions to the realworld environment problems. It deals with the principles of using safer solvents, increased energy efficiency and minimizing the potential for accidents including explosions, fire releases to the environment. Green Chemistry is on the frontiers of this continuously evolving interdisciplinary science. It also provides Analytical methods for health problems. DM is considered as a major public health problem. In this aspect Metformin aims to reduce the hepatic production of glucose and is very preferable for both operator and environment.In case of Type, Green Nano Medicine plays a safe chemical reaction using biomaterials such as plant extracts and microorganisms. Selenium Nanoparticles (SeNPs) showvarious antimicrobial properties and are considered versatile for green chemistry. Infrared heating shows wide radiation range of chemical processes and as an alternative clean energy source of activate reactions. In addition to favour selective extraction of natural products all of it comes within Green Chemistry Protocol. Natural Deep Eutectic Solvents (DES) are considered as Green solvents. These Solvents (have low Vapor pressure, thermally stable, Non-Flammable etc.,) make them eco-friendly over Ionic liquids. Green Chemistry also introduces tools such as Bioassays for assessing environment. Bioassays are commercially available, relatively inexpensive in comparison with certain conventional analytical methods. So, Green Chemistry provides unique opportunities for utilizing waste as a new resource and the development of products from biomass. Biofuels will not only provide fuels (energy) but also a source of feedstock chemical.

Key Words: Green Chemistry, DM (Diabetes mellitus), Metformin, Selenium Nanoparticles (SeNPs), Infrared radiation, DES (Deep Eutectic Solvent), Bioassays.

HEAVEN EARTH TRANSFORMING TO HELL EARTH

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ABSTRACT

Our earth is gift for all living beings. It is so precious. Human beings are don't behave good towards our mother earth and destroying earth's atmosphere by increasing pollution day by day due to hazardous chemical. Plenty of use of vehicles producing pollution because as it burns fossil fuel like Petrol, Diesel, and Gasoline and burning of dump yards like house waste, medical waste, etc. produces different hazardous gases as VOCs (Volatile Organic Compounds), carbon monoxide, sulfur dioxide, black carbon, methane, benzene, hydrogen chloride, etc. these are the main gases which contribute in global warming. VOCs reacts with Nitrogen dioxide, in presence of sunlight to form ground level ozone. This air irritates the respiratory system, choking lungs and reduces lungs capacity.

Burning waste is significant source of dangerous carcinogen like dioxins and furans. Black carbon contribute to climate change, increase melting in polar region by deposition on snow. Deforestation also plays a major role in pollution. Researcher estimates, over three trillion trees were on planet over seven times as many as current. Fifteen billion trees are cut down every year by people and International team from fifteen counties found, nearly loss of half of the world's trees 45.8%. If these transformation doesn't stops, soon our earth's future going to be hell and all human beings will be living in hell earth.

FEEDING PATTERNS OF ACRIDOTHERES GINGINIANUS

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ABSTRACT

Bank myna, *Acridotheres ginginianus* belongs to Sturnidae, a family consisting of song birds. They are native to South Asia. They are gregarious and forage in flocks, breed colonially and roost together on the trees. They are seen feeding on platforms, roadside hotels and near human settlements. They are known to change to suitable time for diurnal activities in winter season. Their diet consists of grains, insects and fruits. They feed on ripening crops like Sorghum, grapes and pearl millet. They help in pest control by feeding on *Achaea janata* whose caterpillar feed on castor.

Keywords: Sturnidae, forage, colonial, diurnal

HEPATOTOXICITY OF CADMIUM ON FRESH WATER FISH C. PUNCTATUS

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ABSTRACT

The Present study evaluates the toxic effect of cadmium on the liver of fresh water fish *Channa punctatus*. The fishes were acclimatized and divided into groups, where one group was treated with cadmium chloride, and the other served as control. After exposure, each group was euthanized and blood was collected for assessment of cadmium. Results showed a significant difference in SGPT, SGOT levels for blood in the heavy metal treated fish. However no significant difference was observed in bilirubin levels for the treated group as compared to the control fish.

Keywords: Heavy Metal Toxicity, Cadmium, Fish, Hepatotoxicity

SOCIO-ECONOMIC STATUS OF TRIBAL FISHING COMMUNITY IN

RESERVOIRS OF SURGUJA DISTRICT CHHATTISGARH.INDIA

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ABSTRACT

The present study was conducted to evaluate the socio-economic status of the tribal fishing

community in reservoirs of Surguja district Chattisgarh during the period from March 2019

to September 2019. The socio-economic status of tribal fishermen were studied in terms of

age.family size and type, gender, educational status and literacy.fishing experience.annual

income,and livelihood.Data were collected by interview method using a pre-tested

questionnaire. Majority(46%) of fishermen are 36-45 year old 45% of the fishermen belonged

to medium sized family in which 40% are nuclear category. The gender ratio indicated a

strong male bias with 58% where as 42% female. Most of the fishermen (10%) engaged in

fishing activity in the reservoirs were found to be illiterate,34% obtained up to middle level

education 30% up to SSC.Some old fishermen (20%) have good experiences in fishing

activities(15-20y). The annual income of the fishermen was highly variable and the average

value was Rs. 50000/yr which is very low to sustain livelihood.

Keywords: Socio-economic, Reservoirs, Fishermen, Livelihood.

IMPACT OF CLIMATIC CHANGES ON POPULATION DYNAMICS AND BEHAVIOR OF CHIRONOMIDAE (INSECTA: DIPTERA)

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ABSTRACT

Chironomidae are small, soft bodied, non-biting midges, which belong to the order Diptera. These midges easily affected by the influence of changing environmental conditions. Number and composition size of Chironomidae species changes due to the environmental alteration and a slight change in the environment factors can change species number, composition, flight activities, and pattern. Most of their life cycle spent in the water as the pupae and larvae. These immature stages are aquatic, semi- aquatic and terrestrial and therefore, any change in nutritional load in the water have a great affect on the morphological and chromosomal structure. Therefore, these are being used as a tool for assessment of water and soil quality. Hence these are considered as an excellent biological indicator for assessment of soil and aquatic ecosystems. When abnormal concentration of heavy metals and ions present in the water and soil, it creates deformities in head capsule (mentum, antenna, mandible, and epipharyngis) of blood worms. Aquatic ecosystem deteriorated mainly due to domestic as well as industrial wastes and these contaminants can increase the chances of deformities in the larvae. Some pollutants in aquatic ecosystem have genotoxic effect on chromosomes of the midges because several pollutants make strong complexes of liposoluble that easily insert into the cell or tissue which can cause chromosomal aberration. Chironomidae are not only the bioindicators but also as classifiers of eutrophication level of wetlands. Larvae of Chironomidae are used commercially as fish food; they are part of web-cycle and linker between autotrophs and consumers. Chironomidae midges can cause nuisance and allergy in the humans. Some species of Chironomidae cause immediate- type immunoglobulin E (IgE) mediated hypersensitivity in humans.

Key words: Chironomidae, Environment, Indicators

IMPACT OF OBESITY ON CARDIOVASCULAR DISEASE RISK FACTOR

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ABSTRACT

Obesity is growing health problem worldwide. The determination of obesity is based on the calculation of body mass index (BMI). The BMI of ≥30 kg/m² is defined as obesity and BMI of between 25 to 29.9 kg/m² is defined as overweight. Lack of exercise and unhealthy diet leads to overweight and obesity which causes Cardiovascular Disease mainly of Coronary Heart Disease and Heart Attack. According to World Health Organization (WHO) 39% of the global population above 18 years of age are overweight and 13% are obese. The World Health Report estimated that 78% of Non- Communicable Disease (NCD) obligation and 85% of Cardiovascular Disease obligation was borne by law and middle income countries including India. So for reducing the risk of Cardiovascular Disease we have to take some important steps like losing weight, exercise more, and eating less cholesterol rich food.

Keywords - Obesity, Overweight, BMI, Coronary Heart Disease, Heart attack.

IMPACT OF POPULATION RISE ON FOOD SECURITY, ENVIRONMENT AND BIODIVERSITY

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ABSTRACT

Rapid growth of population across the world including India is not only causing deterioration in the environment and the exploitation of natural resources is reaching its limits, but the stress of urbanization, civil amenities and food security is also rising day by day. Though the condition of developed countries is also a matter of concern, but several developing countries of the third world are facing huge problems regarding food security as well as the crisis of malnourishment, lack of potable water and basic civil amenities. On 1st January 2020, about 300,000 children were born worldwide, out of which 67000 children were born only in India, which is more than 22% of the total children born on the given date. Over exploitation of natural resources worldwide has caused a threat to the environment and the biodiversity. Presently, 56 countries are facing malnourishment and lack of food. About 50 countries are facing serious issues related to the availability of potable water for their citizens. According to scientists, most of the South Asian countries including India shall face huge crisis due to rapid alterations in the climate. For India, it will be a special matter of concern because it owns only 2.42% of land and 4% of water resources while it is a home to about 18% of world's total population. In such conditions, to feed its huge population along with keeping pace with the safety of its biodiversity is a huge challenge for India. The present study deals with the issues of rising population, climate changes and food security. Some suggestions and solutions have also been provided for India which is at 103rd place in the global hunger index. Key words- Climate change, hunger index, malnutrition, natural resources.

IMPACT OF PESTICIDES ON FRESH WATER MICROBIAL COMMUNITIES

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ABSTRACT

Pesticides can enter surface waters via different routes among which runoff driven by precipitation or irrigation is the most important in term of peak concentrations. The exposure can cause direct effects on all levels of biological organization, while the toxicant mode of action largely determines which group of organisms is affected. Microorganism, including algae, protozoa, cyanobacteria, aquatic fungi and bacteria, from the basis of many food webs and are responsible for crucial aspects of biochemical cycling; therefore the potential for pesticides to alter microbial. Community structures must be understood to pressure ecosystem services. Generally insecticides, herbicides and fungicide were found to have adverse direct effects on algal and fungal species. However, few studies have been conducted to specifically community – level effects of pesticides on microorganism and further research in necessary to better understand and predict the net effects of pesticides on fresh water communities.

Key Words: Algae, Protozoa, Pesticides.

AFTER-EFFECT OF FORMALDEHYDE EXPOSURE ON ASSERTIVE SERUM ELECTROLYTES AND PROTECTIVE ROLE OF GARLIC OIL IN WISTAR RATS

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ABSTRACT

The following study was performed to assess the impact of formaldehyde exposure and the protective role of garlic oil on certain blood electrolytes in wistar albino rats, Rattus norvegicus (Berkenhout). Throughout the study, rats of almost equal size and weight ranging from 100 to 150 gm were used during the experiment and were kept under standard laboratory conditions. The rats were divided into three sets randomly, namely A, B and C. Set 'A' animals were served as control and were not exposed to formaldehyde vapours. Set 'B' and 'C' animals were exposed to 5 ppm of formaldehyde vapours in exposure chamber for half an hour along with supplementation of garlic oil orally (1 ml/100 of b. wt.) to set 'C' for 30 days. The albino rats of each set were sacrificed after 30 days of exposure under light anaesthesia (diethyl ether) and the blood samples obtained were used and analyzed for the estimation of ions viz., sodium (Na⁺) and potassium (K⁺) in both control and experimental sets of albino rats. A highly significant increase in serum sodium ion (Na⁺) level after exposure to formaldehyde vapours while a significant decrease in serum sodium ion (Na⁺) level after the supplementation of garlic oil has been observed in comparison to formaldehyde vapours exposed rats. In contrast, a highly significant decrease in serum potassium ion (K⁺) level after exposure to formaldehyde vapours, while a highly significant increase in potassium level after the supplementation of garlic oil as compared to formaldehyde vapours exposed rats was observed. On the basis of the experimental findings, it was revealed that supplementation of garlic oil proved to be protective against the toxic and deleterious effects on the serum electrolytes which were induced by the inhalation of formaldehyde vapours.

Keywords: Formaldehyde, garlic oil, electrolyes, Serum.

EFFECTS OF ACID RAIN ON PLANT REGENERATION

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ABSTRACT

The rain, which contains small amount of acids in it, formed from the gases like sulphur dioxide and Nitrogen oxides present in polluted air, is called Acid rain. Acid rain is a rain or any other form of precipitation that is unusually acidic and possesses elevated levels of hydrogen ions (low pH). Acid rain is caused by emissions of Sulphur dioxide and Nitrogen oxide, which react with the atmospheric water and water vapours to produce acids. Vegetation and soil are the prime receptor of acid deposition and function as sink. Monocotyledons are reported to be relatively less affected by acid rain as compared to dicotyledons and young rootlets, leaves and shoots are typically more sensitive to low pH conditions. It also affects the compositions/makeup of soil water which is the main medium of nutrient supply for the plants and soil microflora. Acidic rain solutions make their entry into the leaf tissue through the cuticle and produce marked effects on plants. Acid rain generally retards the growth of plants by stimulating abnormalities in metabolism of the plants, like photosynthesis, nitrogen and sulphur metabolism, however, there are exceptional cases of promoting growth as well. Present articles reviews studies conducted worldwide on the exposure of various crop plants to acid rain and its ultimate effects on plant growth and reproduction and draws attention for development of plant types suited to acid rain affected lands.

Keywords: Acid Rain, So₂, Plants

GENE THERAPY FOR CANCER TREATMENT

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ABSTRACT

Gene therapy is a new tool to fight with different diseases that are difficult to treat. The field of gene therapy assured a number of imaginative treatments that are likely to become important in curing diseases. Gene therapy is an experimental technique for correcting the defective gene that is responsible for disease development. The most common form of the gene therapy involves inserting a normal gene to replace an abnormal one. Three different approaches of gene therapy are immunotherapy, oncolytic virotherapy and gene transfer are discussed here. Immunotherapy is the type of treatment that boosts the body's natural defense to fight with cancer and it includes the uses of substances that are made by the body or in a laboratory to improve or to restore immune system function. Oncolytic virotherapy is an emerging treatment modality which uses viral particles that replicate within the cancer cell to cause cell death and this approach showed great promise, particularly with metastatic cancers. Gene transfer is an approach which includes insertion of unrelated genetics information in the form of DNA into the cells. Gene therapy plays an important role in future cancer therapy as part of a multimodality treatment in combination with other forms of cancer therapy such as surgery, radiations and chemotherapy. Gene therapy may be helpful to design a treatment that is unique to each individual's specific needs and hopefully these advances will help to demote cancer to a manageable chronic disease without severe suffering and death in future.

Key words: Gene transfer, immunotherapy, oncolytic virotherapy, multimodality, chemotherapy.

EFFECT OF IONIC STRENGTH, CATION, ANION, SOLVENTS AND THEIR COMPOSITION ON 2-AMINO-4, 6-DIETHYL- (4'-GUANIDINYLSULPHONAMOYL) AZOPYRIMIDINES

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ABSTRACT

2-amino-4,6-diethyl-(4'-guanidinyl sulphonamoyl) azopyrimidines were obtained by condensation of 2-(4'-guanidinyl sulphonamoyl) hydrazono-3,5-heptane with guanidine nitrate. The effect of ionic strength on the compounds show no change in half-wave potential and wave height was observed. These observation indicate that peak potential of these compounds is independent of the strength of a particular supporting electrolyte. The effect of cation and anion was made by recording polarograms with supporting electrolytes having a common cation and different anion. No change in peak potential was observed since cation predominate in the electrical double layer at these potentials. The effect of solvent composition was observed that the Ep shifted towards more negative potential with increasing concetration of solvent. The limiting current value decrease with decrease in the magnitude of diffusion coefficient of the depolarizer as a result of an increase in viscosity of medium.

Keywords: Phosphate buffer, 3, 5-heptanedione, guanidine nitrate, glassy carbon electrode, supporting electrolyte (chlorides of lithium, sodium and potassium.

JOGGING: POSITIVE FOR HUMAN HEALTH THEME AREA- HUMAN HEALTH

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ABSTRACT

In this busy world it is important, how we frame our lifestyle and engage ourselves for a complete day. One of the best ways to start a hesty day is by going for jogging. It is a proven fact that starting of the day with some physical exercise makes it more productive than any other day. There are various scientific and experimental researches done on the fact that these people who engage in physical activities are much more healthy than those who have a sedentary lifestyle. Jogging to start off the day is one of the best ways to maintain a healthy lifestyle .Though jogging is something that can be done in any part of the day but jogging in the morning time would make it much more effective. Jogging helps one to become a positive human being with the following qualities of being a socially adjustable, emotionally controlled, physically fit, mentally alert person. Further, it helps to build strong bones, as it is a weight bearing exercise, it strengthens muscles, improves cardiovascular fitness, burns plenty of kilojoules and helps maintain a healthy weight. In this research paper, we will discuss that how jogging improves the mental and physical health of the human being.

Keywords: Jogging, Health...

DETERMINATION OF ECOTOURISM POTENTIAL ALONGSIDE MUGHAL ROAD

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ABSTRACT

This project report is based on the study carried alongside Mughal Road, (Jammu & Kashmir) for the determination of ecotourism potential alongside Mughal Road. For this purpose demographic information of visitors and their perceptions and suggestions regarding the developments of the site were collected and recorded. The project report analyzed primary and secondary data of the socio-economic aspects of visitors on the Ecotourism Auditing Survey format. The present study is an attempt at analyzing the potential of site for ecotourism, which in due course would improve the socio economic conditions of the local people by providing them with economic opportunities. It has been established that area alongside Mughal Road has a huge potential for ecotourism. The site is quite rich in natural, religious, cultural and historical sources necessary for ecotourism. Its natural landscape, lingual, cultural and religious multitude with only one of its kind historical heritage provides vast prospects for Ecotourists. At the end certain important suggestions have been made to give impetus to ecotourism in the site. The involvement of villagers and their desire to be the part of site management was also collected through a questionnaire supplied to them. The awareness about the concept of Ecotourism was collected and personal discussions were triangulated. This study assesses the satisfaction of visitors and suggests measures for better management of visitors alongside Mughal Road which may be applied to other ecotourism areas also.

Keywords: Mughal Road, Demographic information, Ecotourism, Ecotourism auditing survey, Visitor management.

USE OF MOBILES AND ITS EFFECT ON ENVIRONMENT AND BIO-HUMAN SOCIETY

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ABSTRACT

Mobiles and telephones are integral part of modern telecommunications in every individual life the rank first country saudi arabia which has highest proportion of mobile users. Now a day's mobile phone market growing rapidly. Like various wireless internet and communication technologies, such as worldwide interoperability for microwave access (WiMAX) and long-term evolution (LTE), are growing rapidly. These technologies operate using high-frequency electromagnetic waves in the microwave category $(3 \times 102 - 3 \times 106)$ MHZ). Becoming popular. An increasing number of operators within a geographical area is resulting in high microwave densities in the environment. But which effects the environment and bio-human society. Mobile phones emit radiofrequency energy in the form of nonionizing electromagnetic radiations, which can be absorbed by tissues which close to the phone. The distance between user and the phone, the extent and type of mobile phone user's distance from cell phone tower. And these studies indicate that the effects of microwaves (mobile phones) on plants. The excessive use of mobile effects the human health and animals and as well as some plant species. But depend on the plant family and their species. The mobile phone devices impact the human physical and chemical structure. It contain some disease like (heart disease, effect on foetus, alzheimer's disease and parkinson's disease, brain tumor, male infertility and ear impairment). Electromagnetic radiation from cell phone and cell tower affects the birds, environment. When birds are exposed to weak electromagnetic fields, they disorient and fly in all directions, which harm their natural navigational abilities. It effects on enivronment and as well as bio-human society.

Keywords: Telecommunication, Electromagnetic Radiations, Microwaves, Environment.

RAPID ENVIRONMENTAL CHANGES AND ITS IMPACT ON WETLAND DIVERSITY OF KEOLADEO NATIONAL PARK BHARATPUR (RAJ.)

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ABSTRACT

Rapid environmental changes are effects on wetland diversity of Keoladev National park. Increased emissions of greenhouse gases such as carbon dioxide (CO₂) and associated increase in Earth's surface and water temperature has been seen as the major climatic change of the last period. Species in wetlands provide ecosystem services, and protect the sustainable environment for human beings. The wetland biodiversity has been impacted at Keoladev National park due to the development of major environmental threats. The present research was undertaken to report the species status. The highest number of threatened species was found in the wetland Abrus precatorius, Capparis decidua, Crataeva religiosa, Dichanthium annulatum, Indigofera tinctoria Indigofera trita, Iseilema laxum, Maerua arenaria, Mitragyna parvifolia (kadam), Prosopis cineraria, Salvadora oleoides, Tinospora cordifolia, Wattakaka volubilis, Zizyphus mauritiana. Nymphaea nouchali, Nymphaea pubescens, Nymphoides indica. Wetland biodiversity protects wetland ecosystem services and the sustainable environment for species conservation. Continuous monitoring of wetland biodiversity might be helpful for the conservation of species in the wetland ecosystem.

Keyword: Climate change, wetland diversity, Keoladeo National Park

CYTOTOXIC EFFECTS INDUCED BY SEVIN IN THE MITOTIC CELLS OF CLITORIA TERNATEA L.

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ABSTRACT

The aim of the study was to determine the mitostatic effects of Sevin, which is widely used as a pesticide in the agriculture, on the root meristem cells of *Clitoria*. Sevin is a naphthalene derivative and synthetic carbamate insecticide. *Clitoria* is a member of Fabaceae family, also known as Aparajita. Sevin had induced mitodepressive and mitostatic effects on somatic cell division which was directly proportional to the concentration and duration. Chromosome stickiness, fragmentation, laggards and bridges were observed in different stages of the mitotic cycle. So, a measure should be taken in use to prevent its hazardous effects.

Key Words: Sevin, Clitoria ternatea, Mitostatic effects

LIMNOLOGICAL STUDY IN RELATION TO POLLUTION OF YAMUNA RIVER IN AGRA REGION

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ABSTRACT

Industrialization, urbanization, population explosion and green revolution have deteriorated the various sources of water. As Yamuna river flows from different industrial cities, it becomes polluted due to which B.O.D. in the river often rises to 10 to 20 mg/L against a permissible limit of 3 mg/L. Roughly approximate 650 MLD of municipal waste is also discharged in Yamuna from different cities which are situated on the bank of the Yamuna river in U.P. Many tanneries and silver platting and small pesticide companies are established in Agra. The various wastes in Yamuna water of Agra like tanneries effluents detergents etc are discharged without any treatment in the river. The population of Agra region nearly 18 $\times 10^5$ and requirement of water is more than 300 MLD but the availability of water is only around 225 MLD. The industrial effluents, sewage and polluted water from other sources like silver platting when discharged into any stream of Yamuna river through Agra, it therefore, becomes necessary to assess water quality of Yamuna at downstream (D) and upstream (A). In the present observation water quality with regard to physical, chemical and biological parameters have been assessed at a specific stretch of the water length of Yamuna river (15m) that has been divided into 4 sites as (a) Kailash ghat, (b) Poiya (non industrial site) ghat, (c) Jawahar bridge and (d) Near Tajmahal (industrial site).

As level of pollution is going to increase, the number of fecal coliform per 100 ml will also increase rapidly. It is alarming as various contaminant diseases may be caused due to these microbes. From our experimental data's from different sampling stations in different periods, it is clear that conductivity from upstream goes on to increasing , dissolve oxygen reading indicates that from site A to site D it goes on to decreasing while B.O.D and C.O.D regularly go on to increasing . The hardness is also going to increase from site A to site D in every collecting time, which clearly- indicates that polluted materials are continuously going to mix in the Yamuna river form coastal region of Agra. All the inorganic like magnesium, chloride and suspended as well as dissolved solid particles are also increasing continuously, ammonium and nitrate compound are also going to increase.

Key words: Faecal coliform, Pollution, Water.

मानव समाज एवं पर्यावरण संरक्षण

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शोध सारांश

मनुष्य एक सामाजिक प्राणी है, समाज ही उसका घर है। उसी परिवेश में वह पला—बड़ा होता है तथा उसी के अनुरूप गतिविधियाँ करता है। पर्यावरण हमारे चारों तरफ फैली हुयी चीजों का संगठन है। अन्य जीवों के समान मानव भी पर्यावरण का एक अंग है। प्राचीन काल से ही भारत में स्वच्छ पर्यावरण सामाजिक जीवन की प्राथमिकताओं में सम्मिलित रहा है। भारतीय संस्कृति में प्रारम्भ से ही जल, जंगल और जमीन को संरक्षित रखने की परम्परा रही है। वर्तमान मं हमारे निहित स्वार्थों ने पर्यावरण को दूषित कर दिया है। उपभोक्तावादी संस्कृति को हम अपनाते तो चले गये लेकिन उनसे उपजी पर्यावरण प्रदषण की समस्या की ओर हमने कोई ध्यान नहीं दिया।

वर्तमान समय में औद्योगीकरण एवं नगरीकरण की प्रक्रियाओं के साथ जनसंख्या में भी तीव्र गित से वृद्धि हुयी है। जिनकी वजह से पर्यावरण प्रदूषण में असीमित वृद्धि हुयी है। भारतीय शहरों में अपशिष्ट पदार्थों की असीमित वृद्धि हुयी है। आज हम भारतीय शहरों में कूड़े—कचरों के पहाड़ जैसे ढ़ेर, गंदे पानी की निकासी, पालीथीन का असीमित उपयोग, रासायनिक द्रव्यों का विसर्जन, जंगलों का असीमित दोहन इत्यादि कारणों ने हमारे जीवन की गुणवत्ता के सम्मुख एक बड़ा खतरा उत्पन्न कर दिया है। इस बात से इनकार नहीं किकया जा सकता कि स्वच्छ वातावरण प्रत्येक प्राणी की मौलिक आवश्यकता है। पर्यावरण संरक्षण की दिशा में सरकारों एवं ग्रामीण—शहीर निकायों द्वारा प्रयास भी किये जा रहे हैं परन्तु बिना सामाजिक सहभागिता के लक्ष्य को प्राप्त नहीं किया जा सकता।

MATERIALS FOR ENVIRONMENTAL REMEDIATION AND THEIR APPLICATIONS

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ABSTRACT

Various technologies for environmental remedies are adsorption, absorption, Chemical reactions, Photocatalysis, and filtration for the removal of contaminants from different environmental contents. The enhanced properties and effectiveness of nanotechnology-based materials makes them particularly suitable for such process given. They have a high surface area-to-volume ratio, which often results in higher reactivity. This review provides an overview of three main categories of nanomaterials which are Inorganic, Carbon-based and Polymeric-based materials used for environmental remediation. The use of these nanomaterials for the remediation of different environmental contaminants such as heavy metals, dyes, chlorinated organic compounds, organophosphorus compounds, volatile organic compounds and halogenated herbicides is reviewed. Various recent examples are extensively highlighted focusing on the materials and their applications.

Keywords: Nanamaterials, Environmental Remedies, Nanostructures, Nanotechnology, Contaminants, Pollutants.

मानव के व्यक्तित्त्व—विकास एवं संरक्षण में अभिज्ञानशाकुन्तलम् नाटक का विशेष भूमिका

डाँ० सिकन्दर लाल

(एसोसिएट प्रोफेसर संस्कृत) कौ"ाल्या भारत सिंह 'गाँधी' राजकीय महिला महाविद्यालय ढिंढुई, पट्टी, प्रतापगढ़ (उ०प्र०), पिनकोड—230138 मो0—9415061655, 09984604127, 7905041820 E-mail: dr.sikandarlal@gmail.com

शोध सारांश

संसार रूपी धाम में विराजमान् जैसे अन्य महाकवियों द्वारा रचित नाटक, काव्य-महाकाव्य मानव के व्यक्तित्त्व-विकास एवं संरक्षण में वि"ोष योगदान दिया है ठीक इसी प्रकार संस्कृत साहित्य में वि"वविख्यात नाटककार महाकवि कालिदास द्वारा रचित अभिज्ञान"गाकुन्तलम् नामक नाटकं का भी मानव के व्यक्तित्त्व-विकास एवं संरक्षण में महत्त्वपूर्ण योगदान रहा है। अभिज्ञान "गाकुन्तलम् नाटक में किस प्रकार मानव के व्यक्तित्त्व-विकास के साथ-साथ, मानव संरक्षण की भावना विद्यमान है और उच्च व्यक्तित्त्व का धनी यह मानव कैसे अपने कर्त्तव्यों का निर्वहन करते हुए मानव एवं जीव-जन्तु रूपी मूर्तियों की अपनी क्षमतानुसार सेवा-सुरक्षा में लगा रहता है। इस सन्दर्भ में ढेर सारे उदाहरण इस नाटक में भरे पड़े हैं। जब मेनका नामक अप्सरा नायिका शकुन्तला को जन्म देकर परिस्थितिव"। वन में छोडकर चली जाती हैं, तब वह छोटी सी कन्या रोती-चिल्लाती है। रास्ते में जाते समय सहसा कण्व ऋषि की दृष्टि उस अनाथ कन्या पर पड़ी और उसे उठाकर अपने आश्रम में लाते हैं। ऋषि कण्व अनाथ कन्या को पालन-पोषण के साथ-साथ ऐसी भिक्षा देते हैं कि वह बड़ी होकर आश्रम के वक्षों. प"।-पक्षियों आदि को अपना सगा भाई-बहन मानकर, समय-समय पर खाना-पानी देती है। इससे यह स्पष्ट है कि कण्व ऋषि जहाँ एक छोटी सी अनाथ कन्या को वन से लाकर पालन–पोषण करते हैं, वहीं उस कन्या के व्यक्तित्त्व का भरपूर विकास भी करते हैं। परिणाम स्वरूप वह कन्या शकुन्तला भी अपने कर्त्तव्यों का निर्वहन करने हेतु पे"]-पक्षियों, वृक्षों-वनस्पतियों आदि की अपनी क्षमतानुसार सेवा-सुरक्षा करती है। प्रस्तुत शोध पत्र में अभिज्ञान"गाकुन्तलम नाटक किस प्रकार मानव के व्यक्तित्त्व-विकास एवं संरक्षण में भूमिका निभाया है-इत्यादि के सन्दर्भ में प्रका"। डाला जायेगा।

Keywords: अभिज्ञान"गाकुन्तलम् नाटक, व्यक्तित्त्व—विकास, मानव—संरक्षण, मानव—कर्त्तव्य, भारतीय संस्कृति, भारतीय जनमानस, जीव—जन्तु से युक्त प्रकृति की सुरक्षा, आधुनिकता।

MEDICINAL ASPECTS OF RAUVOLFIA SERPENTINA (L.) BENTH. KURZ.

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ABSTRACT

Rauvolfia serpentina (L.) Benth. ex Kurz. or Sarpagandha is a well known medicinal plant of family Apocynaceae. It is used for the treatment of different ailments since ages. Ancient Indian scientists such as Charak, Sushruta, Sharangdhar etc. used Sarpagandha for various diseases and documented its medicinal properties. In rural areas, people commonly called Sarpagandha as drug of madness. It is used for curing snakebite, hypertension, high blood pressure and mental illness. It is also used as remedy for high blood pressure, Insomnia, anxiety, excitement, schizophrenia and insanity. In rural and tribal areas of India, it is also used as household, ethnic or traditional medicine for the treatment of pneumonia, fever, malaria, asthma, skin diseases, scabies, eye problems, rheumatism and gastro intestinal disorders. The present study is an effort of documentation of medicinal properties of Rauvolfia serpentina (L.) Benth ex. Kurz. (Sarpagandha) along with providing some effective solutions for the conservation of Sarpagandha plants.

Key words – *Rauvolfia serpentina*, traditional medicines, sarpagandha etc.

MEDICINAL UTILITY PRESENT STATUS AND CONSERVATION STRATEGIES OF SOME MEDICINAL PLANTS IN KANPUR

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ABSTRACT

Plants and their by-products are well known source of common man entire globe including India. They play a key role in primary healthcare conservation since ever. Present study deals with medicinal utility, present status and conservation strategies of some medicinal plants in Kanpur and adjacent areas, which are widely used as traditional or ethnomedicine. Out of these Eclipta prostrata Hassk (Bhringraj), Solanum nigrum L. (Makoi), Solanum xanthocarpum (Badi Kateli), Adhatoda vasica Nees (Adusa) and Rauvolfia serpentina (L.) Benth.Ex.Kurz, etc. are very important medicinal plants in all Indian systems of medicines. Eclipta prostrata Hassk (Bhringraj) is valuable plant for treatment of liver, spleen and hair diseases, while Solanum nigrum L. (Makoi) is effective in liver, cardiac and digestive system disorders. Solanum xanthocarpum Schrad and Wendl and Adhatoda vasica (Adusa) are effective in cough, cold, asthma, bronchitis and other disorders related to breathing. Rauvolfia serpentina (L.) Benth Ex. Kurz (Sarpagandha) is utilized for the treatment of hypertension, cardiac and nervous system disorders. The natural habitat of these medicinal plants is shrinking day by day because of urbanization, spreading of colonies and thrashing of agricultural fields. The present study is an effort to signify the medicinal importance, availability and conservation techniques of these medicinal plants.

Key words: Medicinal plant, traditional medicine, primary healthcare, plant conservation.

IMPORTANT ISSUES OF CLIMATE CHANGE

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ABSTRACT

Anthropogenic explosions such as: Atomic testing, burning of fossil fuels etc. are the major source of industrial greenhouse gas emissions, especially for power, cement, steel, textile, fertilizer and many other industries which rely on fossil fuels (coal, electricity derived from coal, natural gas and oil). The major greenhouse gases emitted by these industries are CO₂, CH₄, N₂O. HFCS, etc, all of which increase the atmosphere's ability to trap irradiance energy and thus affect the climate. The concept of carbon credits came into existence as a result of increasing awareness of the need for controlling emissions. The mechanism was formalized in the Kyoto Protocol, an international agreement between more than 170 countries, and the market mechanisms were agreed through the subsequent Marrakesh Accords. The mechanism adopted was similar to the successful US Acid Rain Program to reduce some industrial pollutants. In same manner, The Intergovernmental Panel on Climate Change (IPCC) has observed that: Policies that provides a real or implicit price of carbon could create incentives for producers and consumers to significantly invest in low-GHG products, technologies and processes. Such policies could include economic instruments, government funding and regulation, while noting that a tradable permit system is one of the policy instruments that has been shown to be environmentally effective in the industrial sector, as long as there are reasonable levels of predictability over the initial allocation mechanism and long-term price.

EFFECT OF LEAF LITTER ACCUMULATION ON VEGETATION

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ABSTRACT

It is widely recognized that feedbacks exist between plant litter and plant community species composition, but this relationship is difficult to interpret over heterogeneous conditions typical of modified environments such as roadways. Given the need to expedite natural recovery of disturbed areas through restoration interventions, we characterized litter accumulation and nutrient content (i.e., organic carbon, total N, and P) and quantified their association with key plant species. Plant species cover and litter characteristics were sampled at 18 successional forest plant communities along major roadways in Sichuan Basin, western China. Variation in litter across communities was assessed with principal component analysis (PCA) and species with the highest correlation to PCA axes were determined with Pearson's r coefficients. Plant communities with the longest time since road construction (i.e., 70 years) were distinctly different in litter total N and organic carbon compared to plant communities with a shorter disturbance history. We encountered 59 plant species across sampling plots, but only four rare species (i.e., frequency < 5) were strongly correlated with litter characteristics (p < 0.01); none of which were the most abundant where they occurred. These results highlight the importance of site-specific factors (i.e., geographic location, disturbance age) regulating plant litter across heavily disturbed landscapes and how litter characteristics and rare plant species are correlated.

Keyword: Forest succession; plant community assembly; disturbance age; species colonization:

NANOTECHNOLOGICAL SOLUTION FOR CONSOLIDATION OF ANCIENT MONUMENTS

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ABSTRACT

Nano-technology can be considered a scientific achievement. It has been applied in many fields, such as biomedical, food safety, and environmental applications. It has also triggered a huge revolution in electrons, resulting in superior performance in the military field, engineering and water sciences, robotics, biology and medicine, fiber optic communication networks, aerospace technology, advanced materials technology, chemical engineering and precision manufacturing, and is expected to play a major role in social life in the future. Therefore, this technique has received wide attention from scientists and specialists in universities and research institutions from all over the world. Conservation science uses the achievements of other sciences, and the time seems ripe to apply the knowledge acquired on nanomaterials in the cultural heritage sector. One important application of nano-materials and technologies is in consolidating or retrofitting degraded materials. This is exploited in cultural heritage conservation, namely in safeguarding quasi-brittle composites and other porous inorganic materials. In the last few years, nanocomposites have been frequently applied to restoration and conservation of artworks. The minimizing of particle size into nanoscale results in better properties than the large grain size of the materials of the same chemical composition. The dispersion of nanoparticles in the polymers used in the consolidation and protection processes lead to improve the performance of materials used to improve the durability of stone monuments. Consolidant, protective and hydrophobic polymeric materials have been used in conservation science for several decades.

In the present work, CaCO3 nanoparticles were added as nanometric filler to acrylic polymeric dispersions in order to improve its physical, chemical, mechanical and thermal contraction properties, and compose suitable nanocomposites to be used in the consolidation and protection of the limestone samples. Nano CaCO3 was chosen for its physical, chemical and mechanical properties, such as improved water repellence, increased physical and mechanical properties of the mixed nanocomposites. The presence of nano-CaCO₃ may possibly facilitate the mobilization of macromolecular chains and improve the ability of matrix polymer to adapt to deformation and hence to increase the ductility and impact strength of composites. The nanoparticles may also initiate micro-void formations which locally deform the matrix surrounding the particles and initiate mass plastic deformation and, in consequence, increase the toughness and impact energy .The selection of the treatment materials concentration was based on many previous studies which presented different strategies for incorporation and dispersion of nanoparticles in polymeric materials. We carried out some experiments using various concentrations of nanoparticles mixed with acrylic polymers in order to determine the best concentrations suitable for the conservation of ancient stone monuments. In addition, many other studies presented different concentrations of CaCO₃ nanoparticles and other types of nanoparticles 1%, 3%, 5%, 7%, and 10% of the concentration of the polymeric materials. The best results showed that the proper nano-particles content should be 3-7% of the polymer concentration. The high content of nanoparticles lead to aggregates of nanoparticles and low penetration inside stone structure. When nanoparticles content increased, they tended to form agglomerates that can be described as particles with higher dimensions, smaller surface contact area and smaller effect in the mechanical properties of the matrix. The achievement of good dispersion, good penetration in stone material, high physical and mechanical properties seems to be strong with the low content of nanoparticles. In addition, in the field of restoration of ancient Egypt stone monuments, one of the important issues when choosing the concentration of treatment material is porosity and composition of stone material. Thus, due to the high porosity of limestone, the proper concentration of treatment material (5%) will be appropriate. In order to evaluate the potential use of this CaCO3 in the field of Cultural Heritage, the most important tests were carried out, which is mandatory for Cultural Heritage applications. The properties of the treated limestone samples were evaluated comparatively by using different methods; the selected products were tested under artificial aging. Scanning electron microscopy (SEM) examination is performed to evaluate morphology of the surface and homogeneous distribution of used consolidation materials on stone surface. Improvements in the stone mechanical properties were evaluated by compressive strength test, which is the most important test to evaluate the stone consolidation materials. Changes in water-interaction properties were evaluated by water absorption capillarity measurements and water contact angle measurements, and colorimetric measurements were used to evaluate the optical appearance. The results demonstrated that the addition of nanoparticles into the acrylic-based polymers produced a significant improvement in their efficiency to consolidate and protect the limestone samples.

THE SIGNIFICANT EFFECT OF SULPHUR DIOXIDE EXPOSURE ON PLANTS VIGNA RADIATA L. AND VIGNA MUNGO L.

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ABSTRACT

For present study seeds of *Vigna radiata* L. and *Vigna mungo* L. were procured from certified seed agency (IARI Delhi). The seeds were shown in polythene bags, after 20 days of germination the treatment of plants was carried out with various concentrations of SO₂ prepared according to Rao & Le Blanc (1966). After treatment with SO₂ the observations were made regarding biochemical, growth, yield and morphological aspects. The sulphur dioxide pollution reduced all growth parameters like fresh weight of root and shoot, dry weight of shoot and root, phytomass and N.P.P. in *Vigna radiata* and *Vigana mungo* and the total chlorophyll content of leaves showed reduction from the very beginning of exposure to SO₂ with higher concentrations. Due to the influence of SO₂ exposure the leaves get injured. The maximum percent reduction in leaf area was recorded at higher concentration of SO₂. The studies have also shown the impact of sulphur dioxide on yield in both crops.

Keywords: SO₂ pollution, chlorophyll content, yield, growth.

ENVIRONMENT AND BIODIVERSITY: CHALLENGES AND STRATEGIES IN 21st CENTURY DISMISS DIRT FOR A TIDY EARTH

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ABSTRACT

Environmental Pollution and Climate Change has been characterized by the large-scale and long term changes in the natural system produced by the anthropogenic activities. This change is heading towards terrible living conditions. Still, we can keep calm and control the situation before it worsens. Several initiatives have been taken into action to control pollution and climatic abnormalities all over the world. Corporate Social Responsibility has risen up with SINGLE PLASTIC program to curb the pollution. Now it is the prior responsibility of plastic manufacturers to collect the waste and mark the usage accordingly. Many hydropower projects could face closure as they are not adhered to the ecological flow of H₂O according to which they should maintain minimum wastage of water. Indian government has banned stable burning which is the root cause of severe air pollution in Delhi, Punjab and Haryana during winters. Delhi's Air Quality Index has been confronted above 500 which is an emergency alarm. IPCC is meeting in India to prepare 6th assessment report which is to be finalized July 2021 bv more than 200 experts from 65 in According to Climate Vulnerability Map of India; New 2020 Maps will be ready for 12 Himalayan States, developed by the department of Science and Technology under Central Government and Swiss Agency for development and cooperation. Internationally, to compensate for environmental degradation, Bhutan has imposed tax on the visitors from India, Bangladesh and Maldives. East Asia Summit recently held in Bangkok laid stress on strategies to curb environmental pollution and control climate change.

Keywords: Climate Vulnerability, IPCC (Intergovernmental Panel on Climate Change), Climatic Abnormalities, Hydropower Projects.

FT-IR, FT-RAMAN SPECTRA AND DFT CALCULATION OF THE BIOMOLECULE: 5-AMINOOROTIC ACID

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ABSTRACT

Vibrational spectroscopy is one of the most important tools for the characterization of medium size molecules, but the interpretation of all the bands observed in the spectra is often not straight forward but sometimes risky. However, the use of adequate quantum-chemical methods for predicting the wavenumber of the spectra remarkably reduces the risk in the assignment and can accurately determine the contribution of the different modes in an observed band. The DFT methods have shown a more reliable prediction for the calculated wavenumbers and the basis set 6-31G(d,p) gives the best relationship.

The orotic acid (uracil-6-carboxylic acid) or vitamin B13, is an important biomolecule. Its derivative 5-aminoorotic acid (HAOA) plays an important role in chemistry and biochemistry, but from the spectroscopy point of view a complete interpretation of its vibrational spectra is not available. Therefore, in the present study, the experimental IR and Raman data reported earlier were improved, and molecular properties were analyzed. In addition, the low Raman wavenumbers were assigned to different lattice modes computed in the tetramer form for the first time. The N3-H stretching vibration (mode 29 in U) is slightly down-shifted (scaled at 3453 cm⁻¹ by B3LYP) as compared to the N1-H stretching vibration (mode 30 in U) at 3489 cm⁻¹, in accordance with a shorter N1-H bond length than N3-H. In the isolated state, two very strong IR bands appear at 1775 and 1720 cm⁻¹ corresponding to v(C2=O) and v(C4=O) modes, respectively. A very strong IR band at 1666 cm⁻¹ was tentatively assigned to the stretching v(C=O) mode of the carboxylic group. The v(C5-N) stretching vibration (no. 28) is predicted with medium IR intensity at 1300 cm⁻¹ which was related to the experimental IR band at 1312 cm⁻¹.

Due to the carboxylic group, two intramolecular interactions appear in both conformers of HAOA. One is through the hydrogen of the amino group, N11-H···O, and the another one is through the N1-H moiety, N1-H···O16. The significant value of dipole moment (2.8903D) shows that 5-aminoorotic acid might have the NLO properties.

FT-IR, FT-RAMAN SPECTRA AND MOLECULAR DOCKING STUDIES OF BIOMOLECULE: 6-CHLORO-3-METHYLURACIL

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ABSTRACT

The importance of uracil and its derivatives has been indicated by a considerable number of publications appeared in literature from the structure and spectroscopy point of view [1-3]. The use of adequate quantum-chemical methods and scaling procedures remarkably reduce the risk in assignment and can also accurately determine the contribution of the different modes in an observed band. The theoretical methods predict the vibrational spectra in the gas phase. If the vibrational spectra of the molecule selected can be carried out in gas phase, it can be compared directly with the scaled spectra with certain accuracy, However, the differences are higher in the comparison with the spectra in the solid state. This fact requires the use of a very accurate procedure of scaling the wavenumbers to avoid a mistake in the assignment.

To the best of our information no experimental structural data and complete vibrational data are available for 6-chloro-3-methyluracil (6-C-3-MeU) molecule. The difficulty in accurate assignment of the vibrational spectra of nucleic acids base derivatives is not simply due to the complexity of their vibrational spectra, but also due to the computational method that does not account for the structural features exhibited by these molecules. In the present work we try to assign vibrational spectra of 6-C-3-MeU accurately with the help of theoretical calculations. We have recorded FTIR (400-4000 cm⁻¹) and FT- Raman (50-3500 cm⁻¹) spectra of this molecule in solid state. The calculated wavenumbers are scaled with employing the linear scaling equation procedure [4].

COMPARISION STUDY OF INDOOR AND OUTDOOR AIR POLLUTION IN AGRA

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ABSTRACT

INDOOR AIR POLLUTION is ubiquitous, and takes many forms, ranging from smoke emitted from solid fuel combustion, especially in households in developing countries, to complex mixtures of volatile and semi-volatile organic compounds present in modern buildings. This paper reviews sources of, and health risks associated with, various indoor chemical pollutants, from a historical and global perspective. Health effects are presented for individual compounds or pollutant mixtures based on real-world exposure situations. Health risks from indoor air pollution are likely to be greatest in cities in developing countries, especially where risks associated with solid fuel combustion coincide with risk associated with modern buildings. Everyday exposure to multiple chemicals, most of which are present indoors, may contribute to increasing prevalence of asthma, autism, childhood cancer, medically unexplained symptoms, and perhaps other illnesses. Given that tobacco consumption and synthetic chemical usage will not be declining at least in the near future, concerns about indoor air pollution may be expected to remain. OUTDOOR AIR POLLUTION Environmental carcinogens, in a strict sense, include outdoor and indoor air pollutants, as well as soil and drinking water contaminants. An increased risk of mesothelioma has consistently been detected among individuals experiencing residential exposure to asbestos, whereas results for lung cancer are less consistent. At least 14 goodquality studies have investigated lung cancer risk from outdoor air pollution based on measurement of specific agents. Their results tend to show an increased risk in the categories at highest exposure, with relative risks in the range 1.5-2.0, which is not attributable to confounders. Results for other cancers are sparse. A causal association has been established between exposure to environmental tobacco smoke and lung cancer, with a relative risk in the order of 1.2. Radon is another carcinogen present in indoor air which may be responsible for 1% of all lung cancers. In several Asian populations, an increased risk of lung cancer is present in women from indoor pollution from cooking and heating. There is strong evidence of an increased risk of bladder, skin and lung cancers following consumption of water with high arsenic contamination; results for other drinking water contaminants, including chlorination by-products, are inconclusive. A precise quantification of the burden of human cancer attributable to environmental exposure is problematic. However, despite the relatively small relative risks of cancer following exposure to environmental carcinogens, the number of cases that might be caused, assuming a causal relationship, is relatively large, as a result of the high prevalence of exposure.

Keywords: Asthma, air pollution, indoor, autistic disorder, developing countries, organic chemicals, smoke, world health, tobacco use, childhood cancer, complex mixtures, heat of combustion.

NEUROTOXICOLOGY

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ABSTRACT

Metal neurotoxicity is a global health concern. Lead is one of the neurotoxicants that seems to be involved in the etiology of psychologies. Exposure to lead wreaks havoc in the brain with consequences that include lower IQ and reduced potential for learning. Within the brain, lead induced damage in the prefrontal cerebral cortex, hippocampus and cerebellum can lead to a variety of neurological disorders. Lead attacks the most fundamental aspect of the brain – the synapse. Presynaptically metal ions modulate neurotransmitter (NT). This metal interact with intracellular signaling pathways. Postsynaptically, processes associated with the binding of neurotransmitter to their receptors, activation of channels and degradation of neurotransmitter are altered by metals. There are some substances that can penetrate blood brain barrier (BBB) and cause irreparable damage to the central nervous system. Lead is one such substance. Not only break through the blood brain barrier (BBB), it also increases its permeability, thus leaving the brain vulnerable to other toxic substances. Lead disrupts the movement and storage of calcium inside cells, increasing cell stress, which can lead to the death of neurons and other braincells. Lead also hijacks calcium's role in the brain including communication between neurons. Ban on leaded gasoline began in the early 1970s and leadbased paint bans followed shortly thereafter.

Keywords: Psychologies, Synapse, Neurotransmitter, Blood brain barrier (BBB).

MICROALGAE IN HEALTH AND DISEASE PREVENTION

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ABSTRACT

Microalgae are known worldwide for their application in bioremediation as they consume carbon dioxide (CO₂) from the atmosphere and as raw materials considering the large variety of bioactive compounds in their constitution. Microalgae (mainly Dunaliella salina, Chlorella vulgaris and Spirulina platensis) were firstly used as food additives in food industries and pharmaceuticals. They are rich in high-value compounds including caretenoids, protein, vitamins, essential amino acids, omega rich oils, anti-flammatory, and antioxidants. Chlorella vulgaris is used for medical purpose like protection against renal failure and growth promotion of intestinal (lactobacillus). It has been documented that it prevents oxidative stress and cellular damage in kidney. These algae act as preventive agents for the prevention of cardiovascular diseases, malnutrition (increase hemoglobin concentration act as hepatoprotective agent during malnutrition), chemoprevention, dietary aid for leprosy patients and helpful in lowering blood sugar levels. Because of their high nutritive and medicinal value, scientists are focused to improve their cultivation. Green extraction is used to purify and isolate their bioactive compounds and remove their potential impurities. Further research is needed to improve overall methods and to generate safe functional products.

Key words: Chemoprevention, malnutrition, carotenoids, pharmaceuticals, hepatoprotective

EFFECT OF POTASSIUM BROMATE ON THE LIVER FUNCTIONS OF ALBINO RAT

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ABSTRACT

The present study has shown that potassium bromate (KBrO3) is capable of producing changes in the biochemical parameters. These alterations seem to be more prominent with the liver because liver is mainly responsible for detoxification of foreign compound in the body since it has adversely affected the liver function. Potassium bromate is an oxidizing agent that has been used as a food additive mainly in the bread making process as well as a dough conditioner for flour. Toxicological studies have convincingly shown that potassium bromate affects the nutritional quality of bread. Carcinogenic and mutagenic effects of potassium bromate have been reported in experimental animals. Potassium bromate is extremely irritating and injurious to tissues especially to the central nervous system and kidney. The pathologic findings include kidney damage and hemolysis. Impairment of liver function is a direct consequence of changes in the histological structure of the organ, which depends on the degree of exposure to toxic substances. Potassium bromate has also been considered as a potential human carcinogen (group 28) and its application in food processing was restricted. In the present bonafide experimental study, therefore, an attempt has been made to study in detail the effect of potassium bromate on the serum enzymes, SGPT, SGOT, alkaline phosphatase, alkaline phosphatase, acid phosphatase in albino rats, Rattusnorvegicus (Berkenhout). The chemical potassium bromate was given to treated rats at the dose of 200 mg/kg body weight daily for 7, 15 and 30 days.

Keywords: Acid phosphatase, Potassium bromate, Liver, *Rattusnorvegicus*, Serum enzymes, serum SGPT level, serum SGOT level, alkaline phosphatase

पर्यावरण चिन्तन-जल प्रदूषण एक समस्या

डॉ० नीतू गुप्ता अर्थशास्त्र विभाग,

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शोध सारांश

मनुष्य एवं जीव जन्तु सभी पर्यावरण की उपज है। इनकी उत्पत्ति, विकास, वर्तमान स्वरूप एवं भावी अस्तित्व भी पर्यावरण पर ही निर्भर है। प्रकृति में अनेक संसाधन उपलब्ध हैं जो सजीवों के विकास के लिए प्रत्यक्ष एवं अप्रत्यक्ष आवश्यक हैं। इन संसाधनों में से जल एक प्रमुख आधारभूत संसाधन है जो मानव जीवन एवं अन्य सभी जीवधारियों के लिए अत्यधिक महत्वपूर्ण है। वर्तमान में बढ़ती जनसंख्या और मानव के विलासिता एवं महत्त्वाकांक्षी जीवन के कारण जल का अतिदोहन होने लगा है जिसके कारण स्वच्छ जल की कमी हो गयी है और अधिकांश जल के स्त्रोत मानवीय क्रियाकलापों के प्रदूषित हो गये हैं। पर्यावरणीय समस्याओं के कारण आज हमारी पृथ्वी के अस्तित्व पर संकट बढ़ता जा रहा है। भारत में जल—प्रबन्धन की समस्या के साथ शुद्ध जल आपूर्ति की गम्भीर समस्या है। शुद्ध जल की आपूर्ति न होने के कारण लोगों के स्वास्थ्य पर विपरीत प्रभाव पड़ रहा है। एक अनुमान के अनुसार भारत में 80 प्रतिशत जनसंख्या को शुद्ध जल उपलब्ध नहीं हो पा रह है। केवल 20 प्रतिशत लोगों को ही शुद्ध जल प्राप्त हो रहा है। उसमें भी वो जल उतना, शुद्ध नहीं है जितना होना चाहिए। जल को लेकर लोगों को ओर अधिक जागरुक किये जाने की जरूरत है। राष्ट्रीय एवं अन्तर्राष्ट्रीय स्तर पर जो कार्यक्रम हो रहे हैं उन्हें और बढ़ावा देना चाहिए। ठीक उसी तरह जैसे स्वच्छता को लेकर एक मुहिम शुरू की गई है।

NOISE POLLUTION EFFECT ON HUMAN HEALTH

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ABSTRACT

Noise Pollution and its influence on environment and life quality of human beings may be considered as a hot topic in scientific research. Besides growing levels of air and water pollution, road traffic induced noise pollution has been recognized as a potential threat to feasible quality of life especially in the urban areas. Major source of noise pollution includes transportation and frequent use of horn of vehicles. The accelerated pace of economic development, urbanization and increased vehicular mobility has affected remotest location of India and the Himalayan states of Uttarakhand is no exception to it. The peak pilgrimage season brings with it uncontrolled traffic influx in the region. Heavy movement of traffic and illegitimate usage of horns is considered main cause of noise pollution. During the past few years, pollution due to vehicles has also increased in the Himalayan region. Even the interior areas of Himalayas have reported a sharp increase in vehicle density. Exposure to high levels of noise causes stress on human health such as insomnia, hearing loss, reduced efficacy, sexual impotency, irritability, cardiovascular, respiratory and neurological damages. The execution of an appropriate management strategy for limiting noise pollution on affected sites is recommended.

Keywords: Insomnia, Pilgrimage, Pollution, Urbanization.

NUTRITIONAL VALUE AND CHEMICAL COMPOSITION OF INDIAN GOOSEBERRY (EMBLICA OFFICINALIS)

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ABSTRACT

It is believed that what gold is to the minerals, Amla is to herbs. Amla or Aonla (*Emblica Officinalis* Gaertn) is known as "Mother of herbs" which belongs to family Euphorbiaceae Emblica is one of the most useful medicine in Indian Pharmacopoeia. It is one of the important indigenous fruits of Indian subcontinent. It is considered as Amrit Phal (life giving fruit). Certain products of *Emblica officinalis* are used against various ailments such as HIV, flu, T.B., etc. Various parts of Aonla tree are of great economic importance. Fruit tissue contains protein concentration 3-fold and ascorbic acid concentration 160 fold than those of apple. Aonla fruit contains moisture 77 - 82%, protein 0.50%, fat 0.10%, minerals 0.5-0.70%, fibre 1.9-3.4%, Carbohydrates 14.10-21.89%, Iron 1.2%.The Pulpy portion of fruit, dried at 1000°C and freed from the nuts contains gallic acid 1.32%, tannin, sugar 36.10%, gum 13.57%, albumin 13.08%, crude allulone 17.08%, mineral matter 4.12%, moisture 3.83%.

Keywords: Amla, *Emblica Officinalis*, Indian Gooseberry, Nutritional Value

OBESITY: ENHANCE THE SEVERAL HEALTH ISSUES AND STRESS

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ABSTRACT

Obesity by following the unhealthy day to day routine chart and frequently changing living of standard of people play a major role in enhancing it. The risk to disease like cardiovascular diseases, osteoarthritis, type 2 diabetes, arthritis, hypertension, stress, and some type of cancers is associated with the obesity. It is a multi- factorial disorder. By taking healthy diets daily and doing physical exercise and yoga practice will help to reduce the excessive weight. It's necessary to maintain the life style by adding the healthy foods, vegetables and green leafy veggies, nuts, pulses, milk, curd in diets daily and cut down the extra sugar and salts, packed and processed foods, soft and hard drinks. Stress is also contributed to the obesity. The intake of adequate water amount and proper healthy diets will help to reduce the overweight and physical works is added on to get the desired results.

Keywords: osteoarthritis, hypertension and stress.

ENVIRONMENTAL REMEDIATION: MATERIALS AND APPLICATIONS

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ABSTRACT

Environmental remediation relies mainly on using various technologies (e.g., adsorption, absorption, chemical reactions, photocatalysis, and filtration) for the removal of contaminants from different environmental media (e.g., soil, water, and air). The enhanced properties and effectiveness of nanotechnology-based materials makes them particularly suitable for such processes given that they have a high surface area-to-volume ratio, which often results in higher reactivity. This review provides an overview of three main categories of nanomaterials (inorganic, carbon-based, and polymeric-based materials) used for environmental remediation. The use of these nanomaterials for the remediation of different environmental contaminants - such as heavy metals, dyes, chlorinated organic compounds, organophosphorus compounds, volatile organic compounds, and halogenated herbicides - is reviewed. Various recent examples are extensively highlighted focusing on the materials and their applications.

Keywords: Nanotechnology; nanomaterials; environmental remediation; nanostructures; contaminants; pollutants

AN ANALYSIS OF THE STATUS OF SOLID WASTE GENERATION IN INDIA AND ADVANCEMENT TOWARDS CIRCULAR ECONOMY FOR SUSTAINABLE DEVELOPMENT

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ABSTRACT

India is a land of diversities. Diversities create variations, multi cultural and multi linguistic environment which form the basis of multiple styles and standards of living. Multiplicity creates the possibilities of a widespread market and rise in consumerism. Consumerism accompanied by the rising population creates an environment of innovations in the product market and also the service sector. Due to the wide variety of products and the increased services there is a commendable increase in consumption and the resultant waste disposal. India is the second most populated country of the world and is expected to become the world's largest populated country by 2024. It covers a geographical area of 3,287,263 square kilometers and is the seventh largest countries of the world. As per the Census report of 2011 the literacy rate in India has been reported as 74.04% and the Gross Enrolment Ratio (GER) in higher education of India has been reported as 25.2% in the report of the All India Survey of Higher Education report of 2016-2017.

This paper aims at studying the state wise generation of solid waste in the country. It divides the solid waste generation into municipal waste, industrial waste, biomedical waste and the e_waste. On the basis of state-wise analysis the paper aims at finding out the possible solutions towards solid waste management. The paper in the end tries to find out the solution for minimization of solid waste through Circular Economy.

Keyword: Solid Waste Management, Circular Economy, Sustainable Development

ELECTROMAGNETIC RADIATION (MOBILE PHONE RADIATION) AND ITS HEALTH IMPLICATIONS

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ABSTRACT

Recent advancements in telecommunication sector results in increasing exposure to electromagnetic radiation.. These have become one of the most ubiquitous components of the spectrum of the human environment, and the possibility that they may affect human health, which is major public concern. Therefore, the present study was aimed to analyze the effect of electromagnetic radiation (2.115 -16 GHz) exposure on brain and reproductive system of male Wistar rats. Animals were exposed to mobile (2115MHz) radiation and other radiation (2.45-16.GHz) for 2 hrs/day for 45 days in a specially designed exposure set up (anechoic chamber) under standard conditions. On completion of exposure period, animals were sacrificed whole brain, hippocampus, and hypothalamus tissue were dissected out and used for estimation of DNA strand breaks, PKC and ODC activity. Epididymis was removed and various sperm parameters such as sperm cell count, head and tail morphology, cell viability, membrane integrity, mitochondrial activity were analyzed. Brain and testis histopathology and seminiferous tubular diameter were evaluated. Different oxidative stress parameters such as SOD, GSH, TAC and Lipid peroxidation were measured. Free radical level (reactive oxygen and reactive nitrogen species) was determined by EPR spectroscopy. The results indicate a possibility that this type of radiation may affect DNA damage as well as growth related enzymes such as PKC and ODC, which are associated with the cell proliferation and differentiation. Exposure to radiations did not induce significant changes in the body to organ weight ratio. However, the exposed group showed changes in sperm parameters such as decrease in sperm count, viability, motility, mitochondrial function and decrease in seminiferous tubules diameter. Histopathological examinations demonstrated a reduced number of spermatogenic cells and transmission electron microscopy (TEM) showed alterations in sperm membrane. Additionally, significant changes in oxidative stress parameters were observed in exposed group of rats. Likewise, EPR analysis suggested an enhanced free radical generation in exposed group of rats as compared to control counterpart. The study thus conclude that exposure to Electromagnetic Radiation (EMR) may lead to oxidative stress which induces biochemical and morphological changes in rat brain and sperm.

PERIODATE OXIDATION METHOD USED FOR THE CONFIRMATION OF SEEDS POLYSACCHARIDE STRUCTURE FROM CASSIA AURICULATA LINN. PLANT

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ABSTRACT

Cassia auriculata Linn. plant belongs to Caesalpiniaceae family and called as Avaram or Tarwar, is a small perennial shrub and occurs in Northern India and Western Peninsula. Water soluble seeds yielded polysaccharide on hydrolysis as D-galactose and D-mannose in 1:3 molar ratio by TLC, Column and Paper Chromatographic analysis. Present investigation mainly deals with the periodate oxidation method for the confirmation of seeds polysaccharide structure which was obtained by methylation studies. Periodate oxidation was carried out with sodium metaperiodate and it consumed 1.25 moles of periodate with simultaneous liberation of 0.35 moles of formic acid per mole of anhydrohexose sugar unit after 50 hrs. The main polymer linkages are linked with $(1\rightarrow 4)$ - β -type with non-reducing linkages are linked with $(1\rightarrow 6)$ - α -type. On the basis of methylation results, the proposed seeds polysaccharide structure of Cassia auriculata Linn. plant has been confirmed by periodate oxidation method.

Keywords: Periodate oxidation, *Cassia auriculata* seeds polysaccharide

POLLUTION AND INDUSTRIALIZATION

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ABSTRACT

In the ancient times when human beings were dependent on raw plant materials for their basic needs (food, shelter and clothes), there was no such sign of pollution. The air, water and land were fresh, pure and fertile. With the advent of fire, everything changed orderly and the term pollution came into existence which initially meant contamination of natural resources. It is considered that the use of fire in the development of agriculture land was the primary cause of air, water and soil pollution. Time passed away and 18th century heralded the advent of industrialization for social and economic causes. In this process man exploited nature for his benefits without any foresight as to what the implication of his actions would be. Thus, industrialization, which is a sign of progress and development for any country unfortunately led to environmental deterioration and pollution. Pollution is a word which even kids are aware of these days. It has become so much common that almost everyone can admit the fact that pollution is rising day by day. When we talk about pollution on earth, we refer to the contamination that is happening day by day with the natural resources by various pollutants. All this is mainly caused by human activities which harm the environment in many ways. Therefore, an urgent need has come to handle this issue seriously. Pollution is damaging our earth severely and we need to realize its effects so that we could prevent this damage timely.

Keywords: Agriculture, contamination, damage, industrialization, pollution.

EVALUATION OF ANAESTHETIZING EFFICACY OF CLOVE OIL, PARALDEHYDE, MS222 IN CHANNA PUNCTATUS AND CHANNA GACHUA

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ABSTRACT

The present work was undertaken with an aim to investigate the comparative anaesthetizing efficacy of different concentrations of Clove oil, Paraldehyde and MS222 (Tricane methane sulphonate) on Channa punctatus and Channa gachua. Induction and recovery time were investigated for three different concentrations of above anaesthetics to find out an optimum dose which should induce rapid anaesthesia with minimum stress and fast recovery. Histological studies were also used to assess the effects of above mentioned anaesthetics on gill and buccal epithelium. Well acclimatized fishes were divided into three groups; which were exposed to three different concentrations (clove oil= 50, 100, 200 ml/l; Paraldehyde=3, 6, 9 ml/l; MS222= 75, 100, 200 mg/l) of these anaesthetics, respectively. Use of different concentrations of these anaesthesias was found to have varied effects on induction and recovery time for aforementioned fish species. Overall increase in concentration of anaesthesia decreased the induction time and on the contrary, prolonged the recovery time. Histological observations revealed that different concentrations of these anaesthesia caused severe damage to the gill and buccal tissue of these fish and the effects were both dose as well as time dependent. Our results indicate that MS222, for both fish species, is a superior anaesthetic as compared to other two used in the present study, with optimum dose being 200mg/l for both channid species. These results are further supplemented by observations that the optimum dosage did not induce any histomorphological changes in treated fishes, indicating its suitability to minimize the handling stress during sampling, tagging, transportation, surgery and measurement.

Keywords: Clove oil, Paraldehyde, MS222, Channa punctatus, histomorphology

IMMUNOTHERAPY FOR THE CURE OF AIDS

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ABSTRACT

Acquired immune deficiency syndrome is a condition in which immune system is weakened due to human immunodeficiency virus (HIV) replication. Substantial progress has been made in devising successful therapies against HIV replication and the antiretroviral therapy (ART) is the principal tool to control HIV infection. Because of the innate and adaptive immune cell compartment that suffers by HIV replication, fails to recover completely under ART, so the lifelong therapy is required which is logistically difficult and expensive. The need for continued ART also creates such complications including metabolic syndrome, increased cardiovascular disease and organ damage. The development of HIV vaccines and immunotherapeutic approaches are one of the exciting areas and can be considered as adjacent to ART for improving immune competence cells of the innate immune system, including natural killer (NK) cells, gamma-delta T cells and natural killer T (NKT) cells. These cells have cytotoxic potential against viruses and therapies including such effector cells will be useful for the treatment of AIDS. One reason for the dysfunction of immune cells is the disruption of the common γ chain family of cytokines during HIV infection. These cytokines play vital role in regulating functional activities of such immune effector cells. The ability to combine immunotherapy, vaccination, and agents capable of reactivating latent viral reservoirs, can be an exciting strategy to develop a functional cure of HIV-1infection. The success of immunotherapy and therapeutic vaccination will depend upon a greater understanding of the causative factors responsible for immune activation and of the immune responses that provide protection against the disease.

Keywords: Human immunodeficiency virus, ART, natural killer cells, gamma-delta T cells, NKT cells

SCOPE AND FUTURE OF ECO-TOURISM IN INDIA

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ABSTRACT

India is a beautiful country, rich in spiritual traditions and ancient landscapes that captivate the imagination. Despite its deeply entrenched roots in the past, India is a progressive country, full of ecotourism experiences that both reflect their inspiring past, and their promising future. Tea Estates As the world's largest tea producer and exporter, India is home to some magnificent tea estates, especially in the state of Kerala, and ecotourism in India would not be complete without a visit to a tea estate. Backwaters and Beaches all three of these natural elements are hugely popular with tourists. Once Kerala's trade highways, the Backwaters in Kerala are integral to daily life in for locals, and serve as a major attraction for tourists. The Himalayas In Himachal Pradesh, one of India's northern states, visitors can engage in all types of ecotourism activities . Wildlife Sanctuaries and National Parks India is home to the rapidly declining tiger population, among many other wildlife species, which are now finding homes in sanctuaries and national parks that are dedicated to conservation and preservation .Transportation For a developing nation, India has some of the most up-to-date, sustainable transportation in the world. India is a wonderfully diverse country, with rich historical narratives and a sustainable vision for the future. Ecotourism in India is a fascinating experience, and allows visitors to experience traditions from the past, and initiatives for the future.

Keywords: National Park, Sanctuaries, Tradition

PHYSICO-CHEMICAL ANALYSIS OF RADHA KUNDA (A HOLY WATER RESERVOIR OF GOVERDHAN, DISTRICT MATHURA, U.P.)

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ABSTRACT

An attempt has been made to study the water condition i.e. pollution contents of the water of Radha Kunda, Goverdhan, Mathura (UP). The physico-chemical parameters studied were temperature, pH, turbidity, hardness, DO, BOD, COD, TDS and ammonical contents. Three sample sites i.e. North bank, South bank and middle of the kunda were selected. The duration of the study was January 2019 to June 2019. The water sample were collected in cleaned glass bottles with capacity of 500 ml. in the first week of every month. The temperature and pH were measured on the spot by using portable water detection kit (Model no. CK-710, Manuf. By 'Century Instrument Pvt. Ltd, Chandigarh'). The parameters DO, BOD, COD, TDS, hardness and ammonical contents were determined in the laboratory by using standard techniques. The observed parameters were compared with the standard parameters of WHO, APHA and NEERI Manual. It was found that pH, BOD, COD, TDS and ammonical contents were very high as compared to standard limit and DO was low with the permissible limit. The above observations show that the water of Radha Kunda is not suitable even for bathing and 'Achaman' of the pilgrims visited in large numbers, and use the water for other religious purpose. Due to higher BOD and COD, the aquatic micro-organisms may develop fast, and will cause harm to the human beings used for 'Achaman'. The bathing may cause skin diseases. Therefore, remedial measures are suggested to improve the quality of water which can be used by pilgrims to satisfy their religious 'Aastha' without causing any harm to their health.

Keywords: Pollution, DO, BOD, COD, Ammonical contents, Radha Kunda

COMPARISON OF GENETIC TRANSFORMATION IN MORUS ALBA VIA DIFFERENT REGENERATION STSTEM

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ABSTRACT

Three different regeneration systems, viz. direct regeneration of adventitious shoot buds from explant, regeneration through callus cultures and somatic embryos were compared to see their effect on transfer of neomycin phosphotransferase (nptII) and β -glucuronidase (GUS) reporter gene (gus) to Morus alba clone M5, through Agrobacterium tumefaciens mediated transformation. Pre-conditioning and co-cultivation durations had a marked effect on transformation frequency. The highest transformation frequency of 18.6% was obtained using direct induction of adventitious shoot buds. Expression and presence of transgene were assayed histochemically and through polymerase chain reaction. Southern analysis of GUS and PCR positive transformants confirmed stable integration of transgenes with two to four copy numbers. The selected transformants showed normal phenotype under in vitro and field conditions.

Keywords: Genetic transformation, *Morus alba* L., Shoot regeneration, Somatic embryogenesis, Tissue culture

SUSTAINABILITY OF SUSTAINABLE DEVELOPMENT AND JUDICIAL ACTIVISM

Dr. Rakesh Kumar*

ABSTRACT

The expanding interaction of society with nature is so extensive that environmental question has assumed proportions affecting all humanity. Rapid industrializations, expanding urbanization, explosion of population, over exploitation of natural resources, depletion of traditional resources of energy and raw materials, disruption of natural ecological balances, lack of environmental education, unawareness of consequences of environmental degradation, destruction of multitude of animals and plants species for economic reason or for no good reason, changed agricultural practices, extremely neglected and filthy civic amenities and modern and luxury living style are some of the factors which are mainly responsible for environmental degradation. Poverty is the fundamental cause which makes people to over exploit the natural resources for meeting their basic needs. Indeed, poverty and needs are the greatest polluters.

The Constitution of India imposes duty on both the citizens and the State to protect, preserve and conserve the environment. However, the Indian judiciary in the interest of society has expanded the dimension of the *locus standi* through judicial activism and upheld sustainable development as viable concept to save the Earth. This paper analyzes notion of Indian judicial activism on the fragile issue of environment protection, sustainable development and evolution of environment jurisprudence in the contemporary India. The paper further highlights the commendable efforts of the Indian Judiciary in acting as a sentinel on the *qui vive*, maintaining equilibrium between development and environment, and incorporated various principles of sustainable development as law of the land.

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भारत में पर्यावरण की समस्या—चुनौती एवं समाधान

रामदयाल

श्री जगदम्बा लॉ कॉलेज फाउण्ड्री नगर आगरा।

शोध सारांश

वन और पर्यावरण मंत्रालय विभिन्न पर्यावरण व वानिकी कार्यक्रमों से सम्बन्धित नीतियों और कार्यक्रमों के नियोजन और क्रियान्वयन की निगरानी के लिए दे"। के प्र"ाासनिक ढाचे में केन्द्र संस्था के रूप में काम करता है। इन नीतियों और कार्यक्रमों के क्रियान्वयन में मंत्रालय मानव कल्याण के स्तर विकास और संस्कृति को ध्यान में रखता है। मंत्रालय को दे"। में संयुक्त राष्ट्र पर्यावरण कार्यक्रम (यू०एस०ई०पी०) अर्न्तराष्ट्रीय सम्बन्धित पर्वत विकास केन्द्र (आई०सी०आई०एम०ओ०डी०) तथा दक्षिण एिँ या सहकारी पर्यावरण कार्यक्रम (ए०सी०ई०पी०) के लिए केन्द्रीय एजेन्सी के रूप नामित किया गया है और वह वह संयुक्त राष्ट्रीय पर्यावरण एवं विकास सम्मेलन (यू०एन०सी०ई०डी०) के अनुमित कार्यवाही पर ध्यान है। इस मंत्रालय पर बहुपक्षीय निकायों से सम्बन्धित मामलों का भी उत्तरदायित्व है। जैसे स्तर किवास आयोग (सी०एस०डी०) वैिंवक पर्यावरण सुविधा (जी०ई०एफ०) और पर्यावरण से सम्बन्धित मामलों से जुड़ी क्षेत्रीय इकाइयाँ जैसे एिँ।या व प्र"ाान्त सामाजिक और आर्थिक परिषद (ई०एस०सी०ए०पी०) और दक्षिण एिँ।या क्षेत्रीय सहयोग संगठन ("ाार्क—1)

जीवन का आधार बनाओ, वि"व में हरियाली लाओ क्या बिना पेड़ों के जी पाओगें। क्या प"] पक्षियों को रूलाओंगें। पेड़ों के बिना जीना मुमिकन हो जायेगा। देख लेना एक कदन मनुष्य रोता रह जायेगा। जब इस जमीन पर हम पेड़े पौधे नही पाओगें हर ऑख से ऑसू बरसेगा, हवा पानी के लिए मनुष्य तरसेगा।

ANTIMICROBIAL ACTIVITY OF SOLVENT EXTRACTS OF EUCALYPTUS GLOBULUS (EUCALYPTUS) AGAINST MULTIDRUG RESISTANT STAPHYLOCOCCUS AUREUS

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ABSTRACT

Eucalyptus globulus (Eucalyptus) belongs to the family Myrtaceae. The leaf extract obtained from the leaves of Eucalyptus globulus has been reported to possess antibacterial, mosquito repellent, antifungal and antioxidant properties. The leaves of Eucalyptus globulus were extracted in various solvents viz. methanol, ethanol, hexane and water. The present study investigated the antimicrobial activity of Eucalyptus globulus leaf extract against multidrug resistant Staphylococcus aureus. The solvent extracts of leaves of Eucalyptus globulus exhibited inhibitory effect against tested pathogenic microorganism (multidrug resistant Staphylococcus aureus) at various concentrations. The bacterial strains tested were more susceptible to methanol and ethanol extracts and the least effective was hexane and aqueous extract. The observed antibacterial activity of the extracts were dependent on its concentration.

Keywords: *Eucalyptus globulus*, multidrug resistant *Staphylococcus aureus*, antibacterial activity, leaf extract.

SUSTAINABLE AGRICULTURE: AN APPROACH TO MAKE A SAFER WORLD.

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ABSTRACT

Sustainable agriculture is a rapidly growing field aiming at producing food and energy in a sustainable way for human beings. It is a discipline that addresses current issues such as climate change, increasing food & fuel prices, poor nation starvation, rich-nation obesity, water pollution, soil pollution, fertility loss, pest control and biodiversity depletion. Novel, ecofreindly solutions are proposed that are based on integrated knowledge from various fields of science such as agronomy, soil science, molecular biology, chemistry, toxicology, ecology, economy and social sciences. The main objective of sustainable agricultural is to protect the environment, expand the earth's natural resources, maintain and improve the soil fertility. Based on a multi-pronged goal sustainable agriculture frequently encompasses a wide range of production practices, including conventional and organic farming. Furthermore, unlike painkiller approach that treats only negative impacts, sustainable agriculture treats problem sources. This approach might be helpful to all the scientists, decision makers, professors, farmers and politicians to build a safe agriculture, energy and food system for future generations.

Key words: organic farming, ecofreindly, soil fertility, climate change.

MAJOR CHALLENGES OF INCREASING POLLUTION IN MODERN INDIA

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ABSTRACT

Modern India faces many environmental issues due to industrialization, modernization and urbanization. Pollution is a major challenge against developing India. Indian government created Ministry of Environment and Forest in 1985. This ministry is the central administrative organization in India for regulating and ensuring environmental protection. As the requirements of humans increase- air emission increased, water pollution worsened, forest cover decreases. These all activities adversely affect the environment. Major environmental issues are- forest and agricultural degradation, resource depletion (e.g.-water, mineral, forest), environmental degradation, loss of biodiversity etc. Some major sources of pollution are rapid burning of fuel wood and biomass such as dried waste from livestock, lack of organized garbage and waste removal services, lack of sewage treatment, lack of flood control and monsoon water drainage system, diversion of consumer waste into rivers, cremation practices near major rivers and high emission of government industrial plants built between 1950 and 1980. Higher rate of the growth of population in India also adds pressure to different environmental factors and natural resources like air pollution, poor management of waste, water scarcity, falling ground water tables, water pollution, preservation and quality of forests biodiversity loss, soil degradation etc. This environmental degradation ultimately reduces agricultural yield and food availability, famines and diseases of plants and animals. Its required a very urgent attention for improvement in our environmental condition.

Keywords: Biodiversity, Pollution, Population, Urbanization.

A SURVEY OF COLIFORM POPULATION IN YAMUNA WATER AT MATHURA

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ABSTRACT

The present study examined the water quality of Yamuna river at Mathura, in a stretch of 8.0 kms., by analyzing the microbial population of total coliforms and faecal coliforms. Three sample sites viz., Gau Ghat, Vishram Ghat and Gokul Barrage were selected. The tenure of the study was from July 2018 to June 2019. The sampling was conducted in the first week of each month. The Yamuna water at Mathura city during study tenure shows altered population pattern of total coliforms and faecal coliforms at the above mentioned three sites, which received different kinds of effluents originating from different human activities. The number of total coliforms and faecal coliforms in the first four months from July 2018 to October 2018 was lower as compared to the increasing trend from the month of November 2018 to June 2019. It has been correlated with the decrease of water level in the river from November 2018 to June 2019 and the stable discharge of industrial effluents and sewage. The study revealed poor water quality of the river with regard to human and animal consumption, which can be cited as responsible for the incidences of many water born diseases.

RICH BIODIVERSITY OF WESTERN GHAT, INDIA

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ABSTRACT

The Western Ghats are internationally recognized as heritage site, a region of colossal global reputation for the preservation and conservation of biological diversity, apart from containing areas of high lithological, socio-cultural and aesthetic values. A shackle of mountains running parallel to India's western coast, around 30-50 km inland, the Ghats cross the several Indian States like Gujarat, Maharashtra Goa, Kerala, Karnataka and Tamil Nadu. These mountains cover an area of around 140,000 km² in a 1,600 km. long stretch.

It also has remarkably immense level of biological diversity and endemism and is renowned as one of the world's eight "of biological diversity. The forests of such site include some of the best representatives of tropical evergreen forests anywhere and are homespun to at least 325 globally threatened flora, fauna, fish, amphibian, reptile bird, and mammal species.

The globally threatened flora and fauna in the Western Ghats are represented by 229 plant species, 31 mammal species, 15 bird species, 43 amphibian species, 5 reptile species and 1 fish species. Of the total 325 globally threatened species in the Western Ghats, 129 are classified as Vulnerable, 145 as Endangered and 51 as. In his research paper author looked at different species and listed, assessed and made some conclusion out of his investigation as he fortunately visited different niches of Western Ghats.

Keywords: UNESCO, hottest hotspots, Critically Endangered

पर्यावरण और जैव विविधता : 21वीं सदी में चुनौतियाँ और रणनीतियाँ

प्रमोद कुमार कनौजिया, राजकमार

डॉ भीमराव अम्बेडकर विश्वविद्यालय आगरा

शोध सारांश

पर्यावरण और जैव विविधता से अभिप्राय जीव जन्तुओं, वनस्पितयों की कई प्रकार की प्रजातियां और जीव, वनस्पितयों की एक दूसरे की श्रंखलाओं पर आधारित है। इस परिवेश में जंगल, नदी, तालाब, पहाड, झरना आदि मौजूद है तथा परिवेश में रहने वाले सूक्ष्म प्रकार के जीव, रचनायें, विभिन्न प्रकार के तत्व, और जैव उत्पाद भी शामिल हैं। यही एक पूरी श्रंखला जो विभिन्न प्रकार के शुद्ध गैसों से पर्यावरण को स्वच्छ रूप का प्रदान करता है तथा जैव विविधता के अन्तर्गत बृहद हिमालय, रेगिस्तान, प्रायदीप क्षेत्र, पहाडी भाग, समुद्री तटीय, दीप समूह इत्यादि क्षेत्र अधिक संख्या में वन्य जीव एवं वनस्पितयों तथा समुद्रों में अनिगनत जीव के रूप में जैव विविधता परिस्थिति तन्त्र में शामिल है। मनुष्य ने अपनी आव"यता की पूर्ति के लिये प्रकृति के साथ दहन किया है तथा पर्यावरण और जैव विविधता में कई प्रकार की वनस्पितयाँ, जडी—बूटियाँ, जीव—जन्तु, विलुप्त की कगार पर आ रहे है वर्ष 2019 में 28000 से भी अधिक प्रजातियां विलुप्त हो चुकी है जलवायु परिवर्तन एवं पर्यावरण से सम्बन्धित अन्य चुनौतियां एवं इनकी तीव्रता में ध्यान रखते हुये समय तेजी से निकल रहा है तथा इनकी समस्या जंनसंख्या को नियन्त्र करना है। अतः राष्ट्रीय स्तर पर पर्यावरण एवं जैव विविधता पर विचार करना चाहिये।

भारत में जैव विविधता के संरक्षण के लिये बनाये गये कानून तौर पर स्थापित संरक्षित क्षेत्र जैव—विविधता के लिये सर्वाधिक महत्वपूर्ण हुये हैं। भारत में लगभग 720 संरक्षित क्षेत्र है जो देश के भूमि क्षेत्र में लगभग 6 प्रतिशत फैले हुये हैं। फिनलैण्ड की सरकार ने पर्यावरण परिवर्तन के लिये महत्वपूर्ण ऐजेंडा तैयार किया गया है। वर्ष 2035 तक कार्बन न्यूट्रल करने का लक्ष्य है तथा जैव विविधता की हानि को रोकने के लिये स्वयं को चक्रीय अर्थव्यवस्था में परिवर्तन करने का लक्ष्य निर्धारित किया गया है। सभी राष्ट्रों ने 2030 तक एकल उपयोग प्लास्टिक उत्पादों का कटौती करने पर सहमित व्यक्त की गई है।

PLANT TISSUE CULTURE "MICROPROPAGATION ON BAMBUSA TULDA"

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ABSTRACT

An efficient protocol has been developed for the in vitro propagation of *Bambusa tulda* through shoot proliferation. Shoots from 3-week-old aseptically grown seedlings were used to initiate cultures. Multiple shoots were obtained on liquid Murashige and Skoog (MS) medium supplemented with 6-benzylaminopurine (8×10^{-6} M) and kinetin (4×10^{-6} M). Continuous shoot proliferation at a rate of 4–5 fold every three weeks was achieved through forced axillary branching. More than 90% of the shoots could be rooted on a modified MS medium containing indoleacetic acid (1×10^{-5} M) and coumarin (6.8×10^{-5} M). Following simple hardening procedures, the in vitro raised plants were transferred to the soil with more than 80% success.

Keywords: Tissue culture, *Bambusa tulda*, *Kashmiri naam (Bhaans)*

POPULATION STATUS, NESTING SITES AND SEASONAL FLUCTUATION OF EGYPTIAN VULTURES (NEOPHRONPERCNOPTERUS): DYNAMICS AND IMPLICATIONS FOR THE SPECIES CONSERVATION IN AND AROUND JODHPUR

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ABSTRACT

Nine species of vulture were reported in India. Out of them, four species Gyps indicus, Gyps bengalensis, Sacrogypscalvus and Neophronpercnopterus are permanent residents and remain in and around Jodhpur. The remaining three species Gyps fulvus, Gyps himalayensis and Aegypusmonachus are migratory species and come to site from October to February in winter season. Resident species reproduce here due to availability of food through out the year. Egyptian vulture is a smaller bird with naked head and without long scrawny neck and is permanent resident of Thar Desert. It is has maximum population as compared to other species of vultures observed in the area investigated in the present study.

Key words: Breeding, migratory, population, resident, vulture, Thar Desert.

ENVIRONMENTAL LEGAL EDUCARTION

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ABSTRACT

The environmental awareness needs to be cultivated in any society to be an ideal society, or rather to be more precise, in other words, an ideal society means, the society which has the environmental awareness. The dictionary meaning of the word 'environmental' is surrounding objects, region or circumstances and the phrase environmental awareness' will mean that one should be aware of his surrounding so that this surrounding is not disturbed. This relation of the environment with the human life has in recent years developed into an independent branch of scientific inquiry, which goes by the name environmental science. As per the literature, the human-environment interaction goes back to the remotest possible times in the history of humanity. Sometimes, it is seen as a manifestation of a struggle between the two. There have also been times when this relationship took the form of respectable coexistence. While the history of humanity of the last several millennia is noted for its constant and/or consistent progress in different walks of life, the mysteries of nature have often proved to be quite tempting to be solved by human thinking and actions. The key-theme of which is that the natural balance between human life and the surroundings should not be lost. This is the basic requirement for any life to flourish especially for human life. The major contribution of this paper would be to help the respective agencies in the government in building up the environmental awareness among citizens of India.

Keywords: Environment, Laws and Acts, Awareness, Punishment, Responsibilities.

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STUDIES ON ALLELOPATHY EFFECT OF PARTHENIUM HYSTEROPHORUS ON VARIOUS PULSES AND CROPS

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ABSTRACT

Allelopathy is the term used for effect of phytochemicals released by plants or its parts such as roots, leaves or stem on other organism. Allelopathic chemicals are secondary metabolites which can be produced by organisms from bacteria to algae to higher plant. These chemicals can inhibit or stimulate the growth or development of other organisms present in its vicinity. Similarly *Parthenium hysterophorus* which is a noxious weed has spread almost every barren land and around the crops not even in India but in other countries like Central America, West Indies, Gulf of Mexico and has invade more than 20 countries. Parthenium affects the almost all the crop in its vicinity and thus the crop yield. Agro-ecosystem of crops is affected by this weed so this weed should be properly managed. Even this weed can be used to sustainably managing the other weeds also due to these allelochemicals. Parthenin is mainly responsible for this allelopathic effect. Parthenium has some beneficial role also as it can be a good alternative for synthetic herbicides and insecticides. Various experiments have been conducted for evaluating the allelopathic effect of Parthenium hysterophorus on various pulses and other crops. Extracts of various plant part is used and the result is compared to the controlled experiment. In almost every experiments similar results was obtained that it inhibit the germination and growth of pulses and other crops. It also shows autotoxicity that it can inhibit the growth of its own species members. With the increasing concentration of aqueous extract of *P.hysterophorus* there is decrease in all the parameters studied.

Keywords: Allelopathy, *Parthenium hysterophorus*, allelochemicals, Parthenin, autotoxicity.

STUDIES ON SERUM ALBUMIN PROFILE OF FISH HETEROPNEUSTES FOSSILIS (BLOCH) AFTER FAMFOS IN TOXICATION

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ABSTRACT

Use of pesticides can have unintended effects on the environment over 98% of sprayed insecticides and 95% of herbicides reach a destination other than their target species, including non target species, air water, bottom, sediments and food. Pesticides contaminate land and water when it escape of preduction sites and storage tanks. In addition, when runoff held, at disposal, being sprayed aerially as well as water bodies to kill insects and algae. The amount of pesticide that migrates from the intended application area is influenced by the particular chemical's properties: its propensity for binding of soil, its vapors pressure, its water solubility and its resistance to bring broken down our time. Factor in the soil, such as its texture, its ability to retain water and the amount of organic matter contained in it, also affect the amount of pesticide that will leave the area. Some pesticides contribute to global warming and the depletion of the ozone layer. Pesticides are included in a broad range of organic micro pollutants that have ecological impact. Different categories of pesticides have different types of effect on living organisms, therefore, generalization is difficult. Ecological effect of pesticides extend beyond individual organism and can extend to ecosystem. Swedish work indicates that application of pesticides is thought to be one of the most significant factor affecting biodiversity.

A STUDY OF WATER POLLUTION IN PANDU RIVER, KANPUR

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ABSTRACT

Pollution in fresh water resources is a serious environmental problem in India. Small or large, all rivers are highly polluted. According to Central Pollution Control Board of India, about 70% surface water in India is non potable. Out of this, 40% water is severely polluted and is not fit even for bathing or cleaning purpose. Pandu is one of the most important tributary of the river Ganga which flows through the southern parts of Kanpur. The present study deals with physio-chemical parameters of water samples collected from selected sites that conducted in January to December 2019. The major physio chemical parameters such as temperature, colour, odour, pH, EC, DO, BOD, Na, K, TDS, Total hardness and Alkalinity were carried out in the study by using standard methods. Several researches have revealed that sewage water and untreated industrial effluents are two types of pollutants in Pandu River. Mixing of untreated industrial effluents in the water of Pandu River has lead to increased quantities of chromium in its water while domestic wastewater and sewage has increased the levels of BOD, COD and pH. Like other rivers of Northern India, the quantity of arsenic is also high in the water of Pandu. As a result, it was concluded that the water of Pandu remains non-potable throughout the year other than the rainy season and it is totally unfit for aquatic life and drinking as well as agricultural activities.

Key words – Pandu River, water pollution, tributary of Ganga, Kanpur,

PROTECTIVE ROLE OF OMEGA – 3 FATTY ACIDS ON THE RED CELL INDICES OF CIGARETTE SMOKE EXPOSED ALBINO RATS

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ABSTRACT

Cigarette smoking are social habits of life style that are closely related of variety of diseases. Each year, over 430,000 people die as a result of a smoking related disease. According to estimate by WHO, by the end of this decade, i.e. by 2020, more than 1.5 million deaths annually may occur due to tobacco smoking in India. An estimate says that an average of five and a half minutes of life is lost for each cigarette smoked. Cigarette smoking exposes the body to more them 4000 toxins. These toxins have many harmful effects on different body organs. Cigarette smoke divided into two phases: a tar phase and a gas phase, including nicotine, ammonia, carbon monoxide, hydrogen cyanide, formaldehyde, benzene and tar. The smoke of cigarette is rapidly absorbed into blood stream which affect the body metabolism. Therefore the present study was under taken to investigate protective role of omega-3 fatty acids on red cell indices of albino rat exposed to cigarette smoke. The wistar albino rats, Rattus norvegicus (Berkenhount) was selected for the present study. The wistar albino rats, Rattus norvegicus (Berkenhount) was selected for the present study. The albino rats (100 to 160g) were grouped into control set (1) and two experiments sets (2 and 3), each contain five rats. Rats of control set (1) were exposed to ambient air and rats of experimental set (2) were exposed to cigarette smoke in smoke chamber for 1 hr/day for 28 days and rats of experimental set (3) were exposed to cigarette smoke with pre-exposure suplementation of omega – 3 fatty acids (30 mg/ 100 g b.w.) orally for 28 days.

The results showed a significant increase in MCH (P > 0.05), which a significant decrease in MCHC (P > 0.05) and significant increase MCV (P > 0.05) in cigarette smoke exposed rats, which is an indication lead to inflammation and hypoxic anaemia. The reduction intoxic effects of cigarette smoke on red cell indices after supplementation of omega-3 fatty acids is result of antioxidant defense mechanism which reduces haemolysis and tend to decrease MCH (P < 0.05), decrease MCV (P < 0.05) and increase MCHC (P < 0.05) in albino rats. Present study reveals that administration of omega-3 fatty acids may mitigate the cigarette induced toxic effect on the red cell indices.

Keywords: Cigarette smoke, MCH, MCHC, MCV, albino rat, omega-3 fatty acids.

ENVIRONMENT PROTECTION UNDER INDIAN CONSTITUTION

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ABSTRACT

The constitution of India is not an inert but a living document which evolves and grows with time. The specific provisions on environment protection in the constitution are also result of this evolving nature and growth potential of the fundamental law of the land. The preamble to our constitution ensures socialist pattern of the society and dignity of the individual. Decent standard of living and pollution free environment is inherent in this. The Environment (Protection) Act, 1986 defines environment as "environment includes water, air and land and the interrelationship which exists among and between air, water and land and human beings, other living creatures, plants, micro-organism and property".

EFFECTS OF AIR POLLUTION ON HUMAN HEALTH AND PRACTICAL MEASURES FOR PREVENTION

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ABSTRACT

Air pollution is a major concern of new civilized world, which has a serious toxicological impact on human health and the environment. It has a number of different emission sources, but motor vehicles and industrial processes contribute the major part of air pollution. According to the World Health Organization, six major air pollutants include particle pollution, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. Long and short term exposure to air suspended toxicants has a different toxicological impact on human including respiratory and cardiovascular diseases, neuropsychiatric complications, the eyes irritation, skin diseases, and long-term chronic diseases such as cancer. Several reports have revealed the direct association between exposure to the poor air quality and increasing rate of morbidity and mortality mostly due to cardiovascular and respiratory diseases. Air pollution is considered as the major environmental risk factor in the incidence and progression of some diseases such as asthma, lung cancer, ventricular hypertrophy, Alzheimer's and Parkinson's diseases, psychological complications, autism, retinopathy, fetal growth, and low birth weight. In this review article, we aimed to discuss toxicology of major air pollutants, sources of emission, and their impact on human health.

Keywords: Air pollution, cardiovascular diseases, environment, human health, respiratory tract diseases, toxicology.

USE OF PRINTED MICROSTRIP ANTENNAS DESIGNED FOR REUSABLE SPACECRAFT THAT ARE GREEN

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ABSTRACT

Green technology reduces emissions, reduces waste, and consumes less energy than conventional technology. It is environmentally friendly, developed and used in such a way so that it does not disturb our environment and conserves natural resources. Reusable spacecraft will help revolutionize our changing planet. Space X's sustainable space travel is using recycled rockets that are green and they slash launch costs too. In recent years there has been tremendous development in the field of printed microstrip antennas in spacecraft applications because they can be flush mounted on the surface of spacecraft. They can be covered with a dielectric material to protect them from environmental conditions, this type of mounting does not disturb the aerodynamic profile of the craft. Due to the ease of fabrication, low cost and low volume and weight, microstrip technologies for antennas continue to be a field of active research. Microstrip antennas are constructed by placing copper substrates onto a dielectric substrate in a shape or pattern. First introduced with the rectangular designed the geometries that can be used and combined are essentially limitless. The most common geometries are circular and rectangular. Research using genetic algorithms provides an option to specialize the antenna characteristics for a specific project, using these algorithms, microstrip antennas can be designed with desirable characteristics that can meet specific space applications.

The cost of attaching any instrument to the spacecraft is directly proportional to its weight. These microstrip antennas are very light in weight, have low volume and low profile. Planar configurations and can be made conformal. They are extremely rugged and economical to design and construct. They are very thin and need not extend far above or below the ground plane and hence do not perturb the aerodynamics of the host aerospace craft.

EFFECT OF TEMPERATURE ON ETHOLOGY OF INDIAN ROCK PYTHON (PYTHON MOLURUS MOLURUS) AT SSBS, KEETHAM LAKE, AGRA, UTTAR PRADESH, INDIA

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ABSTRACT

Temperature effect on Ethology of Indian Rock Python (*Python molurus molurus*) was studied in Soor Sarover Bird Sanctuary, Keetham Lake, by field survey method, from October to mid. of March 2013-14. The Python was randomly distributed in all localities of study area. During study maximum no. of Python occurs, which belong to 5-10 feet (14 in No.) in length, which followed by 2-5 feet in length (03 in No.). And maximum No. of Python occur, which belong to average temperature about 25°c -30°c (10 in No.) and maximum temperature about 35°c (03 in No.), which followed by minimum temperature 20°c (04 in No.). Maximum No. of Python occur, which belong to Dry (06 in No.) and Wet (06 in No.) soil moisture, which followed by Moist (05 in No.) soil moisture content. Maximum No. of Python population occur, which belong to 06-07 soil pH (16 in No.) which followed by 07-08 soil pH (01 in No.).

ETHNO-MEDICINAL WEALTH OF BANIHAL RANGE, JAMMU & KASHMIR

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ABSTRACT

Man has always made use of flora to alleviate sufferings and diseases. 80% of the world populations rely on traditional health care system. The system of ethno-medicine is safe and is a low cost therapy for treating various ailments. As elsewhere, in India too, the medicinal use of plants has been practiced since ancient times by various rural and tribal communities through the system of Ayurveda, Siddha and Unani.

More than 2800 km long and 300 km wide Indian Himalayan region (IHR) is a mega hotspot of biological diversity. Kashmir Himalaya often referred to as paradise on earth is located at the north western tip of the Himalayan biodiversity hotspot. Banihal forest area falls in Pirpanjal mountainous range of Kashmir, an integral part of great Himalaya. The forest of Banihal is represented by good vegetation of which conifers are dominated ones. Near about 24 species of Medicinal plants.

Banihal tehsil is a beautiful spot on earth, because of its congenial climate, streams, waterfalls, fragrant flowers, delicious fruits and other natural sceneries. It is located across the Jawahar tunnel about 30 km's from Ramban and near about 100km from Srinagar. The climate is predominantly dry, temperate. The areas at higher altitude are cool in summer and having harsh winters. The spring is pleasant with frequent rains. The maximum temperature of the area is 29 °C, rising up to 36 °C. The food crops of the area are rice, maize and wheat etc. The cash crops are almond, and walnut etc. A perusal of literature shows that no systematic study of medicinal plants from ethno-medicinal point of view has been carried out in the area of investigation. During the study an attempt has been made to document the ethno-medicinal usage of the various plant species in Banihal tehsil of Jammu and Kashmir.

Keywords: Medicinal plants, traditional medicine, Herbal medicine, Banihal forest J&K

ECONOMIC EVALUATION OF WATERSHED DEVELOPMENT IN THE HIMALAYAN STATE OF UTTARAKHAND

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ABSTRACT

The economic evaluation of watershed development in the Himalayan state of Uttarakhand has been evaluated in a 'pre' and 'post' framework. This study used primary data from randomly selected 75 farm families and secondary data from different sources. Descriptive data analysis method was used. Overall, the watershed development programmes increased agricultural land, productivity and cropping intensity in all cropping seasons. The watershed development programme increased the number of technology users and household income in all categories of farmers. Majority of them had expressed "lack of subsidized rate input supply", as one of the major constraint followed by others. Frequent visits of the extension worker and expansion of agriculture infrastructure should be encouraged to help increase benefit from watershed development.

Key words: Socio-economic, Watershed, Hill Area, Uttarakhand

WOMEN AND ENVIRONMENT

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ABSTRACT

Indian women have an important role in the protection of the environment. Full participation of women is essential for sustainable development. If consider in Indian context, Indian women have been in favor of environmental protection since vedic period. The worship of Tulsi banana plant is every Indian home reflects our connection with our environment, Sun worship in the morning is the worship of the moon. Water worship is an indicator of respect for each and every organic and a biotic component of the environment including land worship. Whenever the work of damaging the environment has taken place, mainly our environmentalist women have opposed it, there have been many environment protection movements in Indian history, whose leaders have been women. Like Navdhanya Andolan, Chipko Andolan and Narmada Bachao Andolan etc.

Keywords: sustainable, history, environment, damage,

AN ANALYSIS OF NOISE AND LIGHT POLUTION AND THEIR EFFECTS ON URBAN BIODIVERSITY

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ABSTRACT

Noise and light pollution may cause serious harm to humans and to the environment. Its effects can be serious, possibly disastrous for the environment overall, through disturbance of ecosystems, but also through the development of pathologies in man. The impact of noise on human health hinges on several parameters: sound frequency, purity of sound, noise intensity, emergence, that is, the difference between environmental noise level and the residual noise level, noise repetition, duration of exposure the period when the noise occurs (a night-time noise is considered more of an annoyance than a day-time noise) Light pollution affecting flora and fauna poses one of the worst threats to urban biodiversity but above all has harmful effects on the human metabolism. Light pollution of major cities and highways disturbs wildlife including birds. It also alters natural circadian rhythms in the biota. This results in three types of pollution: excessive illumination, creating an abnormal sky-glow at night, dazzling caused by strong light intensity or a contrast between light and dark areas, intrusive light, and disturbing people in their homes.

Keywords: Light, Noise, Pollution, Biodiversity

RELATION BETWEEN HUMAN AND ENVIRONMENT IN MY ART

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ABSTRACT

Each living organism is dependent on another for survival. We eat to nourish our bodies .it's a transformation of matter from one into another that happens perpetually. I acknowledge that I am a part of another, and I continue to exist is others even after I lose my body. Thus I AM WITHIN YOU and YOU ARE WITHIN ME.

When we feel our own existence in the universe, we also acknowledge others things both animate & inanimate. Questioning one's self draws several paths that's traverse through different forms of life, We need to understand ourselves though the close observation of our surroundings.

I am aware of myself, ,starting my journey of life through different stages from an unseen sperm finding a place to growing and entering this visual world, ,where I find myself a part in the chaos of the never ending cycle of life. A world where everything is constantly changing in form and appearance, one transforming into another in time cohesively.

"... we by no means rule over nature like a conqueror over a foreign people, like someone standing outside nature – but ... we, with flesh, blood and brain, belong to nature, and exist in its midst ... all our mastery of it consists in the fact that we have advantage over all other creatures of being able to learn its laws and apply them correctly. And, in fact, with every day that passes we are acquiring a better understanding of these laws and getting to perceive both the more immediate and the more remote consequences of our interference with the traditional course of nature."

(Frederick Engels – from The Part Played by Labor in the Transition from Ape to Man)

ETHNOBOTANICAL STUDIES ON MEDICINAL PLANTS OF SHIVPURI DISTRICT IN MADHYA PRADESH

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ABSTRACT

Ethnobotany is a distinct branch of natural science dealing with various aspects such as anthropology, archaeology, botany, ecology, economics and medicine, religious, cultural and several other disciplines. Recently, great interest in the above given studies of herbal drugs and traditional remedies is indicated world wide and there has been an upsurge in the scientific investiations in this area. The present review highlights useful ethnobotanical information about the uses of plants by the tribals of Shivpuri as food, fodder, medicine, timber, fire-wood, tannin, dye, oil, fine, alcohol, gum, resin etc. This folk wisdom, if subjected to scientific studies, could benefit humankind in many ways.

Keywords: Ethnobotany, tribals, indigenous system, folk medicinal plants, folklore

TO PROTECT ECOSYSTEM THROUGH CONSERVING THE WILDLIFE: THE EMPOWERING CONSERVATION PLANS

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ABSTRACT

All life, including our own, depends on a fully functional planet to survive and thrive. Biodiversity, the vast array of plants, animals and ecosystems, is the life support system of our planet. Wildlife conservation is to protect the wild animals in their natural environment to prevent species from going to extinct. According to the IUCN report, out of all species over 27,000 are at risk of extinction. Due to anthropogenic activities increasing the habitat destruction and fragment which increase the vulnerability of wildlife species. Overexploitation, poaching, culling and pollution these are also a major threat to biodiversity and wildlife. There are many conservation plans initiative for keeping our ecosystem integrity because we know that every species has a crucial role to protect the ecosystem.

Keywords: IUCN, biodiversity, wildlife, conservation plans,

TO PACIFY WATER POLLUTION IS A RELIABLE ECOFRIENDLY WAY

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ABSTRACT

Water pollution is the contamination of water bodies, usually is a result of human activities. Water bodies like as lakes, rivers, oceans, aquifers and groundwater. It is the cause of death and disease due to water borne disease. Water pollution is the main environment issue that we are facing, as more than 70% of Earth's surface is water covered. Water pollution is measured by analyzing water samples. Control of water pollution requires waste-water treatment plants, industrial waste-water treatment plants, Green agriculture, stormwater management are usually required to protect water bodies from untreated waste-water. Well designed and operated systems can remove 90% or more of the pollutant load in sewage poor water quality of most of the cities developing countries is a cause of concern and access to safe water quality is a basic right of every individual. Human activities are responsible for water pollution this is not fare for various aspects of human beings. Water pollution truly harms biodiversity and environment. It has negative effects on public health. Healthy living is a combination of many things. So being conscious towards water pollution and feeling pride in your accomplishments.

Keywords: Water pollution, contamination, treatment, conscious, biodiversity.

SPECIES RICHNESS AND ABUNDANCE OF SPIDERS (ARANEAE) OF YAMUNA FLOOD PLAINS OF AGRA

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ABSTRACT

Araneae are represented by 48,365 species of spiders belonging to 4,145 genera with 120 families, of which only 1799 under 448 genera and 59 families have been reported in India. Inspite, of its vast number and important role in biocontroling of pests, yet the focus on spider research has been limited. The current paper focuses on the richness and abundance of spider biodiversity in the Yamuna flood plains of Agra. The rational for the selection of flood plains was that it represented wild population falling under agro-ecosystem and riparian habitat.

Yamuna flood plain falls under semi arid habitat and consists of rocks, pebbles and sandy soil. The habitat is exposed to extreme whether temperature ranging between 2°C-20°C in winters to high as 47°C in summers with humidity varying between 25-95%. Collection methods like visual searching, hand collection and pit fall, and inverted umbrella methods were applied. A total of 40 species of spider belonging to 29 genera of 11 families-Salticidae; Oxyopidae; Araneidae; Thomisidae; Tetragnathidae; Hersiliidae; Lycosidae; Pholcidae; Gnaphosidae; and Sparasidae were recorded and analysed for richness and abundance using Shannon-weiner index/Simpson index.

Keywords: Spider, Araneae, Flood plains, Species richness, Biodiversity.

CONSERVATION OF INSECTS

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ABSTRACT

Insects are the most diverse group of creatures on our planet and have irrefutable connection with every component of terrestrial and freshwater realms. The evolution of insects is almost parallel to the evolution of flowering plants, because insects were diversified in same period with flowering plants in the course of evolution because they plays important role in pollination. We know it that flowering plants essential to synthesize food in major proportion for all living forms. Biodiversity can be studied in two sense with respect of ecology and evolutionary history which are as follow – First one is the factors that influence biodiversity over short time scales such as the factors that governs diversity within local habitats or regions and, second is the factors that influence biodiversity on longer time scales, such as climate change and evolution.

Nevertheless, despite of being dominant over millions of species, insects are facing currently threat due to anthropogenic activities. They are very essential for the survival of upcoming human generations. Major impact of climate changes is increased in extinction and the distribution of flora and fauna types. They also has impact on diversification of living forms indirectly. We can conserve insects by several methods and steps, which includes establishing ethical foundation, finding out their life cycles and make suitable action plan, proper implementation on action plan and one of the most significant part of conservation is to conduct awareness programs for the understanding of the role of insects in our life. In this paper we discuss conservation of insects.

Keywords: Insect, conservation, biodiversity, etc

MANAGEMENT OF AIR POLLUTION BY USING DOAS

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ABSTRACT

Any important developmental activity results in environmental degradation because it disturbs the existing natural system. With growing populations and planned economic growth for letter standards of living there will be greater demands foe explorations of mineral resources besides other natural resources, their using environmental pressure with passage of items. The using industries play a vital role in the overall economy and industries development of any country. This paper present or degradation of air quality is a major environmental problem that effects urban and industries sites populations. Air pollution influences human health, crops yield and destroys all infrastructures of environmental. The phenomena causing air pollution or complex corruption. fristly emitted into the atmosphere and their primary pollutants are transported by wind turbulences and last diffusion in body tissues, they can undergoes chemical reaction and causing many chromical diseases. Over all needed to take into account socio-economic feasibility constraints first while before any attempt for seeking solutains to improve air quality.

Keywords: Air pollution, degradation, DOAS, Air quality.

AIR POLLUTION IN INDIA IN THE RECENT YEARS

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ABSTRACT

In the recent few years, air pollution in India has drastically increased. Air pollution in India is a serious health issue. Of the most polluted cities in the world, 21 out of 30 were in India, in the year 2019. 51% of the pollution is caused by indurtries, 8% by crop burning, 5% by Diwali fireworks, and 27% by vehicles. It contributes to the premature deaths of 2 million Indians in every year. We should follow the steps taken by other countries in saving our environment. An interesting step in that direction is a vertical forest planted in Nanjing, eastern China; designed to absorb 25 tons of carbon dioxide a year, and produce about 60 kg of oxygen per day.

BENEFITS OF BIODIVERSITY

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ABSTRACT

Biodiversity is a term that describes microorganism, plants, animals, ecosystems such as coral reefs, forests, rainforests and deserts. In brief, it is described as degree of variation of life. Biodiversity also described as the abundance of different species living within a particular area. Biodiversity includes three important elements like Species diversity, Genetic diversity and Ecosystem diversity. A new aspect of biodiversity has also been added that is Molecular diversity. It represents the wealth of biological resources available to human. Biodiversity forms a support system for human being and also used for growth and development. Biodiversity maintain the balance of the ecosystem by recycling and storage of nutrients and also stabilizing the climate change and protecting water resources. The rich biodiversity provides food security, health care and industrial goods for human that has showed the way to high standard of living in the modern era. The diversity of life on this planet is so rich that if we use it sensibly and sustainably we can develop new products for generations. For this reason, everyone must be aware of the significance of biodiversity as an important resource.