ESW V Annual National Research Conference On
Sustainable development of Ecosystem, Wildlife and Heritage conservation for Human welfare
30 & 31 January, 2018

Organized By

Environment & Social Welfare Society, Khajuraho

An ISO 9001:2015 certified organization
Dedicated to Environment, Education, Art and Science and Technology since Bi-Millennium.
Under Govt. of MP., Firms & Society Act 1973 Reg. No. SC2707/2K
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Zoology, Ichthyology, Biochemistry, Free Radical Biology,
Toxicology, Stress Monitoring, and Biodiversity

In Association
Bundelkhand Extended Region Chapter, Chitrakoot, National Academy of Sciences India
Maharaja Chhatrasal Bundelkhand University, Chhatarpur MP

Assisted by
Godavari Academy of Science and Technology, Chhatarpur, Madhya Pradesh
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About Environment & Social Welfare Society, Khajuraho

Environment & Social Welfare Society (ESW Society) *Dedicated to Environment, Education and Sciences & Technology entire India since bi-Millennium* is an ISO 9001:2015 certified organization of the India. Now it's worldwide known by its impact. ESW Society has been to develop relationship between Environment and Society envisions the promotion of Education and Sciences among the University, College and School students as well as in the society for Environment and Social welfare as well as Human Welfare.

It is registered under the society Act 1973, Government of Madhya Pradesh, India on 31 January 2000 with No SC2707. It was affiliated by Nehru Yuva Kendra Sangathan, Ministry of Youth Affairs and Sports, Government of India. It accredited by Madhya Pradesh Jan Abhiyan Parishad, Government of Madhya Pradesh, since 2013, also enrolled in Navankur Yojana with enrollment number NV2016CHH0062 Dated 29/09/2016. It is also registered with NGO-PS, Government of India And having The NGO-Partnership System, Portal (NGO-DARPAN), NITI Aayog, (National Institution for Transforming India), Govt. of India. ID MP/2014/0076324. NGO Databases

Object of The ESWSociety:

1. To establish, arrangement and management all around development in the field of Education and expansions of educational institutions.
2. To develop Ideal morality, Character building in the Children according to Indian tradition and Culture.
3. All around development of the Children. Arrange training programme to establish Self Employment Centre.
4. To organize Seminar for Environmental management, Pollution control, and establish Awareness centre for the same.
5. To make awareness for Social welfare. Check against Animal cruelty and to protect against cruelty and Tyrany.
6. Open animal house for improvement of animal health and provid necessary facility for them.
7. To highlight modern Technology, Computer, Games & Sports, Music, Art, Literature, and various languages Hindi, English, Urdu, and other foreign languages in the field of Education.
8. Establish Research Centre

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Under auspicious of: **Environment & Social Welfare Society, India**

Om Prakash Kohli

GOVERNOR MADHYA PRADESH

RAJ BHAVAN
BHOPAL—462 052

January 18,2018

MESSAGE

I am pleased to know that Environment and Social Welfare Society, Kharjuraho, is organizing ESW V Annual National Conrerence-2018 to be held at UNESCO Heritage site, Khajuraho, Madhya Pradesh on "Sustainable Development of Ecosystem, Wildlife and Heritage Conservation for Human Welfare" on 30-31 January, 2018 and also publishing a souvenir on this occasion.

The objective of the conference is to create social awareness and protecting our Ecosystem, Wildlife and Heritage. I hope the outcome of the conference will provide valuable guidence to the Researchers and Scientists.

I extend my heartiest wishes to the organizers and warm welcome to all the delegates of the conference. I hope that the souvenir shall serve as a memorable document.

My best wishes.

O. P. Kohli

(Om Prakash Kohli)

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डॉ कैलाश चन्द्र
निदेशक
Dr Kailash Chandra
Director

सत्यमेव जयते

भारत सरकार
भारतीय प्राणि सर्वेक्षण
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Government of India
Zoological Survey of India
Ministry of Environment, Forest and Climate Change

MESSAGE

Greetings,

It gives me immense pleasure to know that 'Environment & Social Welfare Society, Khajuraho, Madhya Pradesh, India in association with B.E.R. Chapter, National Academy of Sciences India, Chitrakoot, and Maharaja Chhatrasal Bundelkhand University, Chhatarpur (M.P.) is organizing ESW 5th Annual National Conference on Sustainable Development of Ecosystem, Wildlife and Heritage Conservation for Human Welfare" on 30 & 31 January, 2018.

India, an acclaimed mega-biodiversity nation, represents about 6.4% of the total global fauna in its share of only 2.4% of the total land surface of the world. India's fifth National Report to the Convention on Biological Diversity (2014) state that habitat loss, fragmentation and degradation through conversion of land use, agriculture, urbanisation and industrial development, invasive alien species and overexploitation of natural resources, including plants and animals, are amongst the major threats faced by biodiversity globally and in India. Over the past few decades, land-use changes driven by rapid human population growth and increased anthropogenic activities, such as agriculture and expanding human settlements have severely affected the fragile landscape of the country.

I hope the conference will provide the platform for disseminating knowledge related to ecosystems and its conservation, ecosystem services and human welfare, global warming, climate change and its impact on biodiversity, tribal welfare, forest conservation, role of N.G.Os. in global warming, environmental ethics, E-waste and solid waste management and possible solution of agrochemicals, to wide range of participants & delegates, Educational Administrators, Academicians, Scientists, Environmentalist, Researchers, Young Scientists and Post Graduate Students. I wish that the conference may lead to formulate the strategies and policies for the sustainable use of natural resources and for a clean environment.

I convey my sincere best wishes to Dr. Ashwani Kumar Dubey, Organizing Secretary of the conference and his entire team of the organising committee of ESW 5th Annual National Conference on Sustainable Development of Ecosystem, Wildlife and Heritage conservation for Human Welfare" on 30 & 31 January, 2018 for the great success of the conference.

21/01/2018

Dr. Kailash Chandra

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प्रो. प्रमोद के वर्मा
कुलपति

Prof. Pramod K Verma
Vice Chancellor

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Message

it pleasure to note that Environmental and Social Welfare Society is organizing its 5th Annual National Conference on "Sustainable development of Ecosystem, Wildlife and heritage Conservation for Human Welfare" in association with BER Chapter, Chitrakot, NASI and Maharaja Chhatrasal Bundelkhand University, Chhatarpur and assisted by Godavari Academy of Science and Technology, Chhatarpur in Khajuraho during 30-31 January, 2018 .

The title of the conference is very timely and need of the society as it takes care of human, ecosystem and heritage – an amalgamation of which will certainly lead to the inclusive and sustainable development of society.

I extend my best wishes for successful organization of the program.

Pramod K Verma

(Prof. Pramod K Verma)

Maharaja Chhatrasal Bundelkhand University

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Message

I have great pleasure to know that Environment and Social Welfare Society, Khajuraho, Madhya Pradesh is organizing ESW V Annual National Conference-2018 to be held at UNESCO Heritage site Khajuraho, Madhya Pradesh on "Sustainable development of Ecosystem, Wildlife and Heritage conservation for Human welfare" on 30 & 31 January, 2018 and also publishing a souvenir to commemorate the occasion.

I hope the conference will provide the platform for disseminating knowledge related to ecosystem, wildlife and heritage conservation for human welfare.

I wish the outcome of the conference will provide valuable guidance to the academicians and scientist.

All the very best for the whole programme.

Prof. Priyavrat Shukla

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EDITORIAL

The ESW V Annual National Research Conference on **"Sustainable development of Ecosystem, Wildlife and Heritage conservation for Human welfare 30 & 31 January, 2018 organized by Environment and Social Welfare Society (ESW Society), Khajuraho** has its inception when The Official Agenda for Sustainable Development adopted on 25 September 2015 for Sustainable Development Goals and its associated 169 targets. as the thrusty area for work in Climate action provide a field for research and discussion.

Since the first United Nations Conference on Environment and Development in 1992 - known as the Earth Summit, it was recognized that achieving sustainable development would require the active participation of all sectors of society and all types of people. Agenda 21, adopted at the Earth Summit, drew upon this sentiment and formalized nine sectors of society as the main channels through which broad participation would be facilitated in UN activities related to sustainable development. These are officially called "Major Groups" and include the following sectors:

- Women
- Children and Youth
- Indigenous Peoples
- Non-Governmental Organizations
- Local Authorities
- Workers and Trade Unions
- Business and Industry
- Scientific and Technological Community
- Farmers

Two decades after the Earth Summit, the importance of effectively engaging these nine sectors of society was reaffirmed by the Rio+20 Conference. Its outcome document "The Future We Want" highlights the role that Major Groups can play in pursuing sustainable societies for future generations. In addition, governments invited other stakeholders, including local communities, volunteer groups and foundations, migrants and families, as well as older persons and persons with disabilities, to participate in UN processes related to sustainable development, which can be done through close collaboration with the Major Groups. Major Groups and other stakeholders (MGoS) continue to demonstrate a high level of engagement with intergovernmental processes at the UN. The coordination of their input to intergovernmental processes on sustainable development has been led by UNDESA/Division for Sustainable Development (DSD). Member States ultimately decide upon the modalities of participation of MGoS. Thus, the engagement and participation of MGoS in intergovernmental processes related to sustainable development varies depending on the particular sustainable development topic under discussion.

Since the 1st ESW National conference on sustainable development of natural resources and wildlife conservation, convened by ESW Society in Khajuraho, Madhya Pradesh India in 2014, a growing body of knowledge has been generated addressing the complex relationships between the Nature conservation and wildlife with important research activities on this subject. There is now a wide recognition of the urgent need for the environment, biodiversity, and tourism industry, national governments and international organizations to develop and implement strategies to face the global warming and to take preventive actions for future effects, as well as to mitigate tourism's environmental impacts contributing to global warming. Furthermore, such strategies should take also into account the needs of developing countries in terms of Millennium Development Goals.

The **Millennium Development Goals** (**MDGs**) were the eight international development goals for the year 2015 that had been established following the Millennium Summit of the United Nations in 2000, following the adoption of the United Nations Millennium Declaration. All 189 United Nations member states at that time, and at least 22 international organizations, committed to help achieve the Millennium Development Goals by 2015. Each goal had specific targets, and dates for achieving those targets. Although there has been major advancements and improvements achieving some of the MDGs even before the deadline of 2015, the progress has been uneven between the countries. In 2012 the UN Secretary-General established the "UN System Task Team on the Post-2015 UN Development Agenda", bringing together more than 60 UN agencies and international organizations to focus and work on sustainable development. At the MDG Summit, UN Member States discussed the Post-2015 Development Agenda and initiated a process of consultations. Civil society organizations also engaged in the post-2015 process, along with academia and other research institutions, including think tanks.

The **Sustainable Development Goals** (**SDGs**), officially known as **Transforming our world: the 2030 Agenda for Sustainable Development** is a set of seventeen aspirational "Global Goals" with 169 targets between them. Spearheaded by the United Nations, through a deliberative process involving its 193 Member States, as well as global civil society, the goals are contained in paragraph 54 United Nations Resolution A/RES/70/1 of 25 September 2015. The Official Agenda for Sustainable Development adopted on 25 September 2015 has 92 paragraphs, with the main paragraph (51) outlining the 17 Sustainable Development Goals and its associated 169 targets.

Keeping above serious issue in mind ESW Society, India President Dr. Ashwani Kumar Dubey has called for action on Quality Education; Clean Water and Sanitation; Climate Action; Life on Land; Peace, Justice and Strong Institutions; Partnerships for the Goals, and Nature conservation to be taken in close coordination with global action on The ***Transforming our world: the 2030 Agenda for Sustainable Development*.** To provide a platform to Educational Administrators, College Principals, Deans, Readers, Head of Departments, Professors, Assistant Professors, Scientists, Environmentalist, Stakeholders, Researchers, Young scientists and Students to disseminate knowledge related to Nature Conservation, Resource Management and possible solution by Technological Approach.

Dr. Ashwani Kumar Dubey

Acknowledgement

This is an honor for Environment and Social Welfare Society, Khajuraho, organize its ESW V Annual National Research Conference on **"Sustainable development of Ecosystem, Wildlife and Heritage conservation for Human welfare 30 & 31 January, 2018** at UNESCO world heritage site Khajuraho of India, Assisted by Godavari Academy of Science & Technology, Chhatarpur, MP.

I am Thankful to Secretary, Bundelkhand Extended Region Chapter, Chitrakoot, The National Academy of Sciences India, Allahabad, UP, and to Vice Chancellor, Maharaja Chhatrasal Bundelkhand University, Chhatarpur MP for its in association with ESW Society for organizing this Conference. I am thankful to SEWA, Ajmer, India for its Technical Association to ESW Conference.

It is my privilege and pleasure to express my profound gratitude to our **VIP Guest** Honourable **Prof. P. K. Verma,** Vice Chancellor**,** Barkatullah University, Bhopal**,** Madhya Pradesh, **Prof. Priyavrat Shukla**, Vice Chancellor, Maharaja Chhatrasal Bundelkhand University, Chhatarpur MP**, Prof. K. K. Sharma**, Former Vice Chancellor, MDS University Ajmer, Rajasthan, **Prof. K. R. Maurya,** Former Vice Chancellor, Rajendra Prasad Central Agriculture University, Pusa, Bihar, **Prof. Prakash S. Bisen**, Former Vice Chancellor, Jiwaji University, Gwalior, who have given very kindly, consented for Inaugural Programme of ESW Conference.

Honourable **Mrs. Lalita Yadav**, State Minister, Government of Madhya Pradesh, Honourable **Kun. Vikram Singh**, MLA, Rajnagar Vidhan Sabha, **Prof. S. B S. Bhadouriya,** Ex-Principal**,** Regional Institute of Education**,** Azmer, Rajasthan, **Dr. Niraj Kumar**, Executive Secretary, National Academy of Sciences India, Allahabad, **Dr. U. C. Pandey**, Regional Director, Indira Gandhi National Open University, Bhopal, **Dr. Rajesh Saxena**, Scientist, MP Council of Science & Technology, Bhopal**, Prof. Satyendra Sharma**, Principal, Govt. College, Satna MP**, Dr. Shivesh Pratap Singh,** Secretary, Bundelkhand Extended Region Chapter Chitrakoot, NASI, Allahabad, Uttar Pradesh who have given very kindly, consented for Award ceremony of ESW Conference.

I am heartily thankful to honorable Invitee Guest Who have very kindly consented and given us an opportunity to share valuable thought which will provide milestone on the way of leading Scientists in the Conference.

I am especially thankful to all delegates who actively participated in this Conference. I am thankful to Electronic and Print Media. I am profoundly thankful to my Board of Director and All members of ESW Society for their invaluable cooperation, and those entire person who are directly or indirectly concerned with this conference.

Dr. Ashwani Kumar Dubey

ESW V Annual National Research Conference

Object: To provide a platform to Vice Chancellors, Educational Administrators, College Principals, Deans, Professors, Readers, Associate Professors, Assistant Professors, Scientists, Environmentalist, Researchers, Young scientists and Post Graduate Students to disseminate knowledge related to **Ecosystem, Wildlife National and World Heritage.**

Theme: Take some positive steps towards improving our Earth for future generation.

Goal: The moral obligation to act sustainably as an obligation to protect the natural processes that form the context of human life and culture, emphasizing those large biotic and abiotic systems essential to human life, health, and flourishing culture. Ecosystems, which are understood as dynamic, self-organizing systems humans have evolved within, must remain 'healthy' if humans are to thrive. The ecological approach to sustainability therefore sets the protection of dynamic, creative systems in nature as its primary goal. The principal goal of this conference will be to present some of the latest outstanding breakthroughs in Environment and global health, to bring together both young and experienced scientists from all regions of the world, and to open up avenues for research collaborations at regional and global level.

THE GENERAL TOPICS COVERED IN CONFERENCE WILL BE AS UNDER:

Ecosystem: Aquatic, Terrestrial and Areal ecosystem, Ecology, Ecosystem and its conservation measure, Ecosystem services and human welfare. Oxidative Stress and Biomarker, Global warming. Climate change, Impact of Food chain and Food web on Human life, Rural Development, Tribal Welfare, Water, Chemical & Mineral, Forest Conservation. Ecosystem management. Role of N.G.O. in Global warming. Environmental Ethics, Pollution, Recycling process of pollutant, E-waste and Solid waste management, Eco-Toxicology, Possible solution of Agrochemical, Environment Conservation and Validation of traditional knowledge.

Wildlife: Animal Behavior and Wildlife Conservation, Endangered, Threatened and Endemic Species Conservation, Strategy for wildlife conservation.

National and World Heritage: Heritage and Tourism, Importance of tourist, Tourist need, Eco-Tourism.

Technological Approach Lab to Land

Method and Technique for Ecosystem management, Bio-indicator, Application of bio-technology, Rural bio-technology, Tools and technique, Bio-markers, Climate change and Ecosystem management. Role of N.G.O. for Ecosystem, Wildlife and Heritage conservation. Pollution, Recycling process of pollutant, Pollution and its monitoring, E-waste and Solid waste management, Eco-Toxicology, Environmental Ethics, Occupational health hazards, Possible solution of Agrochemical and environmental hazards, Environment Conservation and Validation of traditional knowledge.

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INVITEE LECTURE

FOOD HERITAGE AND ECOSYSTEM

Prakash S Bisen
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Nature has always been very vibrant, giving and resilient to a very large extent. Religion protects and nurtures nature. We worship the sun, wind, land, trees, plants, and water in Hinduism which is the foundation of human survival. Similarly, respect and conservation of wildlifegaruda, lion, peacock, and snakeare part of our cultural ethos from time immemorial. We take pride in our strong cultural heritage as Indian. Religion protects and nurtures nature. Ancient texts written in Sanskrit, Pali or other languages provide significant details. The entire living of God Ram and Goddess Sita was mostly very close to nature. The scripture Vishnu Samhitâ in Sanskrit language contains some direct instructions dealing with biodiversity conservation. Complete civilisation have come into existence near sources of water like Indus Valley Civilization. Nature and culture become intertwined in a way. Culture reflects our history, tradition and our beliefs. Revolutions in the technological and communication fields and the advent of globalisation have made an impact on our culture which have also evolved with time. However, it becomes imperative that we adapt new things without losing the basic character of our long cherished traditions and values which include environmental conservation. India is a culturally rich and diverse country where people speak many different languages, with many communities which live in their respective social structures completely depending on their environment to ensure their livelihood.

At the international level, the Convention on Biological Diversity, signed at the 1992 Rio Earth Summit, is dedicated to promoting sustainable development. It recognises that biological diversity is about more than plants, animals and microorganisms and their ecosystemsit is about people and our need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in which to live. At the national level, Article 48(A) of the Indian Constitution imposes a constitutional obligation on the state to protect and improve the environment and safeguard the forests and wildlife of the country. Article 51(A)(g) imposes a constitutional obligation on the citizens of India to protect and improve the natural environment, including forests, lakes, rivers and wildlife and to have compassion for all living creatures. We also have laws to deal with air pollution, emission of greenhouse gases and use of ozone-depleting substances like the Water Act, the Air Act and the Environment Protection Act but the need is for their strict implementation.

In India, the Biological Diversity Act contains a framework provision for the protection of this rare knowledge of indigenous communities but it is always in the implementation part that we lag behind.

TRADITIONAL knowledge had always contributed to modern medicine and health care. Further for centuries, indigenous communities were used to survive and adjusting their agriculture, fishing and hunting in the event of changes in climate. It is ironical that now when

the threat of climate change is so imminent we are looking for solutions outside. However, there is another threat looming large, that is, of losing these communities to outright annihilation or due to their amalgamation in the mainstream. Moreover, with the commercialisation of even natural resources, traditional knowledge that managed to maintain sustainable levels of harvest has been sidelined. Issues of privatisation, alienation and 'bio-piracy' are major areas of concern. With globalisation these pressures are stronger than ever. The existing policy and legal mechanisms to protect traditional knowledge usually does not involve these communities themselves. They do little to safeguard local community needs, values and customary laws relating to traditional knowledge and genetic resources of indigenous and local communities. We have to preserve this aspect of culture and amalgamate it with modern methods to work towards environmental conservation. By analysing the ethnic communities we can understand this aspect of inherited knowledge. There is an additional responsibility on Indians, that is, not only to protect, preserve and promote Indian cultural heritage and traditional knowledge, but also to lead the world in environment conservation through sustainable development through the ages. Ecotourism, a unique subset of the tourism industry, is ,focused on the enhancement or maintenance of natural systems through tourism. Ecotourism means different things to different people. To some, it is the general term that encompasses nature-based, adventure, soft adventure, and cultural tourism.

Food and foodways have attracted the attention of many scholars, particularly in the last decade. The fungibility, along with the ubiquity of food, in individual or social life makes it more than "just" food. It exists, in fact, within a complex network of social, cultural, and economic relations. It permeates a wide range of media: from film, TV shows, literature, to new media (blogs, Internet, YouTube, *etc.*). Recently, food studies have gained academic respectability, becoming an essential issue of scrutiny within disciplinary contexts. Food features in our daily lives in innumerable ways. A diet expresses ethnic, cultural, religious, and class association; it establishes gender roles; it is essential in rituals and customs; and it explicates diverse behaviors, aspirations, and ideas of selfhood. Often, we develop love, dislike, or aversion to certain foods just because they are linked to happy or unpleasant experiences. Essentially, our food preferences are flexible and can be altered as we associate them with types of environments and circumstances. An aroma, a whiff, a texture, or a color may offer a glimpse into a moment from the past.

The health promoting effect of various fruits and vegetables is due to the presence of the plethora of bioactive compounds which have preventive and anti-proliferative activity. However, not much has been documented about functional foods in prevention and treatment of several disases in ethnic human population. Tourist interest in different food cultures is a factor for local development in the fields of agro-food and crafts, whilst also contributing to the enhancement of food culture and heritage. Eating local cuisine is a way of breaking with standardised, everyday routine by taking the tourist off into unknown culinary realms. This distancing from daily life is already possible in the home country through eating exotic food at home, or in so-called 'ethnic' restaurants. My lecture will deal with the ethnic importance of local food as functional food or as nutritional therapy/immunotherapy agent for locals to protect against several diseases.

ROLE OF WILD LIFE IN HUMAN WELFARE WITH SPECIAL REFERENCE TO THEIR MEDICINAL VALUES: A STRATEGY FOR CONSERVATION

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According to Cambridge English dictionary, wild life means "animals and plants that grow independently of people, usually in natural conditions". In fact, any form of life away from natural habitat, that are not domesticated (animals) or cultivated (plants) can be termed as wild life. Many wild plants and animals look apparently not so important. However, directly or indirectly all play great role in the human welfare. However, because of different reasons/factors such as illegal felling of trees, deforestation and natural disasters such as flood, drought, earth quack, tsunami, oil spill and forest fire their number is decreasing every year. This presentation gives an outline on their importance with particular reference to their medicinal values.

Our investigations indicate that some plants have also the potential to regulate even the metabolic disorders including thyroid problems, diabetes mellitus and cardiovascular problems. Not only have the plants, some wild animals too had medicinal values. Obviously, their preservation and propagation is very much required. Therefore a strategy for their conservation and management has also been suggested.

ENERGY AUDIT FOR CHENGALPATTU MEDICAL COLLEGE HOSPITAL BUILDINGS

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The ever-increasing energy prices, acute energy shortage, forever widening and supply gap, efficiency and conservation measure have gained importance in the recent years. Hospital buildings are using huge energy and the energy saving possibilities is expected to be substantial. This project involved an energy auditing with view to enhance the existing energy efficiency level in the Chengalpattu Medical College Hospital (CMCH), Chengalpattu. Energy Auditing is a systematic study of existing energy consumption pattern and to suggest suitable measures for improving energy efficiency. During the energy audit, a complete survey of power consumption in the Chengalpattu Medical College Hospital (CMCH) was carried out. Audit was conducted for Lighting, Fans, Air Conditioners, Computers, Medical Laboratory Equipments, DG Sets, Motors and their power consumption pattern was determined. Energy conservation measures were suggested for minimizing the power consumption in the CMCH Campus. By implementing the

measures, there exists not only scope to save power and money but also conserves our Environment. Implementation of the measures suggested would mitigate about 1,11,565 kg of Carbon dioxide emissions, annually in the region. There is a wide scope to conserve energy and environment by conducting energy audit. When this kind of energy audit is conducted all over India, we can imagine the amount of money that can be saved and decreased environmental damage. Thus energy conserved is energy produced.

NEW TECHNOLOGIES FOR REDUCING HUMAN-SNAKE CONFLICT: PREVENTION OF SNAKE BITE DEATH

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Human–Snake conflicts are known for centuries. The main reason for such conflicts is habitat destruction and habitat encroachment. Often Human invade habitats of snakes when such invasion meets encounter, sometimes in defense snake may bite and in the absence of proper treatment results in death. More than 50,000 people die of snake bite every year in India. Available data suggests that 97% of snakebite fatalities are rural, and that 77% of them occur outside a health facility. In this situation, it is clear that both people and snakes are losers. Snakes are looser because a fatal bite leads to enmity with creature. The most important reasons for the death are not venom alone but mismanagement and improper handling of the victim. Some important facts about human snake conflict are namely (1) The big four or four major venomous snakes are Russell's vipers, cobras, kraits, and saw-scaled vipers. Rats, mouse, squirrel, inhabits in the vicinity of human beings that is in homes and fields, attracts snakes including the four major (2) Villagers, labours in field often sleep on the floor or ground, walk bare foot, put their hands in dark and debris, working in farms during dawn and dusk and often do not use flashlights, unaware of presence of snakes even in snake prone areas, put them at great risk of snake bite (3) It has been established by the biomedical scientists and Medical Doctors that Antivenom is the only sure cure for snake bite. But many people still believe that bogus, traditional, herbal and superstitious may cure snake bite. But during such irrelevant treatment, victim enters in a state of danger and dies. Sometimes due to long distance of health centre from the place of snake bite incident, non availability of ambulance, victim reach Health Centre very late, by that time venom had completed its role. The most serious reason is non availability of snake venom particularly in the rural Primary Health Centres. As a revenge and hate millions of snakes including four major are killed indiscriminately, this results in non availability of snakes to extract venom to produce ant venom. Besides awareness programmes it is necessary to use new technologies to reduce human snake conflict. Following new technologies can reduce human snake conflict to a great extent.

(A) Mapping is very important for proper handling of snake bite incidences and monitoring snake conservation plans. There is need to conduct field studies on the distribution

pattern, abundance of four majors using GIS tools. Use of Android apps such as "Big4 mapper" provides occurrence, distribution pattern and availability of first aid particularly in the snake prone areas. Information such generated would also help in proper distribution of ant venom vials in the four major prone areas.

(B) Development of sensors which can locate and identify snakes. Those snakes which produce hissing in defense and breathing acoustics of non- hissing snakes once connected to any mobile with acoustic analysis app would help in identification of snake and approximate location.

Development of such devices is in progress by the authors. Applications of such modern tools shall be discussed during the conference.

REGIONAL – WARMING'AND THE FUTURE OF ARID- LAND

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In Central – India, present scenario of 'Regional Warming' increasing climate demand of water (Evapo-transpiration) year after the year indicating a heat stress particularly in arid-land of the states; Chhattisgarh, Madhya Pradesh, Maharashtra, Orissa, Andhra – Pradesh, Rajasthan. The part of land lying below 1,000 feet elevation from the sea – level is almost arid zone that has no options for mountain Himalaya and ocean climate boundaries except megre fragile forest cover to control atmospheric temperature. The arid - land receiving little monsoon precipitation stored in land surface (water bodies, ground water, vegetation, soil moisture) constitutes a climate system, similar to ocean of which amount of water lost to the atmosphere by evapo-transpiration. Since air temperature of the land rarely lower than 10C the area persisting almost free from air moisture condensation devices (dew. mist, fog) which are abundant in northern part of the country used as considerable water supply and irrigation to winter crops.

Obviously, heat stored over terrestrial land denoting a total amount of water required to be lost through the evapo-transpiration process. This explains how a rapid rate of evapo-transpiration causing a great loss of water depriving agricultural productivity. This is very much true in a low – land area, where the stony sandy soil with lesser retention capacity absorbing water poorly, evaporating rapidly and causing moisture penetration to depth. Therefore, considering hydrologic characteristic of asoil type and its moisture balance the monitoring of land are amay yield information of practical value in length. The high rate of production either in wet or dry seasons occurs when a physical factor temperature is favorable. For example the increased minimum temperature above 25^{o}C during monsoon, put a consistent lesser yield of paddy crop in Chhattisgarh, if compared with other paddy growing states. Nevertheless, the average atmospheric temperature more than 25^{o}C hampered growth rate in human beings, deprived

fertility, depressed cow milk quantity, and to cause other physiological changes which may be proven too much ending to death.

Presently, the regional warming put a detrimental effect on a steep rise of water shortage as the country suffer in food crop production. The increased room temperature above 40C create heating effect to cattle which cannot withstand this much temperature in necked land. of the day. Moreover, the negativity of high temperature in stony sandy soil depriving grazing yard is apparently seen for drasic impact on animal husbandry and its economic feasibility. Virtually, the supra-optimal temperature play a decisive role for exceeding metabolic activities (respiration) causing more loss of energy. Obviously, the rapid respiration 'costs' more to maintain the plant and animal structure and organism has to reduce biomass and productivity. The mass-specific metabolic rate can be related with temperature and body size as per the equations of thermodynamics where the temperature explains a significant metabolic rate in changes in cell organelles. There are invertebrates, fishes, amphibians, reptiles, birds, and mammals, vary in body mass by 10 orders of magnitude and in body temperature from 0C to 50C. One can assumed that the body temperatures of the fishes are the temperatures of the water in which they lived either in deep river current or barrages. The smaller fish that grow in warm water of Hasdeo river barrage of Korba town has faster metabolic rate as compared to larger fish of cool water tank of Seoni in Madhya Pradesh.

In Chhattisgarh, the existing hot and dry climate characterized "problematic" due to exceeding temperature 49.3^{o}C. The early morning temperature is usually above 25^{o}C in long range of the year and the evening temperature persist 30-35^{o}C. Since the heat sum of a day is based on average daily temperatures depending on the duration and intensity of radiation leading average temperature about 28 - 30^{o}C during summer months (March to Jun), therefore hourly values often not representing 24 hours average has no meaning as the exposure of mixed ambient air or a longer period of temperature remains more effective to enhance metabolic activities and loss of energy.In arid land the intense radiation and high temperature over the land surface leading a great loss of water compel to understand that separation of tree species from its original environment would be never socio-economic feasible. The small tree; bel, babool, ber, palas, anwala, moringa, sitaphal, citrus, shrubby cotton and seasonal coarse grain; jwar, bajara, kodo, sanwa, maize, etc. not reliance to extra water and energy are still better option to maintain ecological equilibrium. The cast effective seed and soil amendment agro-technology has no concern to enhance carbon credit effectively and to control warming and conservation of natural resources.

Conclusively, Central-India almost an arid part of the country required a thorough investigation on the amount of water evaporated from the land surface and to assess the ecological sustenance through green cover. The purpose of this paper is to bring a view point of arid- land development to enable the farmers, the ecologist and the hydrologist to plan their programs of land-use on rational basis.

Keywords: *Regional warming, Arid-land, Central – India, Climate demand of water, Loss of water and productivity.*

ECOSYSTEM APPROACH TO MARINE FISHERIES MANAGEMENT IN GUJARAT

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Marine biodiversity is higher in benthic rather than pelagic systems, and in coasts rather than the open ocean since there is a greater range of habitats near the coast. The highest species diversity occurs in the Indonesian archipelago and decreases radially from there. Losses of marine diversity are highest in coastal areas largely as a result of conflicting uses of coastal habitats. The best way to conserve marine diversity is to conserve habitat and landscape diversity in the coastal area. Gujarat has the longest coastline in India extending and industrial wastes. Gujarat has 50 coastal to about 1,663 km and thus constitutes about 22 per talukas and 59 towns. Sustainable use of living marine resources must consider both the impacts of the ecosystem on the living marine resources, and the impacts of fishery on the ecosystem. This holistic approach to fisheries management has been termed as "ecosystem based fisheries management" (EBFM). Maintain and conserve the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations, and communities are uniquely adapted. Conservation is the management, protection and wise use of natural resources which protects biodiversity from becoming extinct. The rich marine resource of Gujarat offers vast opportunities in the field of genetic conservation of marine biodiversity. The present MNP is also known for its rich species diversity viz., as more than 49 species of hard corals, 23 species of soft corals, 70 species of sponges, 421 species of fishes, 27 species of prawns, 30 species of crabs, 199 species of mollusc, 16 species of echinoderms, 172 species of birds, 3 species of sea mammals, 6 species of mangroves, 3 species of sea turtle, 108 species of brown, green and red algae, etc. This rich diversity necessitates the study on the present status of coastal bio-resource potential not only on the basis of physical-chemical, biological and ecological but also through cultural, economic and social development point of view of MNP (GoK).

Keywords: *Ecosystem, Biodiversity, Marine resource, Fisheries management, Gujarat.*

A REVIEW ON THE STUDIES OF ZOOPLANKTON IN THE LOTIC WATER OF INDIA

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Zooplanktons are microscopic free floating animals which play a vital role in aquatic ecosystem. Zooplanktons are highly sensitive to environment variation,as a result change in abudance species diversity or community composition can provide important indication of environmental health.In the present paper an extensive review of the literature available on zooplanktons in lotic water of India have been made which is a long felt necessity in this field .
Keywords*: Zooplankton, lotic water, environment.*

CLIMATE CHANGE

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Climate change is a change in the statistical distribution of weather patterns when that change lasts for an extended period of time (i.e., decades to millions of years). Climate change may refer to a change in average weather conditions, or in the time variation of weather within the context of longer-term average conditions. Climate change is caused by factors such as biotic processes, variations in solar radiation received by Earth, plate tectonics, and volcanic eruptions. Certain human activities have been identified as primary causes of ongoing climate change, often referred to as global warming.

Scientists actively work to understand past and future climate by using observations and theoretical models. A climate record—extending deep into the Earth's past—has been assembled, and continues to be built up, based on geological evidence from borehole temperature profiles, cores removed from deep accumulations of ice, floral and faunal records, glacial and periglacial processes, stable-isotope and other analyses of sediment layers, and records of past sea levels. More recent data are provided by the instrumental record. General circulation models, based on the physical sciences, are often used in theoretical approaches to match past climate data, make future projections, and link causes and effects in climate change.

Factors that can shape climate are called climate forcings or "forcing mechanisms".[7] These include processes such as variations in solar radiation, variations in the Earth's orbit, variations in the albedo or reflectivity of the continents, atmosphere, and

oceans, mountain-building and continental drift and changes in greenhouse gas concentrations. There are a variety of climate change feedbacks that can either amplify or diminish the initial forcing. Some parts of the climate system, such as the oceans and ice caps, respond more slowly in reaction to climate forcings, while others respond more quickly. There are also key threshold factors which when exceeded can produce rapid change.

Forcing mechanisms can be either "internal" or "external". Internal forcing mechanisms are natural processes within the climate system itself (e.g., the thermohaline circulation). External forcing mechanisms can be either natural (e.g., changes in solar output, the earth's orbit, volcano eruptions) or anthropogenic (e.g. increased emissions of greenhouse gases and dust).

BIOTRANSFORMATION OF FOREST LIGNOCELLULOSIC BIOMASS INTO BIOETHANOL

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Forest biomass specially pine needles are one of the most important lignocellulosic biomass available with serious implications on local understory vegetation besides incidences of forest fires which have both short and long-term effects on environment. The biomass can be put to varied uses by proper exploration of its constituent biopolymers such as cellulose, hemicellulose, lignin etc. Prior treatment of this lignocellulose biomass through various physio-chemical agents like acids, bases, high energy radiations etc. help in faster degradation but resulted into the production of various types of inhibitors that hinder the further fermentation process. In view of this, environment friendly and economically feasible technologies are required to be experimented for inhibitor free fermentation processes. Enzymatic pretreatments offer several advantages over chemical treatments with higher conversion efficiency, the absence of substrate loss and use of process friendly operating conditions. Use of three different enzymes i.e. cellulase (8.56 U/mg protein), xylanase (95.19 U/mg), and ligninase (75.24 U/mg) from *Bacillus* spp. CPB-21 & XPB-11, *Pseudomonas* sp. LPB-06 respectively resulted into 35 ml of fermentable sugar without any side product or inhibitor with initial 50 g of pine needles in 50 ml (0.1 M sodium citrate buffer pH 7.0) after 24 hr incubation under continuous agitation. The process scale-up when tried with 1000 ml of hydrolysate using *Saccharomyces cerevisiae*, resulted in about 54 % conversion after 48 hr of incubation with 90% purity. The outcome of the present work seems promising and can help to provide a new environment friendly enzymatic pretreatment process for the production of bioethanol.

Keywords: *Lignocellulosic biomass, pine needles, hydrolysis, fermentation, bioethanol.*

SINGLE AND COMBINEDEFFECTS OF OZONE AND SOIL SALINITYON TWO SOYBEANS CULTIVARS

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Increasing concentration of tropospheric ozone (O_3) and soil salinization may lead to crop damage. To assess the combined effects of ozone and soil salinity on two cultivars of soybean (*Glycine max* L.) were different levels of soil salinity (50 and 100ppm) in ambient and ozone exposure (100ppb OTC) conditions. In both cultivars, the whole-plant dry biomass and grain yield were significantly reduced by combine treatment applied ozone and salinity. Increased soil salinity caused significant reductions in whole-plant growth and yield. No significant interactions between ozone and salinity were recorded for growth, yield, and leaf biochemical parameters in both cultivars. We concluded that the effects of ozone are not bettered by soil salinity in two cultivars.
Keywords: *Ozone fumigation; OTC; salinity; Cultivars; Growth; Yield loss*

MAGGOTS IN THE MOUTH, ORAL MYIASIS PARASITES A RARE CASE REPORT FROM BUNDELKHAND REGION OF UTTAR PRADESH

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The present investigation on oral Myiasis parasites of Bundelkhand region of Uttar Pradesh. The patients reported was laborer residing in rural area, with low socioeconomic background and lack of awareness on oral health. It is primarily caused by the invasion in the human body tissues by larvae of Dipteran flies. It is associated with poor oral hygiene, alcoholism, senility, severe halitosis, hemiplegia patients and mouth breathing during sleep. Here we reported the oral Myiasis, in 60-71 years old patients in various parts of Bundelkhand region of Uttar Pradesh, India.
Keywords*: Parasites, Oral Myiasis, Bundelkhand*

TRIBEL WELFARE IN INDIA- LEGAL ISSUES

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India is known to be a vast country with scanty population in the prehistoric age. During this period there were small groups of people scattered throughout the country in different spots having a characteristic look and life style. A tribe is a group of distinct people, dependent on their land for their livelihood, who are largely self-sufficient and not integrated into the national society. When we talk about sustainable development tribes are always back away. So many reasons are their behind this failure. The governmental programmes implemented in India for the uplift and rehabilitation of tribal has not been able to achieve their goals and tribal proletarianization has persisted since independence. So many tribes reside in various parts of India and they are not in main stream of society. If we are talking about sustainable development for Indian society they are also the part of it and without their development this aim would not be complete. There are so many national and international Laws we have for their development and still we are making policies about that but proper implementation still needed. First of all basic needs have to be fulfill. We need to start from beginning because some tribal societies are still in very interior and far flung areas and they don't have any connection with main stream society. They are in their own world.

PRESENCE OF Pb AND Cu IN WATER AND SEDIMENT OF SHAHPURA LAKE, BHOPAL MADHYA PRADESH

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Shahpura Lake is a manmade earthen dam where sewage and city garbage disposed. Dam catchment area is completely converted in residential city area. Water are being used for fishing and some agriculture purpose. This is finally meet with Kaliyasot River. Due to untreated sewage and idol immersion excessive growth of weeds and siltation responses eutrophication. In residential city detergent, pesticides, paints and other items are regularly used, in which huge amount of heavy metal discharged in sewer lines and meet to lake. This a study of Pb and Cu heavy metal presence in different sewer line connected with this lake. Water and sediment were collected from five different site to determine Pb and Cu. 9.141, 3.265, 6.128, 0.309 and 11.891 ppm Pb were denoted in water samples whereas 5.321, 8.157, 2.221, 2.451 and 6.361 ppm Pb were found in sediment of that sites. Presence of Cu in these samples are 3.043, 1.395, 0.827, 1.209 and 1.176 in water and 1.035, 0.987, 2.357, 1.215 and 1.364. Heavy metal concentration

found in these station of Shahpura Lake is above upper limit. A sharp management of sewage is needed to maintain these hazardous material mixtures.
Keywords*: Shahpura Lake, Pb, Cu, sewage, management.*

TAXONOMIC STUDY OF AN INTERESTING RARE TAPEWORM FROM FRESH WATER EDIBLE FISH OF CENTRAL INDIA

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During the cesto-piscian study of Central India. We come across this very important district Jalaun.Forty two fresh water fish, *Rita rita* were examined at Yamuna river district Jalaun (U.P.) India, three of them yielded six parasites in its intestine. Parasites were unsegmented tapeworms which were preserved in 5% formalin in the laboratory these parasites were thoroughly washed, stained, mounted and ultimately identified as new member of family Capingentidae Hunter,1930.
Key words*: Taxonomic, rare tapeworm, Fresh Water Fish, Capingentidae, Central India*

ICHTHYOFAUNAL DIVERSITY AND SOCIO-ECONOMIC CONDITION OF FRESH WATER RESERVOIR MAJALGAON DAMIN MAHARASHTRA STATE, INDIA

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Majalgaon Dam it's a second stage of Jayakwadi Project of NathSagarwas constructed on the River Sindphana which is a tributary of River Godavari, in Beed District (Maharashtra, India) in 1987. The River Sindphana has been under constant threat of pollution by sewage and industrial wastes, disposal of dead bodies, deforestration, excessive use of fertilizers and pesticides, bathing and water development programmes. The dam has a catchment area is 3840 sq. km. It is of great Importance for the region because its water is used for human and cattle consumption, power generation, fish production and irrigation. A total of 24 species of phytoplanktons, 24 species of zooplanktons and 16 species of fishes were identified. i.e. *Catala catla, Cyprineus corpio, Labeo rohita, Silver Carp, Mrigal, Barbus ticto, Ophiocephalous, Mestembaleus armatus, Wallago attu Channamarulius, Labeo calbasu, Clarius batracus, Mystus cavasius, Chnna punctatus, Channa orientalis etc.* Water quality of the dam was also studied for physico-chemical parameters including total dissolved solids, dissolved oxygen, free CO_2, BOD, COD, and total hardness etc. for one year (June 2012 to May 2013). Results reveled that water quality is normal and favorable for the cultivation of fishes.
Keywords: *Limnology, fish production and socio-economic condition of fisherman*

PHYSICO-CHEMICAL CHARACTERISTICS OF POTABLE WATER IN CHITRAKOOT REGION

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The chitrakoot is geographically located at coordinated 25.00^0N latitude &80.83^0E longitude. The present study is focused on water quality assessment for month of April 2013.The water quality for direct human consumption should be i.e. it should be pure i.e. without impurities. It need not be chemically pure, infect the portable water should essentially have some mineral in order to give it some taste. The Procedures followed to analyze the physico-chemical parameters were from Standard Methods Most of stations were found higher values of hardness. Due to higher hardness values import economic pressure on consumer. Values of total dissolved solid were higher at some stations and other stations samples are under limit. DO and BOD of common studied potable water is also under limit as per prescribed WHO guidelines.
Keywords: *Physico-chemical parameters, Potable water, Chitrakoot Region*

A STUDY ON ICHTHYO-DIVERSITY OF YAMUNA RIVER KALPI DISTRICT JALAUN (U.P.) INDIA

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The fishes are not only used as good source of food for mankind, having economic importance from medicinal point of view but also play a crucial role in the second trophic level of the aquatic ecosystem. Fish diversity is a good index of healthy, growing dynamic and economically efficient water body. The main objectives of the study were to know the ichthyo-diversity and distribution of fish species of Yamuna river, sampling station Kalpi region for the study of tapeworm parasites district Jalaun (U.P.) India. Systematic study were conducted during a period of Oct. 2016 to Nov. 2017. During the sampling 22 species were recorded from the Yamuna River, sampling station Kalpi.
Keywords*: Ichthyo-Diversity, Yamuna River, Kalpi*

ASSESSING THE KNOWLEDGE, ATTITUDES AND PRACTICES OF TYPE 2 DIABETIC PATIENTS OF J.P.N. APEX TRAUMA CENTER AIIMS, NEW DELHI, INDIA, IN THE FOURTH CONSECUTIVE STUDY

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Introduction: The prevalence of diabetes in adults worldwide is expected to rise to 5.4% by 2025. Because of lack of awareness, most patients suffer from diabetes& their complications. This study was conducted for the assessment of the knowledge, attitudes and practices among patients with type-2 diabetes in the J.P.N. Apex trauma center AIIMS, New Delhi. An important point of consideration is the knowledge that diabetic patients have of their disease. This is an integral component for attaining optimal disease control. These types of study prevent the impending chronic co-morbidities of type-2 diabetes, which impact significantly on the quality of life of the diabetic patient.

Methods: A cross-sectional household survey was conducted via a structured questionnaire among 187 patients (28-72 years) with type 2 diabetes in the J.P.N. Apex trauma center AIIMS, New Delhi. Questionnaire was set in two parts part one part includes age, BMI, socio economic condition and Part 2 was included TC (mg/dl), HDL (mg/dl) and LDL (mg/dl) HbA1c, Neuropathy, Nephropathy, Retinopathy, Micro vascular complication, CAD (coronary artery disease), PVD (peripheral vascular disease), CVA (cerebrovascular accident), Diabetic foot, Macro vascular complications, Insulin management and number of prescribed Medicines etc. A total of 12 questions were used, covering key areas in diabetic management, including the part 1 and part 2 parameters. Patients answering most questions likely above eight were considered as pass in knowledge and practices. Basic data regarding awareness, knowledge, traditional beliefs, treatment practices and other issues were included in the questionnaire. The patients, knowledge about the disease, their attitudes and practices were the main outcome measures. The study period was 6 months from 12/03/2017 to 12/09/2017.

Results: In this study we have seen that knowledge of diabetes was low. A total of 104 of the 185 patients passed the diabetic knowledge test. There was a higher ratio of pass in the female rather than male, with 41% of the female population passing compared to 29% of the male. Awareness about eye and renal complications was also quite low.

Conclusions: The knowledge, attitude and practice scores were low in most areas of diabetes care emphasizing the need for additional educational efforts. Difference in the knowledge scores illustrates a lack practices about the diabetes and health education where they had studied and the family and working area environment. Further correlations were established regarding diabetes knowledge and age, number of years post-diagnosis of diabetes, counseling

received and type of diabetic medication used. We therefore need to ensure that our healthcare educators are continuously trained and provided with the essentials in order to comprehensively care for diabetic patients. Furthermore, follow up evaluations should be performed on a regular basis in the clinical environment and re-training administered where appropriate. Earlier lots of studies had been done. It is our 3rd study, first was conducted in 2014, 2nd on 2015 and third on 2016. We saw gradually increased in the knowledge level of diabetic patients. So our team is now conducting this studies every year in different group of patients of J.P.N. Apex trauma center AIIMS.

Keywords*: Type 2 diabetes, management, Clinical Nutritionist, Diabetes Educator.*

SCIENTIFIC APPROACHES OF FRESHWATER MOLLUSCA IN JABALPUR REGION (M.P.)

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More aware of the animals and plants of our backyard can lead to good health of our planet and spirit: Shivani Rai. Taxonomy is the science of naming, describing and classifying organisms which provides basic understanding about the components of biodiversity for effective decision-making about conservation and sustainable use. Folk taxonomy allows popular identification leads to aware the local people about importance of diversity conservation. Globally 876 species of freshwater Mollusca are known while in Indian subcontinent 34.24 percent *i.e.,* 300 species are present. The communication enumerates a review on freshwater Mollusca and also states biodiversity and conservational approaches. Works on freshwater mollusca in river Narmada at Jabalpur region have been surveyed and analyzed to identify the problems related to taxonomy. The freshwater mollusca biodiversity indices are mainly associated with patterns of changing environmental features. The relative contribution of these groups is to decompose organic matter in rivers. Mollusca communities possess many attributes as biological indicators of spatial and temporal environmental changes. An opportunistic survey and study shows the systematic account of mollusca, their diversity in world, India, Madhya Pradesh and Jabalpur. The present study was carried out at three selected sites (Bargi Dam, Gwarighat and Bhedaghat) in the River Narmada at Jabalpur region located between 23°10'N latitude and 79°56'E longitude from January 2014 to December 2016. Specimens were collected, sorted, preserved and identified by using standard identification keys provided by Fauna of British India (1908), Needhem and Needhem (1962) and SubbaRao (1993).

In present study total 284 specimens of fresh water mollusca have been studied under 18 species of 2 classes namely Gastropoda and Bivalvia.

- The research provided a first hand and base line information about the existence of Mollusca in the River Narmada.
- There is a significant scope for new records of new taxa in phylum mollusca.
- Folk taxonomy can study with scientific taxonomy which aware the people in simple ways.

Keywords: *Narmada River, Taxonomy, Mollusca, Diversity, Central India*

SYSTEMATIC PHAEOHYPHOMYCOSIS: CASE STUDY AND ITS SEROLOGICAL DIAGNOSIS

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Phaeohyphomycosis is a clinical entity cause by Dematiaceous fungi. we report Alternaria alternata causing opportunistic mycoses Cladosperium cladosporioides is commonly found in man's environment and has been reported to cause infection in man. Two case of phaeohyphomycosis are using reported in which Alternaria alternata was isolated from peripheral blood sample of 35 year and 21 year old male. another case of phaeohyphomycosis in a 60 year old male and C. cladosporioides were isolated from peripheral blood.
Exoantigens of A alteranata and C. cladosporioides were analysed for this ability to induce immune response in animals. In the present study the two exo-antigens of Dematiaceous pathogens exhibited specificity and could be used in the serodiagnosis.
Keywords: *Phaeohyphomycosis, Opportunistic, Exoantigens, Dematiaceous*

LOW COST BIO FERTILIZER FROM BIOMASS

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Agriculture is the main economy in the eastern Uttar Pradesh. Due to availability of biodegradable waste (from the agricultural activity), it can be used as bio fertilizer by applying biological, physical and chemical treatment processes. Bio fertilizers have emerged as a highly potent alternative to chemical fertilizers due to their eco-friendly, easy to apply, non-toxic and cost effective nature. In this paper double chamber closed reactor is used to produce low cost bio fertilizer in which biodegradable waste was degraded at high pressure, moderate temperature (40±5 ^{o}C) in the presence of nitrogen gathering microbes collected from the soil. Bagasse from cane sugar, rice husk, wheat straw and plant leave were used as biomass materials. The quality of bio fertilizer generated was studied in term of yield of crops. Prepared bio fertilizer was used on the crop cultivation and it was noted that the crop fraction yield was increased by 45-50 %. Also it was noted that use of pressurized column decreases the Bio fertilizer preparation time by 60-70 %.

COMPARATIVE STUDY OF TRACE AND HEAVY METALS IN THE RED AND BLACK COLORED SEEDS AND WHITE COLORED SEEDS OF *ABRUS PRECATORIUS*

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The seeds of *Abrus precatorius* of red and black colored and white colored were analyzed for the determination of trace elements. The contents of trace elements such as Ca, Co, Cu, Fe, K Mg, Mn, Na, P, Zn were determined by atomic absorption spectroscopy. The experimental result confirmed that red and black colored seeds contains more concentration of Ca, Co, Na and K while white colored seed contains more concentration of Cu, Fe, Mg, Mn, P and Zn. Na/K ratio is less in white colored seed in comparison to red and black colored seed so white colored seeds are more beneficial for the prevention of high blood pressure. Ca/P ratio is more in red and black colored seeds in comparison to white colored seeds so red and black colored seeds are more beneficial for bone formation in comparison to white colored seeds.
Keywords:*-Abrus precatorius, trace metal elements, Na/K ratio, Ca/P ratio.*

MANAGEMENT OF LENTIL WILT WITH BIOCONTROL AGENTS

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Lentil (*Lens culinaris* L.) is an important Rabi crop of Madhya Pradesh which is highly susceptible to wilt disease which causes huge yield loss. Use of fungicides, cultural and biological control is some common management practices for this disease. Due to the harmful effect of chemical pesticides on the environment biological control is emerging as an alternative management option. In an effort to develop eco-friendly management strategy for lentil wilt the present study was initiated, in which vermi compost (VC), neem cake (NC) were used as soil amendments with or without *Trichoderma harzianum* in different treatments to evaluate their efficacy in suppressing *Fusarium oxysporum* f.sp. *lentis*. Application of combination of *T. harzianum* strains as seed treatment @ 4 g kg^{-1} plus soil treatment of neem cake @ 80g/pot at the time of sowing and 30 days after sowing showed the minimum wilt incidence with maximum colonies of *T. harzianum* and reduced the population of the pathogen. Maximum yield was found in the treatment having vermi compost and seed treatment followed by soil treatment. Increasing frequency of application of the *T. harzianum* along with organic amendments increased the growth and yield of lentil crop.

SCREENING OF BIOCONTROL AGENTS AND SAR INDUCERS AGAINST FOLIAR DISEASES OF URDBEAN

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Urdbean (*Vigna mungo*) is an important *Kharif* crop of Madhya Pradesh. The production of this crop is affected by a number of fungal and viral diseases, viz., powdery mildew, anthracnose and Mungbean Yellow Mosaic Virus (MYMV). Use of fungicides, cultural and biological control is some common management practices for these diseases. Due to the harmful effect of chemical pesticides on the environment and human health, biological control and Induced resistance have emerged as alternative management option. In an effort to develop eco-friendly management strategy for foliar diseases of Urdbean the present study was initiated, in which *Trichoderma harzianum*, Fluorescent Pseudomonas, Salicylic acid and Jasmonic acid were used as foliar sprays in different doses to evaluate their efficacy in suppressing powdery mildew and MYMV. Application of combination of *T. harzianum* and Fluorescent Pseudomonas as seed treatment @ 4 g kg^{-1} and 30 days after sowing showed the minimum powdery mildew and MYMV incidence with high yield.

STUDY ON FECUNDITY AND GONOSOMATIC INDEX OF MOZAMBIQUE TILAPIA (*OREOCHROMIS MOSSAMBICUS*) AT GHOGHARI JALASAY, JAITPUR, SHAHDOL (MP)

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The fecundity of *Oreochromis mossambicus* was estimated from samples of four months i.e. January to April 2017. The fecundity estimates during the present study ranged from 340.200 to 490.915 eggs and the size of fish varied from 11.852 to 13.160 cm (TL). The average numbers of ova present per g of body weight were 11.89, 11.78, 10.01 and 9.63 while the average numbers of ova present per g ovary were 309.34, 315.29, 277.98 and 258.70 eggs in the months of January to April respectively. The GSI, which is indicative of the breeding season of the fish, was also calculated from January to April. It was highest during January and February (3.846-3.850). The present experiment indicated that the fish spawn many times in a year. In present experiment I found that fecundity and GSI values were highest during winter season when food and water availability were highest in Ghoghari Jalasay and fishes are healthy because of their fecundity are normal as suggested by previous researchers.
***Keywords**: Fecundity, Gonosomatic Index, Oreochromis mossambicus, spawning*

HEAVY METAL CONCENTRATIONS IN WATER BODY FISH TISSUES AND MACRO INVERTEBRATEFROM SHAHPURA LAKE BHOPAL (M.P.)

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Shahpura lake Bhopal (Latitude 23^{0}12'00"E Longitude 77^{0}25'30"N) in situated of Madhya Pradesh. The present study was carried out to know status of Heavy Metals concentration in water body, fish & macro invertebrate of Shahpura lake Bhopal. It has been known for some time that metals affects aquatic organisms to various degrees. Fresh water environments world-wide have been contaminated by heavy metals result of this animals living in contaminated water showed high metal concentration. It is well known that metals accumulate in tissues of aquatic animals and therefore heavy metals measured in tissues can reflect the past exposures also be a reasonable measurement for public standards and for animal's health point of view. The aim of research work to determine heavy metals (Cu, Pb) concentration and toxic effects of fish gill and liver (*Labeo rohita*, Tilapia) and meals effects of zoo benthic community. Thus this study was conducted heavy metal distribution among the tissue for various fish and macro invertebrates species also the intended to investigate the potential for an overload of metals in food chain of aquatic animals.
Kewwords: *Shahpura Lake, heavy metal concentration, potential, investigate, distribution, fish tissue, Macro invertebrates.*

ENVIRONMENTAL DEGRADATION AND DEVELOPMENT

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Environmental degradation refers to the deprivation of quality and quantity of natural resources. It is one of the greatest challenges the whole humankind facing. The sustainable management of the environment and natural resources is essential for financial development and human well-being. When managed well it can provide the foundation for sustained comprehensive growth, food security and poverty reduction. In this paper, some of the most important factors like over population and under population and its relation with environment, uneven distribution of resources, circular relation of population and poverty, unplanned expansion of cities, consequence of rapid industrialization, and lack of effective coordination amongst various Ministries have been discussed. While these situations are already very harmful to the present populace, it will surely be a menace for the coming generations.

SCIENTIFIC CONFLUENCES OF RIVER NARMADA

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Linnaeus discovered about 1000 species in his life time. Beggad Ji has gone through the Narmada Parikrama three times to show the significance of holy river Narmada. Then it also becomes our duty to do some research in this direction and pay the value of human Life: Arjun Shukla

Narmada River, a mighty west flowing river is the fifth largest and the oldest river in India. At present pollution load of river increases rapidly. Benthic Macro invertebrates are used as pollution indicators that live on or inside the river bed of a water body. This study aims to reduce such problems. The whole Narmada valley of Jabalpur region was selected as study site for the collection of sample. The present study was carried out from January 2014 to October 2017. Three study sites had been selected for the investigation of benthos and status of water as Bargi dam, Gwarighat and Bhedaghat. Organisms were identified by using standard identification keys provided by Various Fauna key *viz.*, Fraser (1933, 1934 and 1936); Mitra (2006); Subramanian (2005, 2009); Tonapi (1980); Adoni et al., (1985); SubbaRao (1993). In present study 14 various taxa of Benthos the fauna of Pollution indicator have been recorded *viz.*, Odonata, Lepidoptera, Mollusca, Megaloptera, Diptera, Isopoda, Oligocheata, Hemiptera, Crustacea, Amphipoda, Hirudinea, Ephemeroptera, Placoptera and Coleoptera. The whole study on benthos encircles around environment and human welfare and through this research we can solve these problems.

- ✓ To assess biological parameters by identifying some macro invertebrate's Species.
- ✓ To determine the extent of pollution and suggest a possible remedy.
- ✓ To award Specific diversity and Current status of Benthos.
- ✓ To attempt for new record.

Keywords: *Narmada, Pollution, Benthos, Environment welfare, Status, Record.*

WETLANDS OF MADHYA PRADESH: AN OVER VIEW

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The present study is based on report of ISA (Indian Space Application) 2011, The Atlas of Wetland of India. Data pertaining to Madhya Pradesh has been analysed at district and divisional level. Datia district represnts least area under wetland, while Khargone has highest area under wetland. At divisional level Ujjain ranked top by sharing 35.5% of land area as wetland area of its constituent districts, while Chambal division represented only 4.15% of area under wetland area.

Keywords: *Wetland, District, Division, State.*

ULTRASONIC PRETREATMENT OF PETHA WASTE WATER PRETREATED RICE STRAW FOR OPTIMUM PRODUCTION OF METHANE AND ETHANOL USING MIXED CULTURE

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The present study describes a novel approach of waste to energy generation without use of any chemical in the pretreatment process. In the study lignocellulosic waste Rice Straw (RS) was taken as substrate and petha waste water (PWW) was used for pretreatment of RS. Cow dung (CD) and soil were used as mixed microbial sources. Four different batch reactors were set up with CD and soil as microbial sources separately. These reactors contained PWW pretreated RS which was ultrasonicated for 5, 10 and 15 minutes separately for three reactors and fourth reactor was set up without ultrasonication. Methane was analysed by gas chromatograph (GC) equipped with thermal conductivity detector (TCD) and ethanol was analysed using chromic acid method by UV-Visible spectrophotometer (584 nm). RS and PWW were characterised for various components using standard methods. Various physical parameters like COD degradation, pH, TS, TDS, TSS, VS were also analysed as per standard methods to check the feasibility of the process. Maximum methane and ethanol yields were 44.79 % with Soil culture and 126.53 mg/L with CD respectively, for the reactors with 15 minute ultra sonication. The methane and ethanol yield was about three times and two times more than that of reactors without ultrasonication with soil and CD respectively.
Keywords: *Rice straw, petha waste water, methane, ethanol, Ultrasonic pretreatment.*

AN ACCOUNT OF AVIAN FAUNAL DIVERSITY AT COLLEGE OF MATERIAL MANAGEMENT (CMM) JABALPUR

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The college of Material Management (CMM) Jabalpur was established in the year 1925 as Indian Army Ordnance Corps School of Instructions. Its name was changed to IOAC Training Centre in 1939 and then to AOC School in 1950. It got it's current name in the year 1987. It runs under the aegis of Army Welfare Education Society located at Army HQ New Delhi. The campus is surrounded with lush green surroundings and is home for several species of birds both resident and migratory. In present study 52 species of birds belonging to 14 orders 20 families are reported.

EFFECT OF AUTOCLAVE PRETREATMENT ON BIOHYDROGEN PRODUCTION FROM SOLID AND LIQUID PETHA WASTE

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Present work primarily deals with the pretreatment techniques including thermal pretreatment method, to enhance the anaerobic digestion of petha solid waste (PSW) and petha liquid waste (PLW). The objective of this work is to study the effect of autoclave pretreatment (at 5 kg/cm^2 pressure for 5, 10 and 15 minutes) of inoculum on biohydrogen production. This pretreatment method improves the rate of hydrolysis during first stage i.e dark fermentation (DF) of biohythane production. The various effects of pretreatment on lignocellulosic waste (petha wastes belongs to *Benincasahispidia*fruit) are discussed separately here including COD, glucose content, VFA's etc. Pretreatment of the inoculum during the operation not only enhanced sustainable energy production (biohythane) but also promote the production of spore-forming bacteria responsible for biohydrogen. Highest yield of hydrogen was observed 74% and glucose and COD degradation percentagewerenoticed 29.4% and 40% for 10 minutes autoclaved pretreated reactor during DF.
Keywords*: anaerobic digestion, dark fermentation, biohythane, COD*

INTEGRATED APPROACH OF UTILIZING WATER HYACINTH TO DEVELOP VALUABLE PRODUCTS: BIODEGRADABLE FILM, BIOGAS AND VERMICOMPOST

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Water hyacinth is dangerous invasive weed species and is not being utilized in any form in the country. It is a matter of great importance to utilize this aquatic weed in some useful applications. The aim of this study is to determine the feasibility of water hyacinth in multiple applications. This floating perennial plant has been used in aquatic systems for waste water purification for many years worldwide. A lot of interests have been shown for this plant in last few years in India and aboard. Water hyacinth is very efficient in removing vast range of pollutants, from suspended materials, BOD, nutrients, organic matter to heavy metals and pathogens. At the same time *Eichhornia crassipes* (known as water hyacinth) is one of the most notorious weeds worldwide. When introduced to aquatic ecosystem it spreads very quickly due to its high reproduction potential. Therefore water hyacinth tends to eliminate all other living organisms in surroundings. An integrated approach has been proposed in the study to undertake the development of some valuable products like biodegradable cellulosic film and production of biogas & vermin-compost using water hyacinth as the raw material.

GUT COLONISATION AND MICROBIAL COLONISATION IN THE BOWELS OF EARTH: METAGENOMIC CORRELATIONS AND POTENTIALS

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Analysing and characterising microbial communities and their colonisation in the the human gut largely remains obscure as the gastrointestinal microbiology keeps on changing and the techniques used today fall short when it comes to resolving various strains. However, three researchers, Jillian Banfield, Michael Morowitz, David Relman, came up with the novel concept of how infant gut colonisation and microbial colonisation in the bowels of the Earth can be correlated. The metagenomic data collected from different geochemical environments over varying periods of time was directly correlated to analyse the rapid shifts in bacterial species and strains during neonatal gut colonisation. Through this review paper, by combining the data on ecologies of two contrasting environments, we established how the techniques of microbial ecology and bioinformatic data can be used to analyse the microbial impact on metabolic potentials of humans. Some of the correlations for which we searched the scientific literature to analyse strain shifts were with respect to antibiotic resistance, heavy metal resistance, etc. Instances of abundance and shifts in the *Staphylococcus epidermidis* strains, *Propionibacterium* species and strains, *Citrobacter* strains, have been discussed in the paper, along with data from their time-series analysis, the Human Microbiome Project (HMP) and other sources. The literature research was concluded in the fact that the correlations pointed out will have a huge impact on studies in environmental and ecological microbiology, along with making the study of human microbiome easier and more approachable.
Keywords: *Microbial colonisation, microbial ecology, metagenomic correlations, gut colonization, strain shifts*

MUSHROOM CULTIVATION ON LIGNOCELLULOSIC WASTES FOR IMPROVING INDIAN ECOSYSTEMS

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In present scenario pollution is very big problem for Indian Ecosystem. So many waste materials are out from industry and houses also which disposal is very big problem. Mushroom cultivation specially oyster mushroom cultivation is would be a solution of this problem because cultivation technology is very simple and require very small input of land. Mushroom produce enzymes which degrade lignocellulosic materials for their own growth and fruiting. This paper deals with the cultivation of *Pleurotus sajor caju* on different waste substrates Domestic waste (DW), used tea leaves (UTL), fruit waste (FW), semal flowers (SF), news paper (NP), bamboo leaves (BL), saw dust (SD). Among these substrates Domestic waste was found best substrates for cultivation of *Pleurotus sajor caju*.
Keywords*: Ecosystem, Mushroom, Domestic waste, Pleurotus sajor caju.*

CONCENTRATIONS OF LEAD IN GROUND WATER OF SOME PUBLIC PLACES IN URBAN AREA OF MORENA DISTRICT, INDIA

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Pure drinking water availability in India is a major concern of present time. Anthropogenic activities have generated important transformations in aquatic environments during the last few decades. Advancement of human civilization has put serious questions to the safe use of ground water for drinking and other purposes. Heavy metal contamination presents an important environmental problem due to its toxic effects. These toxic heavy metals entering the environment may lead to bioaccumulation and biomagnifications. These heavy metals are not readily degradable in nature and accumulate in the animal as well as human bodies to a very high toxic amount leading to undesirable effects beyond a certain limit. The objective of this research work was to detect the heavy metal ions and their possible sources in ground water and monitoring of health consequence on human population of Morena urban area, Morena is a town in Morena District in the Indian State of Madhya Pradesh. The ground water quality of Morena urban area was assessed for regular six months from Nov. 2016 – April 2017. The ground water samples were analyzed using atomic absorption spectrometry. It is noticeable that above 90% population of urban area of Morena district were depend on ground water sources for drinking water.

BIOLOGICAL CONTROL OF SORGHUM ZONATE LEAF SPOT DISEASE

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Sorghum is an important fodder crop in India. The cultivation of this crop is affected by various plant pathogens. Among them zonate leaf spot is a major disease of sorghum which damages more than 85 % photosynthetic leaf area. It is caused by a fungal plant pathogen *Gloeocercospora sorghi* Bain and Edgerton. Chemical sprays to manage this disease cause negative affects to the environment and human health. The present investigation was carried out to develop eco-friendly management strategies for zonate leaf spot disease with the help of biological control agents. Ten isolates of *Trichoderma harzianum* were screened against this disease using poisoned food method and foliar spray of BCA formulations in the glass house. The most potent isolate Th-43 releases some volatile compounds which have inhibitory effect on the pathogen. The culture filtrate of Th 43 also inhibits mycelia growth of the pathogen.

SUSTAINABLE DEVOLOPMENT: ECOSOPHY & GREEN POLITICAL THEORY

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Development is value loaded word implying change that is desirable but there is no consensus to its meaning. It is change coupled with growth or progress. Growth in what and progress it refers? Generally material growth and progress are considered as development.

What constitutes development depends on what social goals are being advocated by the development agency, Government, planners and executives in particular and to becoming westernized and modernized in general. But in any way whatever due concept of development is defined, it is certain that what we in our times think about development, is fast reaching a dead end?

The human development report. 1990 clearly stated that "The real wealth of a nation is its people. And the purpose of development is to create an enabling environment for people to enjoy long, healthy and creative lives"

This Simple but powerful truth is too often forgotten in the pursuit of modern development, which is mainly concern with material and financial aspect of human life.

Modern or western notion of development is based on anthropocentric nature of Juedo Christian theology as it represented arrogance towards nature. The Christian perspective which gives Adam dominion over nature is responsible for such type of developmental nation.

As we all know during the medieval period in the west, life was preoccupied with religion, religious codes, religious ethics and the conflict between Church and State pushing "nature" to the periphery and bringing religion to the "centre". Early modern period saw the shift from teleological conception of natures to nature as instrument.

This instrument attitude towards "nature" got further strengthened by the advancement of science and technology, leading to industrial revolution. Earlier nature was capable of repairing itself, as the damage was limited in size due to limited strength of man. New inventions and discoveries in the field of science changed the way in which men thought about themselves and this has now become Hardin's "The tragedy of commons".

The moot question is in the development syndrome: Where are the people? Where is ecological protection and care for mother earth?

Are human beings enjoying long, healthy and creative lives? If not, who is responsible for this situation?

Aldo Leopold an American ecologist in his book "Game management (1933) writes."Twenty centuries of progress have brought the average citizen a vote, a national anthem, a ford, a bank account, and a high opinion of himself but not the capacity to live in high density without befouling and denuding neither his environment, nor a conviction that such capacity, rather than such density, in the true test of whether he is civilized. A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community"

Recent awareness about development and ecology got a fillip after the "united Nations conference of Human Environment" held in 1972 at Stockholm (Sweden) and the matter gained further importance after the "Earth summit" held in 1992 at Rio de Jenerio (Brezil).

In these summits the discussion on "Our common future" called for application of sustainability as an important criterion for all development initiatives. In the words of K.P. Geeta Krishanan - "When we talk of sustainable development, the easiest definition is that of we the present generation have inherited a certain amount of ecology and environmental surrounding is terns of land, water and air, when we leave it to the next generation, we should leave it at least in the same condition then what we inherited. This is the sum and substance of sustainable development putting it in elementary terms.

Equity and justice are the sine qua non of sustainable development. It is four dimensional.
Long before the "Earth summit" at Rio, the ancient Eastern Dharmas-like Hinduism, Buddhism and Taoism had already provide a spacious spiritual home for the ecological and sustainable development ethos.

Loren Early (1907-1977) an anthropologist and Sheppard Paul (1925-1996) an American ecologist and many others have criticized one-sided, anthropocentric world view and looked towards East where "Dharma" (Positive Duty) provides a holistic or ecocentric world view.

Paul sheared (1969) in his book "Ecology and man: A view point" writes -"I look Hinduism, Buddhism and Taoism ----- as-a womb from which a humanitarian oriented Human ecosystem science may get arise".

There is ample literature on man-nature relationship (Sustainable development) in ancient Indian, Chinese and Greek texts. Nature is always compared to all forgiving mother, who showed blessings on her children, without looking their short comings and faults.
The main core ideas of sustainability are present in these Shuktas -like-inter connectedness of man and nature, the intrinsic value of nature and responsibility of man towards the preservation of nature.

The Arthasastra of Aacharya Vishnu Gupta Chanakya (Kautilya) not only has many sections dealing with ecological concerns, but the holistic view of life runs throughout the text. Among the ancient Indian texts, Kautilya Asthasastra is the most secular and pragmatic in its approach as it was designed to specify rules which could be in forced by law by the king.

As we look in to the above two different perspectives about development and attitude of Human about nature, we can be able to understand the root cause of present days crisis of global warming and ecological crisis.

The present crisis or chain of crisis is consequence of follies, and of greed, exploitation and domination. So this crisis cannot be handled with environmentalism. Environmentalism is mainly a managerial approach to environmental problems. The basic assumption of environmentalism is that the present problems or crisis are caused by existing patterns of production and distribution (development) and therefore, it is believes that the changing them and adopting new patterns the problems or crisis can be solved or resolved.

Are these solutions and resolutions can achieve sustainability? Certainly No, these cannot even reach up to that point because sustainable development presupposes radical change in our relationship with the non human natural world and in our mode of social and political life. The present exigency demands that one acquires the basic wisdom of nature that is to follow its law and learn to manage according to its principles. Therefore the present development crisis demands a different world view for sustainable development on Dharma (Positive duty) lines that give up present life style and reduction of consumerism. Now, we have no choice but to move towards secure future by adopting Dharma (Holistic view, biosphere egalitarianism, Vbasudhev Kutumbkam and everlasting peace) because Dharma is the only pathway to sustainable development.

SURVEY STUDY ON BUTTERFLY SPECIES IN RALAMANDAL WILDLIFE SANCTUARY, INDORE (M.P.)

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Introduction: Butterflies are most fascinating, beautiful group of animal. It is most successful creature on the earth. Butterflies are found mostly everywhere in a climatically where neither too hot nor too cold temperature. Throughout the world about 17,200 species of butterfly reported, out of which 1,501 species of butterfly are known from India. Butterflies are good indicators of environmental changes as they are sensitive to habitat degradation and climate changes (Kunte, 2000). They have a great aesthetic values, it serve as important plant pollinators in the local environment, and help to pollinate more than 50 economically important plant crops (Borges et al., 2003). However, no reports were available on the butterfly's biodiversity in Ralamandal wildlife sanctuary, Indore region. The main objective of this work is to explore out the richness and biodiversity of butterflies in Ralamandal wildlife sanctuary and work out for their better conservation strategies can be adopted.

Methods: Butterfly was collected between 7.00 to 11.00 AM, because this is the peak time of butterfly activity. Butterflies species were photographed and be observed with the help of binocular. When the identification was not possible through photographs only then we are followed "All-out search" holding physically collection of butterflies using hand held aerial sweep nets. These species were used for identification and observation and thereafter released to atmosphere.

Result: Total 30 species of butterflies belonging to 47 genera and five families Papilionidae (1 species), Pieridae (8 species), Nymphalidae (13 species), Lycaenidae (4 species) and Hesperiidae (4 species) were recorded.

Keywords: *Biodiversity; Butterfly; Ralamandal wildlife sanctuary, Indore*

THE EFFECT OF ALDRIN ON SOME BIOCHEMICAL PARAMETER'S OF FISH *CHANNA PUNCTATUS*

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Effect of Aldrin on behavior & some haematological indices using *Channa punctatus* as animal model was evaluated in this study experiment were calculated to evaluate the toxic effect of Aldrin in *Channa punctatus* blood profile After 24, 48, 72 & 96 h. exposed to sub-lethal concentrations of Aldrine in various doses level for 96 h. The 96 h. LC 50 was calculated to be 1 ppm. the examination was demonstrated that total Bilirubin increase with Concentration of Aldrin in the bioassay. A rise in Serum Bilirubin level of these metabolised Suggested liver Cells damage. the another possible region may be metabolic disturbance in the liver.

Keywords: *Aldrin, behavior , Haematological indices, toxic effect, exposure time.*

STUDIES ON THE AVIAN DIVERSITY IN AND AROUND MANIBUGH WETLAND OF PAMPORE- SRINAGAR (JAMMU & KASHMIR)

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Kashmir wetlands owing to its geographical location and the key role they play in the climate of this hilly state are extremely important. In fact the fresh water bodies of this basin ranging from ponds, lakes, springs, reservoirs, streams, rivers etc. are of vital importance because they not only provide portable water and fodder for the cattle but also safeguard the climate of this area. TheWetlands in south of Kashmir and especially in the saffron town of Pampore, where many satellite wetlands prevail,are regarded as fragile ecosystems protecting rich biodiversity of floraandfauna. Among fauna, birds are considered as most exposed group of vertebrates that are used as trustworthy indicators of ecological health of an ecosystem. The present study was carried out at Manibughwetland located at an altitude of 1,607 MASL spread on an area of 14 acresin the vicinity of the Government Degree College Pampore in Pulwama. The surveys were carried out in different time periods of the day during all the four seasons following the standard point count methodology with an objective of assessing its bird fauna which can serve as first-hand baseline data for assigning conservation value to this important bird habitat. The research was conducted during 2014 to 2016 where we recorded a total of (85) species of birds belonging to twenty five (25) families including fifteen (15) species of migratory waterfowl. The main contributors of birds belonged to the families of Anatidae (15,000), Rallidae (6000), Laridae (1000), Hirundinidae (600), Accipitridae (300), Podicipedidae (150), Ardeidae (110), Sturnidae (90), Motacillidae (45),Paridae (35), Muscicapidae (26), Scolopacidae (20), Passeridae (18), Alcedinidae (17), Phalacrocoracidae (13), Recurvirostridae (12), Upupidae (11), Columbidae (10), Picidae (8), Timallidae (7), Jacanidae (6), Phylloscopidae (5), Corvidae (5), Troglodytidae (4),Oriolidae (3) and so on. Although this wetland is located in a matrix of saffron fields but the degree of disturbance is less compared to the nearby protected area of Chatlam wetland. The peripheral areas on its south and west are now encroached by the local people for poultry farms and other human settlements but the core area of this wetland is intact and with least disturbance. Thus Manibugh wetland assumes a great biodiversity of birds and aspects of ecological significance with long term conservation are imperative.

Keywords: *Manibugh wetland, Pampore, fragile, ecological significance*

PHYSICO-CHEMICAL ANALYSIS OF KEN RIVER WATER IN PANNA DISTRICT MADHYA PRADESH, INDIA

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The Ken River is one of the major river of Bundelkhand regions of Central India. It flows through two states Madhya Pradesh and Uttar Pradesh. It is a tributary of Yamuna River. The Ken river originates near village, Ahirgawan on the north-west slopes of Kaimur Range in Katni district of MP and travels a distance of 427 Km. before merging with Yamuna at village, Chilla of Banda in UP at 25°46'N and 80°31'E. It is one of the sixteen perennial rivers of Madhya Pradesh. It flows about 55 Km. through Panna National Park from South to North. Hence it is a source of drinking water for wild animals of Panna National Park. Various samples of river water were collected from different areas in and around the Panna District, and analyzed for their physico-chemical parameters. Selected parameters were temperature, pH, electrical conductivity, turbidity, TDS, TSS, DO, BOD, COD, chloride, sulphate, phosphate, nitrate, alkalinity, total hardness, calcium hardness magnesium hardness. Water quality analysis was carried out using standard methods for examination of water and wastewater (APHA-AWWA). The results were compared with drinking water quality standards prescribed by World Health Organization (WHO). The above study will be useful to know the surface water quality and their subsequent fitness or unfitness of water for drinking purpose at selected sites undertaken. The study will also be helpful to the regulatory authorities and also to the policy makers towards river Ken basin.
Keywords*: River Ken, Physico-chemical parameters, Water quality*

TOXIC EFFECTS OF DOCETAXEL ON ADULT STAGE OF FRESH WATER SNAIL *LYMNAEA SPS.*

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Freshwater snails have been used frequently as bioindicator organisms. With increasing needs for research on contaminant effects in freshwater ecosystems, this kind of biomonitoring is likely to develop further in the future. Molluscs can be used effectively for studies of both organic and inorganic contaminants. The molluscicidal effect of docetaxel was evaluated against adult stages of the freshwater snail *Lymnaea sps*. Docetaxel is a drug that is used primarily for treating breast cancer. *Lymnaea sps.* was procured from Bhopal Lake by fishing net or picking

by hands and putting them into aerated fresh water container for acclimatization at normal laboratory conditions. After the acclimatization adult freshwater snail was exposed to calculate LC_0, LC_{50}, LC_{100} and sublethal concentration values of docetaxel.

Keywords: *Docetaxel, freshwater snail, Bhopal lake, Lymnaea sps.*

PHYSICOCHEMICAL AND BACTERIOLOGICAL CHARACTERISTICS OF DRINKING WATER IN DIFFERENT SITES OF CHITRAKOOT NAGAR PANCHAYAT AREA MP, INDIA

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A systematic study has been carried out to evaluate the physiochemical and bacteriological characteristics of drinking water in Chitrakoot nagar panchayat area. The aim of this study is to know the current situation of drinking water quality of Chitrakoot. In this study 17 locations in Chitrakoot have been selected for collecting drinking water samples and comprehensive physico-chemical and bacteriological analysis was conducted. The study was aimed to examine various physico-chemical and biological quality as it is related to public health. The parameter investigated were pH, EC, TDS, DO, BOD and bacteria etc. and results were compared with WHO . Polluted water is mostly responsible for diseases like jaundice, hepatitis, typhoid, dysentery and diarrhea etc. It was observed that few drinking water samples were in acceptable limit while few were found unfit for drinking propose and needs proper disinfection or treatment before consumption.

PROCESSING WASTE UTILIZATION OF MANGO INDUSTRIES FOR VALUE ADDITION INTO PEEL AND KERNEL BASED BISCUIT (*NANKHATAI*)

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Mango (*Mangifera indica* L.) is one of the most important fruits crop belonging to family Anacardiaceae and is known as king of fruit. India is the largest producer and exporter of mango in the world. In India, mango processing industry is the largest industry utilizing about 20% of mangoes into different processed products. Due to such a huge mango processing share, the mango processing industry generates a large quantity of waste in the form of peel and kernel which causes environmental pollution. The mango fruit comprised about 20 to 30 per cent peel which is good source of fibre, pectin and antioxidant. Mango peel contains dietary fibre (DF) in the range of 40.6 to 72.5%, anti-oxidants, phenols and lipid in the range of 0.75 to 1.70 per cent.

The dietary fibre plays an important role in the prevention and treatment of obesity, atherosclerosis, coronary heart diseases, colorectal cancer and diabetes. These dietary fibres (polysaccharide or oligosaccharide. Therefore investigation was done to utilized peel and kernel powder for preparation of biscuit (*Nankhatai*). The investigation was laid out using completely randomized design for preparation of biscuits (*Nankhatai*) using sixteen different formulation combinations of mango peel powder (0, 5, 7.5 and 10%), kernel powder (0, 5, 10 and 15%) and wheat flour "*Maida*" [100%-peel powder and kernel powder (%)] along with different ingredient such as wheat flour "*Rava*" (10g), sugar (100g), fat (50g), milk powder (3g), baking soda (4g) and small cardamom (1g). Biscuits prepared by incorporation of 5% mango peel powder, 7.5% kernel powder and 87.5% maida found superior based on nutritional as well as sensory quality and free from the microbial contamination thus pusses great potential for utilization of processing waste.

Keywords: *Mango peel, mango kernel, maida, biscuit, physico-chemical and sensory quality.*

UTILIZATION OF MANGO PEEL FIBER TO ENHANCE DIETARY FIBER CONTENT AND ANTIOXIDANT AND FUNCTIONAL INGREDIENT IN PRE-BIOTIC MANGO NECTAR

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Mango (*Mangifera indica* L.) possesses great potential for processing into number of quality products utilizing about 20% of mangoes into different processed products. Due to such a huge mango processing share, the mango processing industry generates a large quantity of waste in the form of peel and kernels. This processing waste, if not handle properly, cause environmental pollution problems. Even the environment protection agencies are forcing the processed food manufacturer to control pollution. To prevent pollution, the food manufacturers are utilizing the processing waste for preparation of different value added products. However, the processing waste of mango (peels and kernels) being very rich source of important nutrients can be used to care certain degenerative diseases. Thus, the investigation was done to optimize mango peel fibre concentration for preparation of pre-biotic mango nectar. Mango nectar was prepared as per FASSI standard and mango peel fibre were added in 0.0%, 0.2%, 0.4%, 0.6%, 0.8% and 1.0 %. The prepared nectar was filled into pre-sterilized glass bottles (200ml) and sealed air tight with crown caps. The product was then pasteurised at 95±1°C in boiling water for 30 minutes followed by cooling and storage at

room temperature. The mango nectar prepared by addition of 0.6% of mango peel fibre observed minimum increase in TSS, acidity, reducing sugars, and total sugars while minimum decrease in ascorbic acid, non-reducing sugars, fibre, carotenoids and sensory quality parameter. These samples remained free from microbial contamination upto six months storage. During the investigation addition of 0.6% mango peel fibre in mango nectar found shelf stable based on nutritional as well as sensory quality during six months storage and can be recommended for preparation of pre-biotic mango nectar. The cost of production and sale price per 200ml bottle of mango nectar was worked out to be Rs. 7.80 and Rs. 10.00, respectively, and had net profit of Rs. 2.20 with BCR of 1.28 (28% profit) for formulation of pre-biotic mango nectar with the addition of 0.6% peel fibre

INVASION OF TILAPIA FISH IN RIVER YAMUNA AT MATHURA DISTRICT, U.P.

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Alteration of the habitat structure in river Yamuna has provided a favorable environment for the exotic species. Significance presence of *Oreochromis nilocticus* is evident in majority of the river stretches and gradually establishing themselves as a breeding population replacing the Indian Native Fish Fauna.

Yamuna River supports a rich diversity of fishes of commercial value. But over the years the rivers has become highly polluted. The river water is extensively used for irrigation and receives heavy load of domestic and industrial wastes. All these factors have imparted the fisheries in the river as reflected by decline in fish catch a discernible shift in fish species composition and an increase presence of invasive fish species.

Invasion, spread and predominance of Tilapia (*Oreochromis niloticus*) fish were studied in the Yamuna River at Mathura district. Tilapia constituted the major bulk of captured alien invasive fishes at most of the locations. The results of this study highlighted how unintentional spread of this fish due to rapid aquaculture diversification and intensification has invaded into the Yamuna River causing severe loss to indigenous fishes. The results of this study invite attention on the management and sustainability of the local fishery and ecosystem health of the river.

Keywords*: Tilapia, Invasion, Alien fish, Yamuna River, Mathura.*

SUSTAINABLE COLLECTION/ HARVESTING OF OLEO-GUM RESIN OF *COMMIPHORA WIGHTII,* VALUABLE NON TIMBER FOREST PRODUCE *VIS A VIS* CONSERVATION STRATEGIES

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Commiphora wightii (Arnott.) Bhandari (Burseraceae) is a shrubby plant that grows wild in the arid and semi-arid regions of India, Pakistan and tropical regions of Africa. In India, it is found distributed in Rajasthan, Gujarat, Madhya Pradesh and Karnataka states. The plant exudes a gum- oleoresin (known as Guggul) which is highly efficacious in treatment of obesity, arthritis, inflammation, cardiovascular diseases, skin diseases and disorder of lipid metabolism and occupies an important place in lndian System of Medicine (Ayurveda). Recent clinical analysis revealed that the isomers E- and Z-guggulsterones are responsible for the pharmacological activities of Guggul. It is also used in incense, lacquers, varnishes, ointments and in perfumes. On account of crude and destructive tapping procedures, the population has decreased rapidly and currently, it is under threatened species. The Government of India has recently banned the export of the gum due to its Increasing over exploitation and high market price in the International trade.

Experiments were conducted to standardize sustainable harvesting of oleo-gum resin of *C. wightii* at different experimental sites- Morena and Bhind regions of Madhya Pradesh and different girth size (10-20,21-30,31-40cm) plants were selected. Different type of incisions was applied for harvesting. The quantity of Guggul as well as sustainability of plants in different treatments was assessed. Significant variation was observed in different methods of harvesting of Guggul. In order to cater to increasing levels of subsistence as well as commercial needs, our efforts will assist to devise conservation strategies and sustainable development of *C. wightii*, a promising medicinal wealth.

Keywords*: Sustainable collection/ harvesting, oleo-gum resin, Commiphora wightii*

STUDY OF PHYTOPLANKTON POPULATION DIVERSITY IN LENTIC FRESH WATER OF PAHOOJ RESERVOIR JHANSI (U. P.)

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Phytoplankton are known as primary producer. Phytoplankton contain the photosynthetic pigment chlorophyll. Their unique ability to fix inorganic carbon (CO_2) to build up organic matter (carbohydrates) through photosynthesis in the presence of sun light makes their study a subjects of prime importance. Therefore, their fluctuation in occurrences and abundance can be a major indicator of the environmental status of any water body. Phytoplankton population can be

used to estimate the fishery potential of any water body, because they are strongly affected by environmental conditions and respond to quickly to such changes. Hence qualitatively and quantitative study of phytoplankton are of great importance. In the present paper qualitatively and quantitative assessment and seasonal variations of phytoplankton was performed during November 07 to October 08 in the Pahooj reservoir District- Jhansi. It is situated near I.G.F.R.I. in Jhansi at the distance about 9 K.M. from railway station, Jhansi at latitude of 25^{o}-27^{o} north and at longitude of 78^{o}-37^{o} eastern position with approximate height of 271 meter above mean sea level. It has an area of about 518 hectares with maximum length 4.02 km, maximum breadth 1 km and maximum depth 10 meter. The identified groups of phytoplankton were: Dinophyceae, Euglenophyceae, Cholorophyceae, Cyanophyceae and Bacillariophyceae. There were in increasing order in study water body as Dinophyceae < Euglenophyceae < Cholorophyceae < Cyanophyceae < Bacillariophyceae. In all 42 genera of phytoplankton were recorded in the dam, out of which thirteen were Chlorophyceae, two Euglenophyceae, eleven Cyanophyceae, fourteen Bacillariophyceae and two Dinophyceae. The phytoplankton population in the studied water body varied from 140 to 1488 organisms/L. The seasonal variations of phytoplankton population in the water body show higher magnitude during summer and lower during winter. The monthly and seasonal variations of phytoplankton showing relation with different physico – chemical properties of studied water body.

Keywords*: Phytoplankton biodiversity, Euglenophyceae, Cholorophyceae, Cyanophyceae and Bacillariophyceae*

BIO-HERITAGE CONSERVATION IN DOBROGEA, ROMANIA

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Dobrogea Region is characterized by a series of special feature compared to the rest of the geographic regions of Romania. The geographical position in Southeast Europe, Black Sea presence and influence, soil structure, climate, and history and evolution of Dobrogea land, led to the formation of a characteristic and unique biodiversity, to a mixture of flora and fauna of the Southern, Eurasian, Ponto-Caspian, European, etc. origin; many species are rare or endemic for this geographic region. From the biogeographical point of view, Dobrogea is characterized by a number of Eurasian, Southern (Balkan, Ponto-Mediterranean, Mediterranean), Continental, European, Circumboreal, Taurico-Caucasians elements. This demonstrates oldest continental connections between Dobrogea and other parts of Europe. Due to the above, the Dobrogea territory attracted the attention of numerous researchers since the late nineteenth century. Research conducted since then and until now on Dobrogea biodiversity have resulted in, among other things, the declaration of zones as protected areas. Currently, there are 72 protected areas of national interest and two protected areas of international interest, 31 special protection areas

(SPA) and 28 sites of community importance (SCI). Throughout history, the region was strongly influenced by human factors (massive replacement of natural ecosystems with anthropogenic, intrusion of invasive species, etc.), with very serious consequences on biodiversity. Although the above areas have been declared protected areas, human influence was observed here. Some protected areas were severely affected (e.g. Reserve Fântânița-Murfatlar Natural Reserve in Constanta County, where rare and endemic species are endangered).

THE EFFECT OF UVA RADIATION ON THYROID GLAND OF WISTAR RAT AND CURATIVE EFFECT OF ANTIOXIDANTS

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The Sun is the ultimate source of energy. It is also most important of the non-conventional sources of energy because it is non-polluting. UVA radiation is a part of sunlight an environment and reaches the earth's surface in an appropriate amount and which have notable biological results to environment animals and their organs such as eyes, skin, and thyroid gland and so on. Although, UVA radiation exposure to short time on Wistar rat to generate free radicals and create oxidative stress and changes the morphological and physiological condition of thyroid cells and causes hypo or hyperthyroidism. Antioxidants are our well-wisher and play a major role in the reduction of free radicals and oxidative stress and show the curative effect on the thyroid tissue. Antioxidants are essential for many enzymatic reactions and also acts as a free radical scavenger.
Keywords: *UVA Radiation, thyroid gland, free radicals, antioxidants.*

WATER ANALYSIS OF BALDEVGARH LAKE (DISTRICT TIKAMGARH)

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Ponds are one of the most important ecological resources which support a large biodiversity of a region. They are the source of a rich aquatic life also they are important Wetlands of a region. Out of the so many utilities they are a rich source of pisciculture (Fish farming) as well as very important source of irrigation for both these activation the quality of water in very important.

Tikamgarh has been blessed to have large number of ponds (Approximately 1100) Spreaded Throught out the district. Baldevgarh pond has a very high quality of commercial pisciculture potential. The fishes are sent not only to many parts of India such as Bengal, Bihar but even outside India.

Due to above reason a water analysis of the pond has been done, so that the results of the study could be untilised to harness the potential of the other ponds of the district and even out side the district if possible.

The water analysis was mate before and after mansoon. The sample were collected from different sites of pond and analysis to important parameters like TDS, ph, Conductivity, hardness, DO, alkalinity, Chloride, Sodium, Potassium and Iron. Result shows the good quality of pond even before mansoon.

EFFECT OF TIME OF SOWING ON THE YIELD AND YIELD ATTRIBUTES OF BARLEY VARIETIES UNDER IRRIGATED CONDITION

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A field experiment was conducted during *Rabi* season of 2014 -15 under All India co-ordinated wheat & barley improvement project, at college of agriculture research Farm, Rewa, JNKVV, Jabalpur. Four varieties (RD 2552, K 508, K 551 and JB -1) were evaluated against four dates of sowing (12 Nov, 22 Nov, 02 Dec and 12 Dec) to fine-tune the sowing dates under changing agro climatic conditions. The experiment was conducted in splite plot design. Date of sowing in main plot and genotypes in sub plot with three replications. Sowing up to 22nd of November was at par and found better than other two advanced dates and sowing after 22nd of November showed decrease in yield in all varieties. Variety RD 2552 recorded highest grain yield under D_1 and D_2. Overall, D_2 was the optimum sowing date for all the varieties and thereafter significant yield reduction was noticed. Among varieties, RD 2552 was ranked at first position and followed by K 508. Same trend was observed in yield attributes characters that tillers/m^2, grains/earhead and 1000 grain weight decreased as the date of sowing advanced.

DNA FINGERPRINTING OF RICE CULTIVARS USING SSR MARKERS

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India is the second most populous nation, stands first in area, second in production, followed and preceded by China on these two aspects. Increasing yield is still the most important objective of rice breeding programs in developing countries because of the growing demand for

food resulting from population growth and a reduction in area devoted to rice production. In present study genomic fingerprinting and divergence analysis has been done in rice cultivars using SSR Markers. For this 10 rice cultivars were selected and 37 SSR primers were used for generating genomic finger prints and identification of unique allele among them. The DNA amplification pattern revealed that a total number of 198 SSR loci were amplified with an average of 5.35 loci per primer and ranged from two (RM 242 and RM 331) to 9 (RM 488). All loci were polymorphic and were detected by Gene Tool software version 4.03.05.0. Out of 37 SSR primers, 22 primers amplified unique allele for the different rice cultivars. In the clustering pattern the dendogram generated based on SSR markers grouped the 10 rice cultivars into two clusters. Cluster I comprised of two sub-clusters. Sub-cluster I comprised of two cultivars i.e. JR 503 and Kranti. Sub-cluster II further divided into two groups, with the rice cultivars Mahamaya, Improved Jeerashakar (Group A) and JR 201, Improved Chinnor (Group B). Sub-cluster II comprised of four rice cultivars viz., NPT 65, JR 81 and MTU 1010.Cultivar NPT 29, which showed that this cultivar is totally divers for the rest of the 9 rice cultivars.

ECOFRIENLY ALTERNATIVE TO SYNTHETIC INSECTICIDE AGAINST *CALLOSOBRUCHUS CHINENSIS* LINN.

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An experiment was conducted to assess the grain protection activity of certain plants *viz*; aerial parts of *Adhatoda vasica* Nees., *Cassia tora* Linn., *Vitex negundo* Linn., *Withania somnifera* Dun., unripe fruits of *Lantana camara* Linn., *Momordica charantia* Linn., ripe seeds of *Azadirachta indica* A.Juss, *Gynendropsis pentaphylla* L. and rhizomes of *Acorus calamus* Linn, *Alpinia galanga* (Linn) Willd., were used for their insecticidal effectiveness against early emerging adults of pulse beetle, *Callosobruchus chinensis* Linn. in the laboratory trials. The result reveals that extract of *A. calamus* gave the maximum mortality. It killed 80.87 per cent beetles followed by *A. indica* (74.26 percent) > *V. negundo* (72.83 percent) > *A. vasica* (67.90 percent) > *M. charantia* (66.80 percent) > *L. camara* (65.70 percent) > *C. tora* (64.82 percent) > *W. somnifera* (64.16 percent) > *A. galanga* (62.62 percent) > *G. pentaphylla* (62.13 percent) > Control (12.26%), respectively.. The plant extract of *A. calamus* differed significantly from remaining once accept *V. negundo, A. vasica, M. charantia* and *L. camara*, from which it does not differs significantly to one another. These environment friendly, biodegradable botanicals and there derivatives can use as alternative to synthetic insecticides

Kewwords*: Callosobruchus chinensis, Acorus calamus, Insecticidal activity*

EFFECT OF TESTOSTERONE HORMONE ON THE MASCULINIZATION OF NILE TILAPIA, *OREOCHROMIS NILOTICUS* (LINNAEUS, 1758)

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In this study, male hormone Testosterone was induced to the 5 days old post larvae of Nile Tilapia, *Oreochromis niloticus* (Linnaeus, 1758) through oral method. Three treatments comprised of 45 treatments combination of Testosterone Propionate for the treatment periods (20, 25 and 30 days) and five experimental doses (Control, 40, 60, 80 and 100 mg/kg feed) of each treatment periods were tested in split plot design with three replications. In this experiment, 30 numbers of fish fry were maintained in each tank (including control). After the treatment period, fries were kept for 120 days further to know their respective sex reversal in long run. The highest percentage of male population was achieved 94.22±1.54% in the treated fishes fed with 100 mg/kg for treatment period of 30 days fallowed by 90.86±1.50%, 100 mg/kg (for treatment period of 25 days),), 88.33±2.30% of 100 mg/kg (for treatment period of 20 days) which was found highly significant ($P<0.05$) superior than others. All doses of hormone (Control, 40, 60, 80 and 100 mg/kg) and treatment periods (20, 25 and 30 days) are significantly different ($P<0.05$) to each others. In this study neither any doses nor treatments period were able to produce 100% male population. Future study can be undertake with an aim to achieve 100% male population in *O. niloticus* with different other hormones, treatments period, and dose under laboratory and field conditions.

Keywords: *Dose, Hormone, Sex reversal, Treatment period and Testosterone*

TO ASSESS THE RIPARIAN ZONES STATUS OF TAPTI RIVER USING QBR INDEX IN BETUL DISTRICT

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Riparian zone is the most diverse, dynamic and complex ecosystem on the Earth. This is transition zone between the aquatic and terrestrial ecosystem in which the terrestrial ecosystem influences the aquatic ecosystem. These areas are ecologically and socially significant in their effects on water quality and quantity as well as habitat, bank stability, aesthetics and biodiversity. The present study was carried out on Tapti River which is the major western flowing river of India. During study 12 sampling stations were selected from Tapti kund Multai

to Batlakala in Betul district for the assessment of riparian zone status using QBR index. It was observed that five stations were in bad quality, four are in fair quality and three stations are in good quality on the basis of riparian assessment protocol (QBR Index). The current status of riparian zone was due to human activities like construction, sand mining, soil mining, deforestation and expansion of crop land for agricultural activities. So proper attention should be taken for the restoration of riparian zone for its development and livelihood condition.
Keywords- *Riparian Zone, Tapti River, QBR Index, Biodiversity, Agriculture*

PHYSICO-CHEMICAL AND SOME EARTH METAL CHARACTERISTICS OF KOLAR RESERVOIR

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Kolar reservoir is one of the important sources of drinking water in Bhopal.It is the second largest drinking water resource in Bhopal. In the present study the physicochemical parameters (Water temperature, pH, TDS, conductivity, Dissolve oxygen, alkalinity, chloride, and hardness) of water and the various earth metals (sodium, potassium and calcium) and trace elements viz., As, Cu, Fe, Mn, Ni, Pb and Zn were analyzed to evaluate the contamination of reservoir. During the present study the physicochemical parameters and the trace elements for various elements ranged from (11.52-31.61ºC) for water temperature, (6.2-8.8) for pH, (50-90 ppm) for TDS, (100-210µScm^{-1}) for conductivity, (4.4-8.6) for DO, (14-86) for hardness, (11.98-24.99) for chloride, (100-182 mgl^{-1}) for alkalinity, (4.28-7.71) for sodium, (0.12-2.52) for potassium ,(26.02-28.76mgl^{-1}) for calcium , (0.0012-0.0049mgl^{-1}) for As, (0.0227-0.0499) for Cu, (0.9458-1.9271) for Fe, (0.5913-0.9913) for Mn, (0.0092-0.0365) for Ni, (0.0011-0.0436) for Pb and (0.0161-0.0567)ppm for Zn respectively. During the present study all the elements were found within the safe limit as per WHO (2012).
Keywords: *Physico-chemical parameters, Heavy metals, WHO, Kolar Reservoir.*

STUDIES ON DIFFERENT ORGANIC MATTERS ON ROOT – KHOT NEMATODE (*MELOIDOGYNE INCOGNITA*) AND ITS RHIZOSPHERE MICROFLORA AND NEMATODE FAUNA IN TOMATO (*LYCOPERSICON ESCULENTUS MILL.)*

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Present study deals the efficacy of different organic matters viz. spent compost of oyster mushroom, saw dust, neem leaves and oil cakes *viz*. neem cake, mustard cake and linseed cake which were used against root-knot nematode. All the organic amendments were found effective for the management of root–knot nematode. Better performance was found with neem cake followed by neem leaves, mustard cake, linseed cake, spent compost of mushroom and saw dast. Maximum reduction of root–khot was noted in neem cake. Higher number of rhizosphere

fungi, rhizobium and azotobacter bacteria were noted in neem cake. Maximum reduction of plant parasitic nematodes was noted in neem cake.

AVIFAUNAL DIVERSITY CONSERVATION IN WETLANDS OF DISTRICT SHIVPURI MADHYA PRADESH

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Birds are beautiful creatures on the earth, they have their importance for maintaining an ecosystem with this they are the good indicators of changing the environment. Studies were undertaken to express purpose of developing appropriate conservation or management strategies of bird species, most species face challenges resulting from anthropogenic pressure and environmental changes. Present study was conducted on wetlands in Shivpuri district during 2015-17. Total 63 aquatic species were recorded belonging to 17 families and 9 11 orders by using the line transact and point count methods. Shannon–Wiener index formula was used to evaluate the species diversity in wetlands. Study was concluded that the bird species were affected due to anthropogenic pressure on water bodies.

COMPARATIVE STUDY ON DIFFERENT TYPES OF ECO-FRIENDLY MOSQUITO TRAPS FOR SURVEILLANCE AND MANAGEMENT OF MOSQUITOES IN AND AROUND JIWAJI UNIVERSITY CAMPUS (INDIA)

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Mosquitoes are the most important among all arthropod vectors that causes human disease in the tropical conditions. In order to reduce the mosquito nuisance and risk of diseases caused by them it is essential to reduce mosquito populations. Mosquito traps are very useful device for surveillance and management of mosquito vectors; however their use has been neglected in India. Three different types of mosquito trap were procured from online marketing. All three types of mosquito trap were placed in animal house of school of studies in zoology, jiwaji university Gwalior. Out of total insects trapped the percentage of mosquitoes was 68 % in terminator-I, 84% in terminator-II and 70% in mozziquite within 7 day. According to device specification and insect trapping the terminator-II (All Iinn mosquito trap) was comparatively more effective for surveillance and control of mosquitoes.
Keywords: *Mosquito trap, Mosquito control, Mosquito surveillance*

TOXIC EFFECTS OF UNDERGROUND WATER IN KANPUR REGION OF UTTAR PRADESH

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Water Pollution is one of the most serious problems for all the living organisms on earth. Kanpur is well known, thickly populated industrial city of Uttar Pradesh. Underground water is one of the main natural resource, necessary for conservation and survival of living organisms on earth. In developing countries like India, underground water is the most important source for drinking, irrigation and other purposes. But unfortunately, due to wide spread over use of harmful chemicals in agriculture, industrial effluents and pollution of rivers etc., ground water is getting increasingly contaminated. The impurities of water effect the flora and fauna widely.

A laboratory study was conducted to assess the toxic effect of underground water in some selected areas of Kanpur. For experimental purposes, six water samples were collected from different locations of the city in the month of August, 2017 (Three open wells and thee bore wells).

It was concluded that the sampling sites No. A, B, C and E showed that all the physico-chemical parameters range of standard water quality as prescribed by World Health Organization (W.H.O.) are suitable for drinking purpose except sample No. D, and F. The results of present study also concluded that most of the physico-chemical parameters are within permissible limits.
Keywords: *World Health Organization (WHO); Physico-chemical analysis, Industrial effluents, Permissible limits.*

PRUDENT SAVING OF RESOURCES

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Environmental decline is a global adversity. Though it can occur naturally or through human activities, human is more likely to be responsible for it. Many animals and plants are on the verge of extinction due to Environment degradation. And this is a problem that is ongoing every day. As result, many problems like climate change, pollution, resource depletion, ozone depletion, ice caps melting, and Ocean acidification etc can be seen. All these worriment are so large that they are beyond the reach of individual actions. But little adjustments keeps people involved in a movement that desperately needs support. By making frugal and small individual efforts collectively like *Reduce*, *Reuse* and *Recycle* can go a long way and can help humanity to have a direct and positive impact on the natural environment, and many of these issues can be abridged. One should not confuse the frugality with the minimalism or deprivation. Frugality is a prudent saving and avoiding waste, this kind of lifestyle can definitely be a stepping stone in restoring environmental sustainability.

SETTING UP A GREEN COLLEGE FOR IMPARTING SKILL BASED VOCATIONAL TRAINING TO RURAL YOUTH AS ECOPRENEURS IN SOUTH ORISSA AS A GREAT INNOVATIVE INITIATIVE BY LIVING FARMS

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Green College is an Innovative Institution of Adult and Extension Education to train the rural and tribal youths by short term Certificate and Diploma courses which are being affiliated by Agriculture Skill Council India and as per the standard with IGNOU, New Delhi, School of Agriculture Science courses, Vocational courses as per National Institute for Open Schooling (NIOS) and Govt. Junior Vocational courses. These courses were mandatory to make the students/farmers as Ecopreneurs with a feasible earning source to make them living with pride. Here the major work will be based on Execution and setting up of Farmers Field School to strengthen farmers through Group dynamics and Institute Building by forming Farmers Producer Groups and Farmers Interest Groups. Surity in Job and Skill based Enterprises will be provided after successful completion of course.Hence Financial Start up support, Technical support will be provided by Green College. In the Line of Krishi Vigyan Kendra in Villages and Blocks at pilot basis Krishi Baishayika Gyana Kaushal Ebam Pradyogika Kendra (KBGKPK) (Farm Science Technology and Skilled Business Canter) will be set up by Green College as a College Social Responsibility. But here the methodology of Teaching is very Skillful, Tactical, practical based and can generate job to every rural youth with a sustainable way. So this Govt. and Trust or any registered society should take any necessary initiative to make this college in a Sustainable way and with permanent base. Not only Agriculture and allied course will be provided but also Rural Development, Community Science, Rural Technology, Policy, Climate and other needy based courses should be provided to the needy students who are majorly drop outs, illiterate. As a Young Scientist and Researcher my request and suggestion to Govt. and UGC or any University to take up this Green College forever for the sustainable and holistic future of this undeveloped rural youth who were facing Employment Problem. We should not stick with only Green College concept but also stretch our mind for establishing a Green University throughout India in General and International basis in particular. The Sue Motto of Green College is to check migration by providing the students in house employment and placed them with their parents so that they can harness Natural Resources for achieving a Dignified life which is different from existing colleges/universities in this era.

Keywords: *Green College, IGNOU, NIOS, UGC, KBGKPK, KVK*

STUDY ON IMPACT OF DAMS ON RIVERINE BIODIVERSITY

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India's Rivers, riverine biodiversity and river dependent communities are facing major threats from large dams and bad management practises. Time is running out for Indian Rivers as India does not have any strong law, policy or framework for protecting its riverine biodiversity & dependent communities from this onslaught. The Ramsar definition of Wetlands includes perennial and seasonal rivers and India's definition of Wetlands as given in Wetland Rules (2010). Rivers find no place in India's work plans or programs. This study is for impact of dams on Tons river which is the major river system of Rewa District. It originates from Tamasa Kund (23º 59' N latitude and 80º 22' E longitudes) of Satna district. . During our study conducted in 2015-2017, a total of 43 species belonging to 13 families were recorded. Species of Cypriniformes were dominant (37.28%) followed by Siluriformes (26.14%),Clupeiformes (6.81%), Perciformes(4.21%)Channiformes (2.11%) and Beloniformes (2.21%) Symbranchiformes 1.41at upstream side. Change in percentage of weed fishes, entrance of exotic fishes and threatening status of fish species Notopterus, Wallago, Amphipnus, Mastacembelus, Puntius, Mystus, Barilius has been recorded.
***Keywords**: Dams, Riverine biodiversity, Tons River, Ramsar definition, Impact on fish species*

INCINERATORS AND HUMAN HEALTH CONCERNS

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The hospital waste is burned in the incinerators or disposed in landfills mostly in India. The incineration process produces two types of ash. Bottom ash comes from furnace and is mixed with slag, while fly ash comes from stack and contains components that are more hazardous. Waste incineration systems produce a variety of pollutants which are harmful to human health. Such systems are expensive and do not eliminate toxic emissions from chemically complex waste. Even new incinerators release toxic metals, dioxins, and acid gases. Far from eliminating the need for a landfill, waste incinerator systems produce toxic ash and other residues. The waste-to-energy program to maximize energy recovery is technologically incompatible with reducing dioxins emissions. Dioxins are most lethal Persistent Organic Pollutants which have severe environmental health consequences. The affected populace includes those living near the incinerator as well as those living in the broader region. People are exposed to toxics compounds in several ways. Dioxin is a highly toxic compound which may cause cancer and neurological damage, and disrupt reproductive systems, thyroid systems, respiratory systems etc. The objective of the present study is to review the health effects caused by the pollutants emitted from burning biomedical waste in incinerators.
***Keywords**: Health, emissions, incinerator, toxic*

COMPARATIVE STUDY OF PHYSICO-CHEMICAL PARAMETERS OF THREE DRINKING WATER RESERVOIRS VIZ., KOLAR, KALIYASOTE AND UPPER LAKE BHOPAL (MP)

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A physico-chemical investigation of Kolar reservoir, Kaliyasote and Upper lake Bhopal has been carried out to observe the suitability of their water for drinking purposes. Water samples were collected from three sampling stations of each dam and analyzed (APHA 2012, ADONI,1985) for the physico chemical parameters such as water temperature, pH, TDS, conductivity, dissolved oxygen (DO),chloride, total hardness, nitrate, ortho-phosphate, total alkalinity, sodium, potassium and calcium. The values were found within the permissible limits of the World Health Organization drinking water quality guidelines. Among the three surface water of Kolar reservoir was found to be better in quality than Kaliyasote and upper lake, while that of Kaliyasote was better than Upper lake.
Keywords: *Kolar reservoir, Kaliyasote reservoir, Upper lake, physico-chemical parameters.*

ASSESSMENT OF WATER QUALITY PARAMETERS: A VIEW

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Water resources are equally important for natural ecosystem and human development. It is essential for agriculture, industry and human existence. All life on earth depends on water. The quality of water usually described according to its physical, chemical and biological characteristics. Rapid industrialization and indiscriminate use of chemical fertilizers and pesticides in agriculture are causing heavy and varied pollution in aquatic environment leading to deterioration of water quality and depletion of aquatic biota. Due to use of contaminated water, human population suffers from water borne diseases. It is therefore necessary to check the water quality at regular interval of time. It is necessary to know details about different physico-chemical parameters such as Temperature, pH, chloride, DO, BOD, COD, Nitrogen, Phosphate, alkalinity used for testing of water quality. The quality of water can be assessed by studying its physical and chemical characteristics. The present review paper describes about the importance of different parameters of water quality.
Keywords: *Water, Physico- chemical, Parameters, Pollution, standard.*

FISH DIVERSITY OF NARMADA RIVER AT HOSHANGABAD, MADHYA PRADESH

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The fish community of the Narmada River at Hoshangabad region was studied by monthly sample taken from Aug. 2016 to Oct. 2017. Narmada River is the largest Westward flowing river of India. It is also referred as the life line of Madhya Pradesh. Present study was aimed to generate information on the fishes of Hoshangabad region of river Narmada. The present study has been conducted to assess the fish biodiversity in a stretch of Narmada river in Madhya Pradesh. We tried to document fish biodiversity composition, physical habitats characteristics as well as identification of carps, catfishes, Lpaches, Mahaseer, Eels, Murrules species in the river. Study assess of this study are divided in two district (Hoshangabad and sehore) a total of 50 species belonging to 30 Genera and 13 Familes and six orders were recorded.
Keywords*: Fish diversity, River, Narmada.*

WETLANDS OF MADHYA PRADESH: AN OVER VIEW

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The present study is based on report of ISA (Indian Space Application) 2011, The Atlas of Wetland of India. Data pertaining to Madhya Pradesh has been analysed at district and divisional level. Datia district represnts least area under wetland, while Khargone has highest area under wetland.At divisional level Ujjain ranked top by sharing 35.5% of land area as wetland area of its constituent districts, while Chambal division represented only 4.15% of area under wetland area.
Keywords: *Wetland, District, Division, State.*

OXIDATIVE STRESS AND THYROID DYSFUNCTION CAN BE REGULATED BY PLANT BIOACTIVE COMPOUNDS

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Background: On the possible role of plant based active compounds in regulating hyperthyroidism, investigations are meager. We have now explored the possible role of Digoxigenin-3-O-rutin and scopoletin, isolated from two plants in the amelioration of T_4-induced hyperthyroidism.

Aim of the study: The primary aim of this investigation was to reveal whether scopoletin isolated from *Aegle marmelose* and digoxigenin-3-o-rutin from *Trigonella foenum graecum* exhibit antithyroid effects in L-T_4-induced hyperthyroid rats or not and to work out their antioxidative potential.

Methods: Scopoletin (1.0 mg/kg each) and digoxigenin-3-O-rutin (10 mg/kg) were administered to L-T_4-induced hyperthyroid rats for two weeks and their effects were evaluated on the alterations in the levels of thyroid hormones, hepatic lipid peroxidation as well as in antioxidants.

Results: L-T_4 administration significantly enhanced the serum concentrations of thyroxine (T_4) and triidothyronine (T_3); alongwith an increase in content of malondialdehyde (MDA) in hepatic tissues, but decreased the cellular antioxidants. However, on administration of the test compounds, these effects were more or less normalized.

Conclusion: Both the isolated compounds have the potential to ameliorate hyperthyroidism, without hepatotoxicity and the curative effects were mediated through inhibition of oxidative stress.

EFFECTS STUDIES OF EDC IN SILVER CARP FISH OF UPPER LAKE, BHOPAL WITH REFERENCE TO VITELOGENIN LEVEL

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Bhojtal or Upper Lake of Bhopal has been built by a king of Malwa Parmar Raja Bhoj in his tenure (1005-1055). Bhopal City has grown around this Lake. This Lake is a major source of drinking water and serving around 40% of resident of this City. This is also used for agriculture and fishing purpose. It has 31km area and has 361km total catchment or watershed area. This Lake is finally drained into Kaliasot River. Level of Vitellogenin in serum of Silver carp was recorded in different season to study endocrine disturbance of this fish. Vitellogenin is a yolk precursor protein, who contributes oocyte development and become go for fertilization and then embryo develops. Level of Vitellonenin was determined by using ELISA kit method with standard of Silver carp vitellogenin. Reported normal range of vitellogenin in Silver carp fish is 7.5ng/ml to 500ng/ml in female. This study reported 398.67±43.28 ng/ml in February 2016, 1586.67±288.33 ng/ml (this is due to before breeding season) in May 2016, extensively it was reported 268±23.93 ng/ml in November, 2016. Reported level of vitellogenin in serum of female Silver carp is almost near to normal range. This means Upper Lake of Bhopal is almost good to use for drinking purpose and is a non polluted Lake or has less than permissible limit of pollution. This is needed to look unfair activities in this Lake for their long time survival.

Keywords*: Oogenesis, vitellonenin, Upper Lake, ELISA, breeding.*

ROLE OF NGO IN GLOBAL WARMING

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This research paper indicates that there are so many prospects which control to the Global Warming through Non Government Organisations. Findings and Data assimilated in this research paper suggest that one has to develop more prospects for reducing global warming in environment and climate change and specific relevant sectors; create nationwide awareness: arrange for the mobilization of available resources and expertise.

Through dedicated and concerted efforts India will certainly and steadily march towards Global Warming in environment and climate change prosperity consistent with the requirement of awareness programs at NGOs thereby improvising the standard of living of the people.

NGOs have to develop common environment and climate change philosophies, strategies and processes in context of Global Warming. To ensure Global Warming in environment and climate consistency and promote an overall environment and climate change culture, leading benchmark NGOs have to coordinate key strategies and activities through a centralized oversight department, such as corporate Environment and Climate change Organisations.

Environment and Climate change are also essential to establish cooperative links within the Global NGOs that can span the various gaps among people to enable coordination the actions. Global Warming Can viewed to play a transformational role within the NGOs. A fundamental requirement is a sound quality policy, supported by plans and facilities to implement it.

Expanding the use of performance based regulation holds promise for achieving environmental and climate change goals at lower cost and for doing so in a way that accommodates if not encourages by scientific and technological innovation.

Keywords*: Global Warming, Environment, Climate Change, Non Government Organisation (NGO), Scientific, Technological, Transformational, Policies.*

CONSERVATION AND REVIVAL OF TRIBUTARIES OF MAJOR RIVERS FOR SUSTAINABLE DEVELOPMENT OF RIVER ECOSYSTEM AND TO PREVENT THEM FROM FURTHER DEPLETION WITH SPECIAL REFERENCE TO RIVER NARMADA

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Since 2015 onwards we are working for cleaning and conserving river NARMADA, The life line of Narsinghpur District, which is getting depleted year after year. Our team very shortly reached to the conclusion that the river may be saved and conserved by Janbhagidari and most

scientific approach. Govt of M.P. organized a "Namamidevi Narmade " months long Jan Yatra with motive to clean the river, huge plantation, public awareness, establishment of gardens Nakshatra Vatikas on the banks of the river and thus conserve the ecosystem and enhance ground water level. Several NGO's, Sants and local people participated in the Yatra with great enthucias.

We and our team (all honorable members of Bharat Vikas Parishad, Dist. Narsinghpur (M.P.) decided such Jan Yatras to conserve and revibe the Tributaries of the holly river Narmada to enhance the feedback system. In this way we organized Jan Sabha in various villages to make the people aware and what to do further. Mr.J.K.Sharma, Ex. SDO forest assisted us by providing several way outs. First we studied the causes of their getting decline. This year 2017-18, we have adapted one Tributary to Narmada named "BARUREBA". A four tier plantation, construction of "Boribands" (5-4-3-2-1) Bories filled with river soil, placed in transverse manner at places, development of small dams for paddy cum fish crops by farmers in their agriculture embankment fields to prevent runoff water.

First tier plantation includes Arjuna (Koha) –(Terminalia arjuna fam. Combretaceae), The plants grow on tank, lake and river banks therefore also known as "Nadisa Raja", Oomr, (Ficus glomerata fam. Ficaceae.

Second tier includes Jamun, (Sygigium cumini fam.Myrtaceae, Mahua (Madhuca Indica fam.Sapotaceae.

Third tier includes Neem, (Azadirachta indica fam. Meliaceae, Sisham (Dalbergiya sisoo fam.Papillionaceae,

Fourth tier includes Imli (Tamarandus indica fam.Caesalpinoidae, Bahera (Termenalia bellirica fam.Combretaceae)

The local people being suggested for seed sowing on the river banks for natural germination during Mansoon Season.

The roots of these plants along with tilt soil form natural reservoirs to trap rain water. Although the processes is lengthy, but in our opinion it is the most effective way of harvesting rain water, enhancing ground water level, preventing soil erosions and converting small rivers from seasonal to perennial.

Such rivers passing through villages, for this the village people have been advised not to pass their domestic wastes and effluents directly in river but through Soak pits to prevent pollution.

GENERAL SURVEY OF THE LAKES AND TANKS OF BANGALURU CITY (KARNATAKA) INDIA

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The dream of sustainable development of ecosystems may come true only by the conservation of our natural resources, specially the water resources. A general survey of the lakes of Bangaluru city has been carried out along with my son and daughter in law, 2016-17. The garden city may be again established as the city of lakes. Records show that till 1960 there

were 262 water bodies covering about 5% of land. Today the figures have declined to about 81 of which 34 are recognized as lakes. In earlier days Bangaluru was very well known as " The city of lakes. Kempegowda, the founder of city established several tanks and lakes to impound run of water. Kempegowda built the Ulsoor tank covering an area of 125 Acres. Rrecharge of ground water has declined to a great extent. As the lakes are vital parts of fresh water ecosystem, they have to be conserved seriously. I have come to know that some lakes have been converted in to residential layouts, play ground, bus stand, markets and sport complexes to develop urban infrastructure. The Topography and Hydrology of lakes suggest that they can be conserved in existing conditions. Most of them form a chain in Mansoon days.

A large numbers of lakes are still being used as dumping grounds of domestic and industrial effluents, Varthur, Ballindoor and Nallurahalli lakes may come under this category, making the life hell of the surrounding people. The Flora and Fauna is highly affected as the water is getting toxic day by day.

I have come to know that NGT is constantly keeping eye for the improvement of these lakes. Although some praiseworthy efforts are being made by local youth, corporate and BBMP in this direction. These lakes are the only major life line of the city as there is no river Cauvery is nearly 140 KM from the city.

It is suggestive that the prime duty of the local youth, NGO's, BBMP and corporate world should be to ensure the enhancement of lakes, their biodiversity and productivity for the benefit of future generations. These lakes are the present and future life line of Bangalurians. Sustainable ecosystems need to be established in these depleting lakes.

SEASONAL VARIATION OF PHYSICO - CHEMICAL CHARACTERISTICS IN FRESH WATER OF GARIA RAILWAY DAM JHANSI UTTAR PRADESH

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Water is one of the most vital factors in the existence of the living organism on this planet. The Earth is very rich in water, which covers over 70% of the planet's surface. If this water were evenly distributed, it would cover the entire Earth to a depth of 2 miles (3.2 km). More than 97% of this is salt water, however, and is not usable by land life. About 30% of the world's renewable freshwater supplies are already being used; this is about eight times the yearly flow of the Mississippi River. Even so, enough freshwater is available to support over 20 billion people. Unfortunately, because of variable climatic and geologic conditions, freshwater is not uniformly distributed; so many areas of the worlds suffer from severe water shortages. Hydrobiological features of Garia railway dam Jhansi were studied at eight sampling station covering both the zone limnetic and littoral zone. Four sampling station at limnetic zone and rest of four stations at littoral zone during the period of Nov. 2014 to Oct 2015. The values of Alkalinity, pH, COD, BOD, and TDS were found beyond the tolerance limits. railway dam is situated near garia gaon in Jhansi at the distance about 10 K.M. from railway station, Jhansi at

latitude of 25°-27° north and at longitude of 78°-37° eastern position with approximate height of 271 meter above mean sea level.
Keywords: *hydrobiology, pH, alkalinity, nitrate and DO*

CONSERVATION AND MANAGEMENT OF MONKEYS IN TEMPLE AREA OF CHITRAKOOT (M.P.)

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Hanuman langur (*Semnopithicus entellus*) and Rhesus macaque (*Macaca mulatta*) are non-human primate found abundantly in different city and temple area of Madhya Pradesh. The conservation and management can become effective only with the cooperation of local people. Chitrakoot is ancient, religious and spiritual place of India with much of its historical background where Hanuman langur (*Semnopithicus entellus*) and Rhesus macaque (*Macaca mulatta*) found abundantly. The artificial feeding of Rhesus macaque and Hanuman langur in these areas usually leads to changes in behavioural strategies, both at the level of individual activity and physical growth rate. The present paper suggests recommendations to improve the present situation of monkeys in selected area.

USE OF ALGAE AS BIOINDICATOR OF AQUATIC POLLUTANTS IN SATNA (M.P.)

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The present study revealed that change in algal population can attributed to seasonal variation, high load of different pollutants and the relative adaptability of algal forms. The favorable factors for Blue Green Algae (BGA) were low nitrogen and phosphate in water. The samples revealed that distinct bloom forming taxa include *Microcystis aeruginosa*, *Planktothrix isothrix*, *Anabaena aphanizomenoides*, *Arthrospira platensis*, *Anabaenopsis arnoldii*. They are mostly present in eutrophic or organically polluted water bodies *Microcystis* and *Planktothrix* generally grow as single species while *Anabaena*, *Arthrospira* and *Anabaenopsis* may grow as single species or often they are mixed with other planktonic forms. Bloom forming Cyanobacteria have implications in fresh water bodies by their allelopathic behavior.

CHANGES IN BIOCHEMICAL PARAMETERS IN *CATLA CATLA* IN A EUTROPHIC WATER BODY

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Lower Lake was created in 1794 by Chote Khan a minister of Nawab Hayat Muhammad Khan Bahadur. It receives seepage water from Upper Lake besides waste water from municipal nallahs around its catchment areas. The outlet drains of its roots into Patra rivulet which finally merges in Betwa River. The Lake is spread over an area of 1.29 sq. km. with 9.6 sq. km of catchment area. This is used for fishing and commercial washing of cloth. Water quality investigation revealed variation in pH 8.7 in Nov, 2016, 9.1 in May 2017 and 8.5 in Sept 2017. Conductivity (in mS/cm) was 3.17, 3.27 and 3.02 in Nov. 2016, May and Sept 2017 respectively. 2.1, 1.79 and 2.45 dissolved oxygen (mg/L); 470, 510 and 490 Ammonical Nitrogen (mg/L); 6.9, 9.2 and 7.1 Nitrate (mg/L); 1.42, 2.94 and 1.62 Nitrite (mg/L); 0.91, 1.11 and 0.98 total Phosphorous (mg/L); 2.79, 3.02 and 2.91 Ortho-Phosphorous (mg/L) reported in November, 2016, May, 2017 and September, 2017 respectively. Higher than permitted limit defined by WHO for fishing value of all these parameter found in May 2017 with lower dissolved oxygen. This report concludes the acute eutrophic condition in summer season. Biochemical investigation of *Catla catla* of this Lake revealed total protein (g/dL) 5.02, 4.76, 5.09; Albumin (g/dL) 2.01, 1.84, 2.21; Globulin (g/dL) 1.14, 1.04, 1.22 in Nov, 2016, May, 2017, Sept, 2017 respectively. Health status of investigated fishes was poor due to pollution of this Lake.
Keywords: *Lower Lake, eutrophic, Catla catla, water quality, biochemical test*

A STUDY ON ANXIETY RELATED BEHAVIOURAL ALTERATIONS IN ZEBRAFISH

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In neurobehavioral research, animal model have played an important role in yielding experimental data as well as in the development of new theories of brain pathogenesis. The aim of study is to evaluate the behavioural alterations in zebrafish induced by glutamic acid, also known as monosodium glutamic acid which widely used as a food additives. Researchers are always trying to develop novel animal models to understand fundamental features of physiological, psychological and behavioural disorders. Zebrafish (*Danio rerio*) is considered to be a good model to study neurobehavioural changes because fish does not possess the complex

behavioural phenotype exhibited by many other animal models and therefore is an excellent alternative to mammalian like animal model. In this study, behaviour of zebrafish was evaluated by glutamate excito-toxicity, altered response in their top/bottom entries and thigmotaxic response (an organism's response to the stimulus of contact or touch). The result of this experiment suggest behavioural changes in zebrafish induced due to exposure of glutamic acid lead to degenerative changes and pathological consequences in the zebrafish brain.
Keywords: Zebrafish, Anxiety, Thigmotaxic, Top/bottom dwelling test and Neurobehavioural study.

INFLUENCE OF ORGANIC MANURE WITH INORGANIC AND BIO-FERTILIZER ON SUSTAINABLE YIELD OF BOTTLE GOURD [*Lagenariasiceraria* L.]

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Bottle gourd is an important vegetable cropgrown for its green tender fruits, which are used as a vegetable in a variety of ways. It is rich in vitamins,calcium, potassium and other minerals.The present investigation was conducted during spring- summer seasons of 2013 and 2014 to find out the Influence of organic manure with inorganic and bio-fertilizer on growth, flowering, yield and yield attributes of bottle gourd [*Lagenariasiceraria*L.]. The experimental material for the present investigation was comprised of sixteen treatments with three replications with spacing of 2.0 m × 0.5 m and of 4.0 m × 3.0 m of plot size. The results revealed that the plants received 100% RDF of NPK + FYM @ 10 t ha^{-1} + Vermicompost @ 5 t ha^{-1} + Poultry manure @ 2.5 tha^{-1} had a beneficial effect on bottle gourd *viz*., maximum vine length (282.47 cm), Number of nodes $branch^{-1}$(22.48), Length of internodes (12.60 cm), Number of branches $plant^{-1}$ (9.60), Leaf length (22.40 cm) of plant, Leaf width (20.86 cm), Leaf weight (48.41 g), minimum days taken for first male (43.39) as well as female flower initiation (49.87) that appeared at earliest node for first male and female flower (17.72 and 19.96, respectively). INM packages on maximum fruit length (22.71 cm), fruit girth (8.68 cm), minimum pedicle length (7.58 cm), maximum fruit weight (568.43 g),fruit weight $plot^{-1}$ (34.75 kg) and fruit yield ha^{-1} (463.31 q). This study concludes that, keeping view on yield sustainability, balance in ecosystem, soil health improvement and good health of human beings it may be suggested that vegetable growers may supplement through the judicious and efficient use of inorganic fertilizers or FYM, vermicompost and poultry manure, alone or in combinations.
Keywords*: Bottle gourd, Vremicompost, Azospirillum, FYM, Vine length*

ENVIRONMENTAL FACTORS ASSOCIATED WITH SLOW PHYSICAL GROWTH AND PERMANENT COGNITIVE IMPAIRMENTS IN MICE

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Environmental factors during early pregnancy is an important determinant of early fetal brain development. During pre-natal exposure of pollutant have been documented to affect physical and cognitive development and cause increased susceptibility to neuropsychiatric disorders. Most of the studies have been addressed to prenatal exposure of environmental toxicant alteration in pre- and postnatal neurodevelopment of mice. Ambient air pollution in environment is suspected to neurodegenerative diseases. In the present study, it was aimed to assess the effect of pre- and postnatal exposure to ambient air pollution on physical growth and cognitive impairment. To create a polluted environment we had designed specific conditions in cages. Two pregnant mice were kept in each, polluted environment cage and normal polylab cage from embryonic day first (E1). After pups were born in both cages we measured physical growth, surface righting reflex, negative geotaxis reflex, and cliff avoidance test. In the adult age of these pups the cognitive behaviour test was assessed with the help of elevated plus maze, morris water maze. Slow physical growth and poor performance of cognitive behaviour was observed in pups exposed to polluted air compared to healthy environment pups. Our study concluded that embryonic and early life exposure of air polluted environment results in later life complication at level of body growth and cognitive development.
Keyword*: Air pollution, surface righting reflex, negative geotaxis reflex, Morris water maze, elevated plus maze, anxiety.*

SCREENING OF SEED MYCOFLORA OF CUCURBITS SEEDS FROM DIFFERENT STORANGE CONDITIONS IN ALLAHABAD.

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Cucurbits are vegetable crops belonging to family Cucurbitaceae. The number of seed borne fungi of cucubits isolated by standard methods from different storage conditions viz. Cloth bag, Iron bin (Tin), straw pieces bag and earthen pot showed the highest number of fungi was associated with earthen pot, while less number was with cloth bag after seeds were store for more than a year. The qualitative nature of fungi varied with the containers used. *Mucor spp., Alternaria alternata, Rhizopus nigricans, Aspergillus niger, Aspergillus flavus. Aspergillus fumigatus* were dominant.*Penicillum spp, Fusarium spp,Cladosporium* spp. were recorded from straw pieces bag; *Verticillum spp.,Phomaterricola, Rhizopusstolonifers,Curvularialunata*were associated with seeds obtained from one or more storage conditions in Allahabad.
Keywords*: cucurbits crop, seed borne fungi, Storage*

CONSERVATION OF SOME IMPORTANT TRADITIONAL PLANTS IMPROVING AIR QUALITY OF THE HOUSES FOR GOOD HUMAN HEALTH

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Presently we are facing the problem of low oxygen level in our surroundings. Pollution level is very high in air. It causes breathing diseases, which leads to so many dangerous disorders of vital organs. We are fighting with dust, Allergents, chemicals of cosmetics, dyes and paints in our homes. We also facing the problem of low oxygen lvevel in our indoors, because of modern life styles and modern buildings. Som traditional plants are responsible for more oxygen in our surroundings. They also have the power to clean the air, and absorb the toxins from the air. Toxins free air is good for our health.

Recent study proves that some traditional plants have the power to filter the air, as well as remove some organic compounds from air It is cleanly good for human wellbeing.

Traditional knowledge about such special plants is very significant for human welfare. The plant of Basil is well known for us.

Osimum basilum :- Having antioxidant properties, It is anti fungal, antibacterial, ant malarial, Besides these, It increases the oxygen level in houses of our surroundings it can absorb, toxins, allergents and create positive environment in our houses. It is well known medicinal plant.

Aloevera :- Wel known medicinal values of this plant. It ability to eliminate the polluting chemicals from the environment. It purifies the air of indoor surroundings.

Aloevera is going to give us a clear sign that the air in our surroundings at our homes contains high level of harmful chemicals by developing brown spots on its fleshy leaves.

Epipremnum Aureum (Money plant) :- Traditional practice claims that this plant attracts health, wealth and good luck. Actually it can absorb the synthetic chemicals from the atmosphere of our homes So it removes stress and anxiety from the indoors of the homes. So these pants are very significant for human wellbeing. They increase air quality of our homes and life quality of human beings.

So this study shows that conservation of traditional knowledge of this plants is an important factor for us.

AZLACTONES AND THEIR CONDENSATION PRODUCT WITH A VIEW TO STUDY THEIR THERAPEUTIC PROPERTIES

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Azlactones constitute a large and important class of compounds. The may be recorded as the inner anhydrides of α-acyl amino acid. Five possible type oxazolones are known so for. Azlactones can be classified in two groups, saturated and unsaturated. Plochi synthesized first

unsaturated azlactone by the condensation of benzaldehyde with hippuric acid in presence of acetic anhydride in 1883. Carter, J.W. Cornforth and Boltazzi have described the chemistry and application of 5-(4) oxazolones. Their role in the development of penicillin chemistry has also been given in the literature. The new orange coloured azlactones have been synthesised. The identity of the products has been established by physical and chemical methods.

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