Proceedings of

Government Science College, Sikar & The Society for Academic Research's Joint

International Conference on *Recent Trends in Environment & Natural Sciences – ICRTENS – 2019*

Venue: Government Science College, Sikar, Rajasthan, India

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Organized by:

Date of Event:

12-13 February, 2019

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IT Team - IAARHIES & Computer World,
India

Kalyan Singh
Governor, Rajasthan

RAJ BHAWAN
Jaipur-302 006

MESSAGE

I am happy to know that Government Science College, Sabal Pura, Sikar in collaboration with the International Academic Association of Researchers in Humanities, IT, Engineering and Science – IAARHIES (Governed by The Society for Academic Research (Regd.) is hosting for the frist time in Shekhawati region an 'International Conference on Recent Trends in Enviroment & Natural Sciences – ICRTENS – 2019 on 12-13 February, 2019.

I wish the confernce the very best.

(Kalyan Singh)

सत्यमेव जयते

CHIEF MINISTER
RAJASTHAN

Message

I am happy to know that the Government Science College, Sabal Pura, Sikar in association with the International Academic Association of Researchers in Humanities, IT, Engineering and Science is organising an International Conference on 'Recent Trends in Environment & Natural Sciences' 'ICRTENS-2019' on February 12-13, 2019 in Sikar.

The conference focuses on a very important aspect of environmental conservation. It will, I hope, throw open the doors to evolving and arriving at better strategies in the above mentioned areas and thus help achieve its objectives.

I am sure that the participants will share their views and facilitate collaboration in the concerned areas of discussion and deliberation.

I extend my good wishes to the organizers of the event and wish the publication a big success.

(Ashok Gehlot)

गोविन्द सिंह डोटासरा

सत्यमेव जयते

राज्यमंत्री
शिक्षा (प्राथमिक एवं माध्यमिक शिक्षा) विभाग
(स्वतंत्र प्रभार)
पर्यटन एवं देवस्थान विभाग
राजस्थान सरकार

I am happy to learn to know that Government science college, Sabalpura, Sikar in collaboration with the International Academic Association of Researchers in Humanities, It Engineering and Science – IAARHIES (Governed by The Society for Academic Research (Regd) is hosting an 'International Conference on Recent Trends in Environment &Natural Sciences –ICRTENS – 2019 on 12-13 February, 2019.

I wish the conference a grand success and hope that it will provide chance to all those connected with profession to be updated with the latest innovation in Environment & Natural Sciences.

गोविन्द सिंह डोटासरा

राज्यमंत्री
शिक्षा (प्राथमिक एवं माध्यमिक शिक्षा) विभाग
(स्वतंत्र प्रभार) पर्यटन एवं देवस्थान विभाग

प्रदीप कुमार बोरड़
आई.ए.एस.

सत्यमेव जयते

आयुक्त कॉलेज शिक्षा एवं
विशिष्ठ शासन सचिव
उच्च शिक्षा विभाग, जयपुर

NoF ( )PS/CCE/19

Date: 31/01/2019

Message

It gives me immense pleasure to know that Government Science College, Sabal Pura, Sikar in collaboration with the International Academic Association of Researchers in Humanities, IT, Engineering and Science – IAARHIES (Governed by The Society for Academic Research (Regd.) is hosting an 'International Conference on Recent Trends in Environment & Natural Sciences – ICRTENS – 2019 on 12-13 February, 2019. The areas which would be covered and dealt with in this two days conference are very relevant in the present scenario. This would definitely prove to be an academically enriching experience for the participants.

Government Science College, Sikar is hosting an international conference for the first time since its establishment. I take this opportunity to welcome all the International delegates during the two days conference.

Wish the event a grand success!

31-1-2019

Pradeep Kumar Borad, IAS

ब्लॉक नं 4, डॉ. आर.के. शिक्षा संकुल, जे.एल.एन मार्ग, जयपुर-302017 (राज.)
टेलीफैक्स : 0141-2706847, ई-मेल : cce_raj@yahoo.com

Naresh Kumar Thakral
I.A.S.

District Collector & District Magistrate
SIKAR - 332001

Message

I am extremely delighted to note that Government Science College, Sabal Pura, Sikar in collaboration with the International Academic Association of Researchers in Humanities, IT, Engineering and Science – IAARHIES (Governed by The Society for Academic Research (Regd.) is hosting an 'International Conference on Recent Trends in Environment & Natural Sciences – ICRTENS – 2019 on 12-13 February, 2019.

I wish this conference all success and extend very warm welcome to all the esteemed Speakers, paper presenters, research scholars and students. I would also like to congratulate all faculty members and Society executive members and their team for taking such a massive task .

I wish the Conference a great success.

(Naresh Kumar Thakral)

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Prof. B.L. Sharma
Vice-Chancellor

PANDIT DEENDAYAL UPADHYAYA
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SIKAR - 332 001 (Raj.)
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Message

I am happy to learn to know that Government Science College, Sabalpura, Sikar in collaboration with the International Academic Association of Researchers in Humanities, IT, Engineering and Science – IAARHIES (Governed by The Society for Academic Research (Regd.) is hosting an 'International Conference on Recent Trends in Environment & Natural Sciences – ICRTENS – 2019 on 12-13 February, 2019.

I wish a grand success for the conference and hope that it will provide chance to all those connected with profession to be updated with the latest innovation in Environment & Natural Sciences.

(Prof. B.L. Sharma)
Vice-Chancellor

Dr. (Prof.) R.B. Panwar
MD (Med) DNB (Cardio) FACC
Vice Chancellor

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Rajasthan University of Health Sciences, Jaipur
Sector 18, Kumbha Marg, Pratap Nagar, Tonk Road, Jaipur-302033

Dated: 05th Feb 2019

Message

I am happy to learn that the ***"Government Science College and IAARHIES*** *are jointly organizing the International Conference (ICRTENS)* ***2019 at Sikar (Rajasthan)*** *from* ***12h - 13h Feb 2019.***

I hope that the scientific atmosphere created by the panel discussions, Paper and Poster presentations during the convention shall be educative, informative and useful for the Life sciences and Environment Sciences in stimulative Education and Research.

I am also glad to note that you are organizing Invited lectures by internationally renowned professors and Scientists. These will be very useful for our Research Scholars and faculties here.

On this occasion, I extend my best wishes for the success of the event.

With best wishes

(Dr. Raja BabuPanwar)

Prof. (Dr.) Pravin C.Trivedi, President Mendelian Society Of India
Ph.D.,Post Doct (USA), F.L.S. (London),F.B.S.,F.P.S.I., F.N.S.I.,F.B.R.S.,F.M.A.,F.E.S.,F.N.R.S.,F.I.A.T
Former Vice Chancellor, D.D.U.Gorakhpur University, Gorakhpur & Dr. R.M.L.Avadh University, Faizabad (U.P.); Former Professor & Head, Botany, University of Rajasthan, Jaipur'
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MESSAGE

It is heartening to learn that Government College, Sikar and IAARHIES jointly organizing an International conference on : Recent Trends in Environment and Natural Sciences-(ICRTENS-2019) during 12-13, February 2019. I congratulate the organisers for holding a conference choosing a multidisciplinary theme, which might benefit the society. The pivotal contribution made by sciences towards human well being and progress are too well known to be catalogued. Remarkable progress has been achieved in the field of agriculture, health care products, medicines, fibres and fabrics and various engineering materials. I hope this proposed conference would address to the newer frontiers in science and set a stage for cross pollination of ideas and knowledge streams and converge on a strategy for all round development in the science for national prosperity and well being.

The climate of earth is changing and there is now over whelming scientific consensus that it is happening as a result of human action. With global warming on the increase and the species and their habitat on the decrease, chance for ecosystems to adapt naturally are diminishing . The conservation and sustainable management of biodiversity has become vital for dealing with the challenges of the climate change.

I wish to convey my heartfelt best wishes to organizers to make this scientific event grand success.

(P.C.Trivedi)

Shri Kallaji Vedic University

Kamdhaj Nagar, Nimbahera, Rajasthan

Prof. Ashok Kumar
President

Message

It is indeed a matter of great pleasure that Government Science Post Graduate College, Sikar , Rajasthan ,in Association with The Society for Academic Research , is organizing an International Conference on *" Recent trends in Environment and Natural Sciences - ICRTENS -2019 "* **during 12-13 February 2019 .**

I hope that the International Conference will provide a common platform for students, research scholars, teachers, and the eminent academicians, to interact and share their experiences in the field of Environment and Natural Sciences.

The Conference will highlight and focus on the recent advances taking place in this field. The topic selected for the International Conference is indeed unique for the sustainable growth of human beings. I hope that the deliberations in the Conference will help in crystallizing ideas and action plan for meeting the challenges of Research and Innovations in Environment and Natural Sciences.

I wish the International Conference will be a great success and hope that the participants will enrich their knowledge and foster new collaborations.

Prof. Ashok Kumar
Vice Chancellor Sri Kallaji Vedic University
Former Vice Chancellor DDU Gorakhpur University
Former Vice Chancellor CSJMU University Kanpur
Former Vice Chancellor CAS, University, Kanpur

MAHEEP G. BHATNAGAR

M.Sc, PhD, DRPMS (London), Post doctoral (Oregon and Stockholm)
FZS (London), FRMS, FWSCM (France),
FIANSc (India), FSSE, FNESA.
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US. Ostwal Educational Society, Narayanpura, Chittorgarh
Executive President – Vigyan Samiti
President –Rotary International UDAI

Feb 2, 2019

MESSAGE

It is matter of great pleasure that Government Science College , Sikar and the Society for Academic Research jointly organizing a international Conference on recent trends in environment and natural Science (ICRTENS-2019) during 12 -13 Feb, 2019. Such a conference serves a platform for researchers and academicians to discuss the nuances of their field and explore the means and ways of working together for faster and effective inventions to a problem related to global interests. I understand that the conference would be addressing problems related to environment and

I sincerely hope that the deliberations during the conference and the panel discussions would lead to some fruitful outcomes. Organizing this conference at Government college , Sikar will give a boost to academic activities and recognition not only for the college as well as the society but also to the faculty and young students to achieve more aim higher.

I wish this conference all success and extend very warm welcome to all the esteemed Speakers, paper presenters, research scholars and students.

(MAHEEP BHATNAGAR)

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Government Science College, Sikar& The Society forAcademic Research's Joint

International Conference on Recent Trends in Environment & Natural Science: – ICRTENS – 2019

Venue: Government Science College, Sikar, Raj., India 12-13 February,2019

website: https://iaarhies.org/conference-in-sabalpura-sikar/

Ref: SAR/GSC/19/Date://2019

Dr. K.C. Agrawal
HOD- Physics
Govt.Science College,
Sikar

Dr. N.S. Ranwa
HOD- Botany
Govt.Science College,
Sikar

Welcome

It is a great honour for Govt. Science College,Sikar,Rajasthan,India to organize "International Conference on Recent Trends in Environmental and Natural Sciences" along with IAARHIES during 12-13 February,2019 on the behalf of organizing committee, host institution and IAARHIES. It is our privilege to welcome all distinguished delegates across the National and International level.

We are confident that conference would be successful into objectives of creating awareness to save environment and sustainable development of our society. This conference would provide latest informations and innovations on the theme.

We extend heartly welcome and thanks to all invited chair persons, speakers,delegates who have come to participate in this conference on the behalf of organizing committee. We are thankful to all my colleagues and students for their help and overwhelming support in organizing this conference.

We wish conference a great success.

Dr. K.C. Agrawal
Research Director
ICRTENS-19

Dr. N.S. Ranwa
Research Director
ICRTENS-19

+91-7231050000, 9413529120

Government Science College, Sikar& The Society forAcademic Research's Joint

International Conference on Recent Trends in Environment & Natural Science: – ICRTENS – 2019

Venue: Government Science College, Sikar, Raj., India 12-13 February,2019

website: https://iaarhies.org/conference-in-sabalpura-sikar/

Ref: SAR/GSC/19/Date://2019

Dr. ASHOK KUMAR CHAUHAN
F.S.O.E
HOD-Department of Chemistry
Government Science Collge,Sikar

Welcome

It is the matter of great pleasure to be associated with the "International Conference on Recent Trends in Environmental and Natural Sciences" ICRTENS-19 on 12-13 February,2019 in Govt. Science College, Sikar in association with IAARHIES.

All relevant Components are integrated into theme of this conference and I am very much hopeful that the deliberations during different session will lead to fruitful contribution in moving towards better future and sustainable development and to save our planet on which we are residing.

I welcome all delegates to the conference and wish to thank from deepest part of heart who have contributed and helped a lot in organising this conference.

Dr. ASHOK KUMAR CHAUHAN
Convenor ICRTENS-19

From the Desk of Organising Secretaries

On behalf of organizing committee it is our proud privilege to welcome all International and National presenters, delegates and esteemed guests from all over India and abroad to the that Government Science College, Sikar in association with the International Academic Association of Researchers in Humanities, IT, Engineering and Science – IAARHIES (Governed by The Society for Academic Research (Regd.) is hosting an 'International Conference on **Recent Trends in Environment & Natural Sciences – ICRTENS – 2019** on 12-13 February, 2019.

However in the recent past there is a huge explosion of population and resultantly the rise of material needsof human beings. Globalization has ushered in new technology and the economic prosperity even in the developing countries like India and further opened new area of development. But it is having heavy impact on our environment. The consumption of various products has increased to a large extent and as a result transportation of goods from place to place has increased several times. It hassled to the greater use of gasoline. In addition, the industry has expanded leaps and bounds in our country. The industrial waste and harmful chemicals are being released in the environment, in the rivers and the oceans. This has posed to dander to the wild life. Naturally this caused a lot of damage to the environment and its eco-system by way of water pollution, reduction in the forest, air pollution and other toxic elements of the nature. It has obviously precipitated terrible degradation of environment.

All human being should make honest and sincere efforts to the earth. Each individual nation is responsible for the degradation of the environment and it is just a matter of degree. As far as India is concerned, being a developing nation and a highly population one, it has to take some harsh decision.

An interdisciplinary approach will undoubtedly give a proper value orientation to our educational system. The conference has been planned to provide a platform for the eminent scientist, delegates and research scholars to interact and share their experiences in the field of Environment and Natural sciences.

We are sure that the deliberations during the conference will be immensely useful for the participating Academicians, Scientist, Research Scholar, Students, and other Stakeholders. We hope that the outcomes of the conference will be beneficial for every one.

Once again We welcome you to Sikar and hope that this conference will challenge and inspire you, and result in new knowledge

Dr. Chetan Joshi, Dr. Mahesh Kumar Paliwal, Dr. Mangal Chand
Organizing Secretaries ICRTENS- 2019

Preface

Government Science College, Sikar and the International Academic Association of Researchers in Humanities, IT, Engineering and Science (IAARHIES) are going to organise a joint International Conference on Recent Trends in Environment & Natural Sciences - ICRTENS - 2019 on 12-13 February, 2019.

At the very outset, we extend a warm welcome to all our distinguished guests, speakers, sponsors and the participants, who have directly or indirectly joined us during this joint International conference in Government Science College, Sikar.

The main motive behind this conference is to provide a strong platform to the researchers, academicians and professionals to present their innovative thoughts and discoveries and to explore future trends and applications in the various fields of development and the integrated approaches to advance the development agenda of the Governments. We would also expect a sharing of the challenges being faced in advancing and achieving the following 17 Sustainable Development Goals (SDGs) stipulated by the United Nations in September, 2015:

GOAL 1: No Poverty
GOAL 2: Zero Hunger
GOAL 3: Good Health and Well-being
GOAL 4: Quality Education
GOAL 5: Gender Equality
GOAL 6: Clean Water and Sanitation
GOAL 7: Affordable and Clean Energy
GOAL 8: Decent Work and Economic Growth
GOAL 9: Industry, Innovation and Infrastructure
GOAL 10: Reduced Inequality
GOAL 11: Sustainable Cities and Communities
GOAL 12: Responsible Consumption and Production
GOAL 13: Climate Action
GOAL 14: Life Below Water
GOAL 15: Life on Land
GOAL 16: Peace and Justice Strong Institutions
GOAL 17:Partnerships to achieve the Goal

We are happy to receive more than 200 research papers from all parts of the world in a short span of time. This shows peoples' growing interest in the development agenda.

However, I am sure that the deliberations during this conference will be useful to the society in general and to the researchers in particular by disseminating knowledge on both theoretical and applied research on the aforesaid areas with an ultimate aim to bridge the gap between these coherent disciplines of knowledge and the community. Our final goal is to make the conference proceedings useful and guiding factor to audiences involved in research in these areas, as well as to those involved in design, implementation and operation, to achieve their respective goals. Deliberations in this conference will be shared through our journals.

First and foremost we are thankful to the Government Science College, Sikar Principal and his staff for their collaboration and cooperation. We owe thanks to the organizing committees, whose incessant efforts made this conference happen in such a short time.

We are also thankful to all the delegates participating in this event in Sikar, Rajasthan. We should not forget the contribution of our advisory members and reviewers for making this event a successful one.

We have tried to make all possible arrangements for a smooth organization of this conference. However, your suggestions/feedback would provide us valuable inputs in improvising the upcoming events. We wish you all a comfortable stay in Sikar.

Dr. Hardev Sharma
Conference Director - IAARHIES

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Sh K.K. Dabaria | Smt. Sumit Ghasiya | Mr. Sandeep Sharma | Mr. Raghuraj Singodiya

Key Note, Plenary, Invited Lectures & Abstracts

Efficiency of Thailand Environmental Management Operations

Dr Tosaporn Mahamud
Gaduate school of Kasembundit University, Bangkok

This article is to study the performance of the government sector. The Thai government in implementing environmental policies Effective environmental management is considered to be a crucial factor for sustainable development. This paper investigates how Thailand applies this concept for national development goal and how the present environmental management strategy can support the goal of sustainable development of the country. Some relevant recommendations for effective environmental management are also added. The article has studied the environment by participating in order to create useful space.

Introduction

This article aims to point out the importance of environmental management to the sustainable development of the country. This is due to the past development guidelines in the past. Focused on economic growth This approach has made Thailand successful in economic development in order. At present, it may be regarded as a leader in the Southeast Asian countries. However, the focus on economic development by lacking the planning of natural resources and the environment carefully. Resulting in Thailand Experiencing problems of natural resource degradation and various pollution problems At the level of concern, even though the government has issued laws and measures to support Including the establishment of an environmental organization to take care of, especially since 1975, and after that, many times the laws, measures and environmental organizations have been revised But many problems are still in crisis.

Conditions such as these have occurred in many countries around the world as well. The global development trend is therefore aimed at sustainable development. Which is a development concept that can meet the needs of the current generation Without decreasing the ability of future generations to develop In this regard, Thailand has begun to change the direction of national development, focusing on sustainable development since the 7th National Economic and Social Development Plan (1992-1996) and more concrete in the development plan. The current issue is Issue 9 (2002-2006). This is one of the main factors of sustainable development. Is the management of natural resources and the environment for sustainable use Leading to balanced development Quality and lasting forever.

Sustainable development: Source and essence

Source The concept of sustainable development began to be widely used in the 1980s report, which together Prepared by International Union for Conservation of Nature and Natural Resources (United Nations Environment Program) and the World Wide Fund for Nature in the name of the Strategy for World Conservation in the year 2005 In 1983, the United Nations established the World Commission on Environment and Development to create a balance between the environment and development. Four years later, in 1987, the commission published a document from a very important study called 'Our Future (Our Common Future)', also known as a report. Brundtland Report.

According to the name of the Chairman of the Commission, Gro Harlem Brundtland, Prime Minister of Norway at that time And the essence of the report is ยั่งยืน Sustainable development 'by this report calls for the world to change the way of life that is extravagant. Change the method of development to be a non-destructive development of the environment And taking into account the limitations of natural resources And see that humanity can make sustainable development possible.

World Conservation Strategy Report

The conclusion of the United Nations Environment Program (UNEP) leading to a global summit In June 1992 (1992) with the official name of the United Nations Conference on Environment and Development.

The United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro, Brazil. Sustainable development remains the main theme of this meeting. Including other issues that have been proposed Results from the meeting Has signed 5 important documents, namely the Rio Declaration on Environment and Development, Plan 21 (Agenda 21) Statement on Principles of Forestry (Statement of Principles on Forests) The United Nations Framework Convention on Climate Change and the Convention on Biological Diversity.

In the implementation of the 21st Action Plan, there will be an evaluation meeting every 5 years. The first evaluation has been conducted in 1997 and in 2002 another evaluation meeting was held time By using the name โลก World Summit on Sustainable Development 2002 (WSSD) held between 26 August - 4 September 2002 in Johannesburg The Republic of South Africa, whose main goal is to increase the power of political commitments for sustainable development, emphasizes the world's interest in actions that will contribute to sustainable

development. By changing from plan to action.

The essence of sustainable development

The essence of sustainable development appears in the Action Plan 21, which states that the population, consumption and technology Is the main driving force that causes environmental changes And has proposed policies and plans in order to achieve a sustainable balance between population consumption and global performance in the trade of living creatures. Including the development of technology that will meet human needs And carefully manage natural resources.

Environmental problems in developed countries often result from extravagant and inefficient consumption patterns. For developing countries, environmental problems often relate directly to poverty. When the people were pressured almost to the point of living, they sought new resources. Occupy a new area for use the sustainable development approach therefore focuses on the operation to solve the extravagant consumption. Correcting or eliminating poverty As well as operations in various parts associated.

Will see that the success of sustainable development must come from interdisciplinary operations With a variety of cultures And operations in many dimensions at the same time to ensure equal development for all groups in society Especially to meet the needs of the most vulnerable and the most vulnerable in society, including low-income children, women, and rural people.

Sustainable development must respect the rights and dignity of humanity and the environment. The essence of sustainable development is Pollution prevention Resource conservation Fair distribution of benefits and costs And the participation of stakeholders in making decisions on matters that will impact Therefore, effective environmental management methods are an important factor of sustainable development.

Developing countries: past to present

For more than 40 years, Thailand has developed the country according to the guidelines specified in the National Economic and Social Development Plan. Started from the Development Plan No. 1 (1961-1966) until the present, the 9th Development Plan (2002-2006). Historically, development has focused on economic growth. main By believing that if the economic growth is high Would cause the level of income and standards.

The lives of the people in the country will rise as well as the development of such approaches that use the natural resources of unknown means for natural resource conservation and natural resource conservation. In addition, the results of the development caused more recession problems at the end of the year. The third development plan (1972-1951 9) was in 1975 to be announced. The first environment is the promotion and preservation of the national environmental quality, 1975, and has been set up an environmental agency, namely the establishment of the National Environment Board for environmental care of the country. But was not able to hills Continue to expand the economy even though suffering from social planning.

During the fifth development plan (1982-1989), the country development strategy was formulated in the area planning. For the development of the Eastern Seaboard, the main urban areas and the development of natural resources and environment plans for national development.

Guidelines for managing natural resources and the environment

Natural resource conservation and environmental quality in all aspects of natural resource and environmental conservation in the development of natural resources and environment 7 (1992-1996) Conservation of natural resources and environmental quality to be in good condition. Problems that occur in many capital cities, how can such problems arise, how to manage and solve problems? Soil and forest resource use, water resources, waste, hazardous waste and water pollution should be National and environmental aspects of the country that have been carried out from the past to the present and the future direction that is geared towards sustainability or not.Manage organizations and laws, how to manage problems arising from management and solutions.

Organization and law The first law applicable to direct environmental protection is National Environmental Quality Promotion and Maintenance Act, 1975, which supports the operation of the National Environment Board With the operation units including Office of the National Environment Board. In addition, there are other agencies that are involved in the protection of natural resources. And prevention of pollution problems, such as the Department of Industrial Works, Department of Forestry, Department of Mineral Resources and Department of Fisheries, etc. Sometimes operations may not be consistent. And can cause problems in practice And the Office of the National Environment Board No authority to order any To solve environmental problems Can only coordinate and request cooperation from relevant agencies only This first environmental law therefore lacks effective enforcement. Because there is no content of the law covering to prevent Systematically solve environmental problems in all aspects.

Method of operation: problems and solutions

Will see that from the past (Year 1975) to the present (2004), there have been many improvements in the laws and organizations concerning the management of natural resources and the environment But the problem of natural resources and environment is still a heavy burden. Although environmental organizations have tried Operate to solve every aspect of the problem. Method of operation or management including problems arising from management and solutions As follows:

Establishing environmental policies and management

Plans Office of Natural Resources and Environmental Policy and Planning, an organization that has direct roles About the determination of environmental policy and policy conversion into action Has implemented a policy, plan and measures for environmental management on a periodic basis, such as the preparation of environmental quality management plans Including project details under the Environmental Quality Management Plan, 1999-2006, Environmental Quality Management Plan 2002-2006, Policy, Measures and Plans for Sustainable Biodiversity Conservation and Utilization, 2003- 2007 conservation policy and plan And development of the canal river environment and the action plan for environmental quality management at the provincial level, etc. In addition, in order to be in compliance with the obligations of the United Nations 21 Action Plan, a national policy and action plan has been established for Sustainable development for Thailand in 1997.

If considering this issue Will see that the problem is not that there is no action plan but that the implementation of the plan is still inefficient. However, in the implementation of various environmental management plans Cannot be accomplished by a single agency It is necessary to have cooperation from all parties, including related agencies. Private and public organizations But the implementation of the environmental management plan In the past to the present, there is a lack of such integrated characteristics. Causing environmental management to not be as successful as it should be.

Therefore, what the main agency must accelerate is Creating a vision And cultivating awareness among all relevant agencies, private organizations and the public to see the importance of prevention Solve environmental problems together There is a joint operation as a network to solve problems. And restoring the environment.

Operating according to the authority as specified in the law

The implementation of the powers and duties that may affect the community and the public until the conflict occurs frequently, including the implementation of environmental impact analysis that may occur from activities or projects of the government sector. Or private Which tends to cause damage to environmental quality As specified in Section 3 (5) of the Royal Decree dividing government departments, policy offices And the 1992 Environmental Plan, with the operational unit, ie the Environmental Impact Analysis Division, which is currently Environmental Impact Assessment Office Under the Office of Natural Resources and Environmental Policy and Planning.

The Ministry of Natural Resources and Environment has seen the need to improve the environmental impact analysis system.

Therefore proposed the National Environment Board to know And appoint a committee to improve the environmental impact analysis system With the Minister of Natural Resources and Environment as the president and has set up a sub-committee under this committee 4 groups, namely 1) Subcommittee on Organization Structure and Development of Environmental Impact Analysis System 2) Sub-Committee on Impact Analysis Process Environment 3) Subcommittee on Technical and Environmental Impact Assessment Report 4) Sub-committee Public Participation Committee.

Determination of environmental quality standards

According to Section 32 which requires the National Environment Board to have the power to publish in the Government Gazette Determine environmental quality standards in the matter: water quality standards in water sources within the land Coastal water quality, including the mouth area of the river Groundwater quality General air quality in the atmosphere General noise and vibration levels And environmental quality in other matters

Declaration of conservation areas or environmental protection areas or pollution control zones

In order to prevent the impact on the quality of the environment in areas that are fragile or less resistant to pollution, such as water sources, streams or natural ecosystems that are different from other areas in general or that may be easily destroyed Areas that have natural or artistic values that should be conserved and not yet designated as conservation areas Or areas that have been designated as conservation zones, but have severe environmental quality problems entering the crisis or areas where pollution problems are likely to be serious, harmful to public health or may cause damage to environmental quality.

State operations for sustainable development By providing a balance of economic development, society and preserving the quality of the environment also may be a long story Due to the current environmental quality is still in crisis. The government sector plays an important role in the management of natural resources and the

environment. Still cannot perform effectively The agency that is responsible for planning the development And environmental agencies still do not work in harmony In the environmental agency itself, they may not understand their role and obligations well. With a new agency That combines a variety of agencies together There is a corporate culture and understanding of different work goals before. Coming to work in a new organization for the goal of

Suggestion

1. Accelerate the creation of operational concepts that lead to the same goals at all levels and all relevant sectors. Develop a management model for development agencies And the management of natural resources and the environment with a view to common goals Giving importance to people and various private organizations in participation and using good governance principles in management
2. Create awareness of natural resources and environment conservation for all related parties to see concrete results as soon as possible.
3. Promote the use of technology from local wisdom Funding for research and development And praised the local knowledge
4. Give priority to solving poverty problems. Especially poverty as a result of erroneous development That affect the way of life, health and destruction of resources
5. Strictly enforcing laws and measures Giving reward to the staff Or related person That makes law enforcement and measures to be effective
6. Distribute the power to manage natural resources and the environment in a concrete manner. Strengthen the strength of local administrative organizations to provide knowledge, understanding and budget for management And have enough personnel to perform.

(Plenary Lectures)

Climate Change and Biodiversity

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The climate of earth is changing. It is warming up, and there is now over whelming scientific consensus that it is happening as a result of human action. With global warming on the increase and the species and their habitat on the decrease, chance for ecosystems to adapt naturally are diminishing. An amazing variety of habitats, people, plants and animals are all connected in a fragile web of life we call " Biodiversity" and every member is essential to keeping this web in balance. The relationship between climate change and biodiversity is now widely recognised such as the irreversible damage due to threat for survival of certain life forms on earth, negative consequences for human well being and positive sides of contribution through mitigation and adaptation processes. It is confirmed through data that biodiversity gets adversely affected due to climate change and the extent and rate of extinction of species far exceeds the normal rates. The first global agreement on the conservation and sustainable use of biological diversity, namely " The Convention on Biological Diversity (CBD)" was signed at the earth summit in Rio de Janeiro, Brazil in 1992. Since then, it has attracted worldwide attention. It is known that the organisms have unique abilities to adapt to changes in temperatures through shift in habitat, changes in life cycles or developing new physical traits. Even the negative effects of climate change can be reduced by protection, conservation or restoration of threatened species, their habitat and the overall biodiversity in forests, marine and coastal areas. So, the conservation and sustainable management of biodiversity has become vital for dealing with the challenges of the climate change.

In view of this the Government of India has taken some steps to mitigate climate change and reduce carbon emissions. Some of the steps taken include interalia-setting up the Bureau of Energy Efficiency and encouraging energy conservation, promoting use of renewable energy, use of cleaner and lesser carbon intensive fuels for transport, fuel switching to cleaner energy, afforestation and conservation of forests, promotion of clean coal technology and environmental quality management for all sectors.

Saving Asia's Vultures from Extinction - Can we - or have we done it?

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Abstract: In 2004, catastrophic 40% declines/year were being reported for Gyps vulture species across South Asia which prompted the need to ban the use of diclofenac in veterinary practice across the region. It also highlighted that establishing viable captive populations of the most hreatened species as a safety-net was priority. Major progress was made early on for removing diclofenac, although diclofenac and similar drugs, some of which are also toxic to vultures, remain the main threat to vulture populations even fifteen years later. There were political challenges with achieving these goals including sceptics in the conservation community and governments. There were also practical challenges for the breeding programme (eg slow breeding, bee attacks, floods, certain officials). However, the need to act quickly became increasingly apparent for avoiding debates and issues over taking the 'last birds'. By 2012, decline rates had slowed due to successful legislation changes (2006 diclofenac bans etc.) and plans for releases could begin to be made. The first release of captive birds took place in Nepal in November 2017 and there are plans are to release the first captive birds in India later this year (it is India where the main populations and historical problems were).The planned releases have prompted diligent in-situ efforts with strong engagement of authorities over huge areas (100km radius 'Vulture Safe Zones'), specifically to remove dangerous veterinary painkiller drugs which caused the main declines. Leading this programme of work together with Government agencies is a consortium (Saving Asia's Vultures from Extinction – SAVE www.save-vultures.org) of 21 Partners, with strong scientific credentials, which has helped communicate/coordinate since 2011, and this SAVE network which meets annually to update a regional action plan, has been a major factor in the progress to date.

Key words: Vulture, painkiller drugs, conservation

Beauty of Thin & Ultrathin

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Abstract: Ultrathin two-dimensional (2D) nanomaterials represent an emerging class of nanomaterials that possess sheet-like structures with the lateral size larger than 100 nm, or up to a few micrometers and even larger, but the thickness is only single- or few-atoms thick (typically less than 5 nm). Although their explorations dated back a few decades, 2004 marked the year of ultrathin 2D nanomaterials resurgence when Novoselov, Geim, and co-workers successfully exfoliated graphene from graphite using Scotch tape, currently classified as the micro mechanical cleavage technique. The 2D feature is unique and indispensable to access unprecedented physical, electronic, and chemical properties due to electron confinement in two dimensions. Graphene, a one-atom-thick and crystalline carbon film, is an exemplary model due to its unexpected properties including ultrahigh room-temperature carrier mobility, quantum hall effect, ultrahigh specific surface area, high Young's modulus, excellent optical transparency, and excellent electrical and thermal conductivities. The explorations of other graphene-like ultrathin 2D nanomaterials are also growing. To name a few, hexagonal boron nitride (h-BN), transition metal dichalcogenides (TMDs), graphitic carbon nitride (g-C_3N_4), layered metal oxides, and layered double hydroxides (LDHs) are typical graphene-like ultrathin 2D nanomaterials that exhibit versatile properties due to their similar structural features but different compositions from graphene. Promising research on grapheme and graphene-like 2D nanomaterials further enriched the exploration of 2D ultrathin family members, such as M Xenes, noble metals, metal-organic frameworks (MOFs), covalent-organic frameworks (COFs), polymers, black phosphorus (BP), silicone, antimonene, inorganic perovskites, and organic-inorganic hybrid perovskites.

Key Words: 2 D, Ultrathin, Graphene Carbon Nitride, Perovskites.

Diversity of medicinal plants their scientific uses and conservation in Alaknanda Valley, Uttarakhanda, India

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Abstract: This study is very important for future generations because the medicinal plants used in various traditional systems for the traditional medicines in the valley of Alaknanda of Uttarkhand Dev Bhumi, India. An ethnomedicinal survey was done in the year 2012-14 in various areas of Alaknanda valley, the information on ethnomedicinal importance of the different plant species were collected through interviews and discussions with the local people living in the Valley. Total 101 plant species are generally used for medicinal purposes were recorded in the survey. In the most of the cases, the underground plants (roots/rhizomes/tubers) 25% are used for medicinal purposes. 20% leaves, the whole plant 16%, barks 11%, fruits 9%, flowers 7%, stems 5% and seeds 7% of the plants. I have observed that some commercially important medicinal plant species are facing great threat due to habitat degradation, over exploitation and unscientific harvesting in the study areas.

Key words:- Medicinal plants, indigenous uses, Alaknanda Valley, conservation.

Diffuse Endocrinology: A New Vistas in Understanding Physiology

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Abstract: The classical endocrine glands until recently are regarded as constituting the sole endocrine system in animal and human body. Though, this belief was challenged very early in 1938 when a Feyrter first time observed a group of specialized clear cells diffusely distributed through out the body. Later, endocrine nature of these cells was fully established after observing presence of dense cored secretory granules. It was also observed that these cells were able to produce, store and secrete amines or active peptides. Based on observing similar products being released by almost every organ innervations later allow scientists to propose a name " Diffuse endocrine system" for these cells. Phylogernetic studies demonstrated that the endocrine system especially neuroendocrine system is very old because such peptides producing cells and the product had been found down to the root of phylogenetic tree including bacteria, invertebrates which have evolved more than 600 million years ago. There now exist the advanced techniques which permit the visualization of these peptide producing cells. Studies conducted in last two decades have increased the awareness about the role of these in various diseases resulting in further understanding their physiological role. This has provided deep insight into the physiopathology of the diseases from constipation to cancer to neurodegenerative diseases like Alzheimers etc.

(Invited Lectures)

Toxicity and Safety in Traditional Indian System of Medicine

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Most traditional system of medicine either from the old or new world (Ayurveda, Chinese medicine, Kampo, traditional Korean medicine, and Unani) colossally use herbal formulations. All these systems define life as the blending of the body, senses, mind and spirit. Traditional therapeutics keep the individual nature in the central role. Parameters for the therapeutic effectiveness of traditional medicine are mainly based on the approach of prognostic, preventive and individual medicine. Traditional medicine systems lack modern therapeutic evidence, as these are not subjected to similar parameters of testing as modern medicine. Thus it is difficult to determine the mechanism and pharmacology of many herbal drugs, and has become incomprehensible in terms of modern medicine. There is a general perception that herbal drugs are non-toxic and safe for the reason that most scientific evidence confers health benefits only. Traditional medicine systems express that herbal drugs may have various types of local or systemic adverse reactions, including those that are life threatening, limited scientific studies reporting adverse effects of 'natural' therapies support this. In Ayurvedic literature, these are known as "Aushadha Vyapata" which means the contradictions of a drug or any added actions of the drug/medicine in the human body apart from the desired action. This is parallel with the adverse drug reactions of the modern pharmacology, which includes the toxic effects and unwanted effects. Ayurvedic classics elaborately describe administration of drugs can lead to complications due to the following reasons; such as Akala (Inappropriate time), Alpa matra (In less dose), Ati matra (In excess dose), Purana (Very old/expired medicine), Na Cha Bhavitam (Improper triturated), Asamyaka Sanskrutam (Improper purified /processed). This reflects practitioners concern about the untoward effect of Ayurvedic drugs. Under ideal conditions, traditionally trained practitioners carefully identify the ingredients, harvest plants in the specific season to ensure appropriate levels of bioreactivity, prepare formulations under a strict set of laws and prescribe them to achieve an appropriate clinical response. It is a common notion that any drug having effects must have side effects either traditional or modern. Classic medicine literature describes processes for purification, preparation and storage of the drugs; toxicity of a drug can be minimized. By undergoing through different traditional pharmaceutical processes described as 'Samskara' in Ayurveda, the transformation of good pharmacological action takes place and subsides the adverse/toxic actions.

Synthesis and Molecular Docking of Pyrimidine Incorporated Novel Analogue of 1,5 Benzodiazepine as Antibacterial Agent

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Abstract: A one-pot protocol involving nitrile-derived amidoxime of 1,5-benzodiazepine to synthesize its novel pyrimidine derivatives using DMAD and DABCO catalyst under microwave conditions has been described. The antibacterial activity of the synthesized compounds was examined against Gram-positive *S. aureus* and Gram-negative *E. coli* using broth micro-dilution assay. Low IC50 values for the synthesized compounds indicated their potential as antibacterial agents. Further, field emission scanning electron microscopic study and cell membrane leakage study ascertained that the test compounds have ability to cause cell lysis *via* bacterial cell membrane rupture and disintegration. In addition, molecular docking studies suggested that test compounds may act through bacterial DHFR inhibition.

Keywords. 1, 5-benzodiazepine; pyrimidine; domino synthesis; antibacterial activity.

Changing Relationship of Biodiversity and Climate Change

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In the historical past there was synergic relationship between biodiversity and climate change. In the history of the earth, many examples of climate change, as a natural phenomenon, can be observed. The natural process of climate change takes a long time and proceeds with a very slow pace. This long duration of change in climatic parameters does not affect adversely the botanical and zoological life of the region under influence because it gets proper time for shift and adaptation in the new setting. Thus the overall biodiversity of a particular region also adjust with changing climatic conditions. Here, the questions of loss of biodiversity at global scale hardly arise. In the present era, the climate change phenomenon has been accelerated. Majority of researches have shown that this is because of human intervention at various scales. The development of new technologies, population explosion, over exploitation of the resources, changing life style in the recent era and poor management environment along with lack of political will are responsible for many adversities to happen. The rapid pace of climatic alterations is giving little time to the biomass to adapt in the new environmental conditions thus resulting in loss of biodiversity in a big way. In this research paper the historical perspective of climate change has been taken into consideration to understand the relationship between biodiversity and climate change. Further, the changing nature of this relationship in the present time has been discussed here in the light of anthropogenic interventions. Here the dominant human activities are focused, which are having great interference in transforming the climatic conditions. Later, in this piece of research, the impact of speedy climatic change on zoological and botanical life is given with some suitable case studies of affected plant and animal groups. The effect of rapid pace of climatic changes on vegetation cover is depicted in terms of shifting vegetation belts along with their dependent fauna. The Key issues of biodiversity conservation are discussed here in this risky environment. A conservation strategy is being proposed here for recommending the conservation of biodiversity, in light of minimising the impact of anthropogenic activities on climate.

Precursor chemistry: Important tool to deposit corrosion protective coatings

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Abstract: Protecting metals from corrosion is of great technical importance and significance. One of the most common routes to this end is to deposit ceramic coatings onto the metal surface [1]. Precursor chemistry based bottom-up approach seems to be a promising method to provide ceramic materials at nano-scale with desired properties. Since bottom-up approach starts from molecules, therefore, precursor chemistry plays a very important role to decide the properties of the materials at nano-scale. Metal oxides have been deposited over steel and aluminum by bottom up methods: (i) sol-gel based dip coating and (ii) spray pyrolysis deposition methods. In both of the methods we have used organically modified metal alkoxides as precursors. All the deposited metal oxide coatings were characterized by FT-IR, XRD, SEM, EDX and AFM studies. The corrosion resistance of the coated aluminum and steel samples were investigated by the electrochemical impedance spectroscopy (EIS) and potentiodynamic polarization (PD) in 3.5 wt. % aqueous NaCl solution. The results show corrosion protective behavior of deposited metal oxides coatings.

Molecular mechanism of DNA double strand break repair and its application in cancer radiotherapy

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Genomic instability is an important key player of cancer progression of many cells. DNA repair pathways play a central role in the maintenance of genomic stability. Because radiotherapy and most chemotherapy agents in cancer treatments rely on DNA damage, so, the cell's DNA damage repair and response pathways may hold the key to new therapeutic strategies. In recent decades, many researchers are focusing their research area to search for new ways for sensitizing tumor cells to cancer radiotherapy. The inhibition of DNA repair pathway has recently been proposed as an important target for radiotherapy of cancerous cells.

In eukaryotic cells DSB is repaired mainly through non-homologous end-joining (NHEJ) and homologous recombination (HR) repair pathways. NHEJ repair process includes many factors as Ku70/86, DNA-PKcs, XRCC4-Ligase IV complex and XLF (also known as Cernunnos). In these factors DNA-PKcs acts as central regulator in NHEJ repair. It is observed that XRCC4 is phosphorylated by DNA-dependent protein kinase (DNA-PK), with Ser260 and Ser320 (Ser318 in the alternatively spliced form) being the major phosphorylation sites in vitro. In this study we have reported that Serine 260 and Serine 320 is phosphorylated by DNA-PK in response to DNA damage. Herein, we generated an antibody against XRCC4 phosphorylated on Serine 260 and Serine 320 and examined its phosphorylation status via Western blotting. The phosphorylation of XRCC4 on Serine 260 and Serine 320 showed dose dependency as increased by Radiation dose and DNA damaging agents. The phosphorylation was greatly suppressed by DNA-PK inhibitor but not by ATM inhibitor. Moreover, XRCC4 Serine 260 and Serine 320 phosphorylation was decreased in DNA-PKcs-deficient cells. These observations indicate that XRCC4 Serine 260 and Serine 320 is phosphorylated by DNA-PK *in cellulo*. The XRCC4 S260A and S320A mutant reversed the high radiosensitivity of XRCC4-deficient M10 cells to a similar level to that of wild-type XRCC4. However, the clonogenic survival of cells expressing the XRCC4S260A mutant was slightly but significantly lower than that of those expressing wild-type XRCC4. We have also reported that XRCC4S260A-expressing cells displayed significantly greater number of γH2AX foci than XRCC4WT-exressing cells 4 h after 1 Gy irradiation and without irradiation. The present results suggest a potential role of XRCC4 Ser260 phosphorylation by DNA-PK in DSB repair. We identified 06 additional phosphorylation sites of DNA-PK enzyme in XRCC4 protein in response to radiation and DNA damaging agents. We have also shown that extremely c-terminal region of XRCC4 is important in DSB repair pathway as many phosphorylation targets are located in this region. In addition to that we have reported that nuclear localization of XRCC4 is required for efficient repair of DNA double strand breaks. This research work is very important to find a missing link in our understanding of DSB repair mechanism and may provide us with a new therapeutic approach for the treatment of cancer.

Study of bird diversity in Sikar: A Review

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Abstract: Study on bird diversity was studied in the area of Sikar district was done, over a period of two years from September 2016 to February 2018. A total number of 45 bird species belonging to 23 families were recorded during the study covering an area of about 10.214 km^2. Area of study was 0.02% of total area in district Sikar, and thus 10.5% of the total bird species reported in the region. The study area was divided into different regions by dividing it into bisectors horizontal and vertical providing four equal squares. Total 20 bird species were observed, 4 were migratory namely Yellow-footed green pigeon, Rosy-starling, Robin accentor, Ashy drongo. The common bird species were Jungle babbler, common myna, spotted dove, blue rock pigeon, house crow, black drongo etc. The study area has wide variety of trees, which may be one of the major contributing factor for the richness of bird species.

Band Gap Engineering of Oxide Semiconductors

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Abstract: Metal oxides semiconductors such as zinc oxide, cadmium oxide and tin oxide have a great potential for the research due to their advanced optoelectronic applications. The realization of such applications demands band gap tuning and their in-depth understanding. A huge band gap tuning in highly transparent oxide semiconductors by doping, annealing and swift heavy ion irradiation has been observed. An anomalous behavior in band gap tuning such as widening and narrowing under different doping concentrations and annealing temperature is understood by the influence of induced stress effects due to creation of intrinsic defects with band gap renormalization, charge neutrality levels and secondary phase formation. On the other hand a huge band gap narrowing around 1.1 eV upon ion irradiation is observed in tin oxide. Transport measurements show that the high conductivity and the carrier concentration decrease upon increase in the fluence of irradiation. The mechanism of charge carrier transport were investigated at low temperature is attributed to nearest neighbour hopping (NNH) and variable range hopping (VRH) in different temperature regimes. Origin of the band gap tuning is understood in framework of Burstein-Moss (BM) shift, Quantum Confinement (QC) effect, CNL and band-tailing states in amorphous semiconductors will be discussed.

Applications of Nanocatalysis in Organic Synthesis

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Abstract: Catalysis is becoming a strategic field of chemical research since it represents a new approach to meet the challenges of energy efficiency and sustainability. Catalysis research became one of the most powerful tools in the medicinal, petrochemical and fine-chemical industries. Recently, the nanocatalysis is emerged as a powerful research tool to carry out various chemical transformations and has been applicable for the synthesis of variety of biologically active heterocycles. This approach allows faster transformation of a wide variety of substrates to high value products at lower costs, with process efficacy. Heterocyclic compounds constitute the largest and most varied family of organic compounds and have enormous potential as the most promising molecules for the biological activity. The discovery of nanoparticles with different size, shape and composition has stretched the limits of technology and are used as catalysts in the synthesis of variety of biologically important heterocycles.

Recent Trends in Waste Water (A Natural Resource) Treatment

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Abstract: Agricultural waste cellulose nanomaterials are naturally occurring with unique structural, mechanical and optical properties. While the paper and packaging, automotive, personal care, construction, and textiles industries have recognized agricultural waste cellulose nanomaterials potential, I suggest agricultural waste cellulose nanomaterials have great untapped potential in water treatment technologies. In this paper, I discuss the strategy for successful synthesis of processed cellulose/TiO2 nano-composite is proposed in which amorphous TiO2 is directly embedded in the cellulose fiber without using any binder at room temperature. The crystalline structure, the particle size and the morphology of the prepared nano-composite were investigated using Fourier transformer infra-red (FTIR) and X-ray diffraction (XRD) . The crystalline analysis had pointed out the dispersion of amorphous TiO2 particles between processed cellulose layers reducing its crystallite size to nano dimensions. A successful formation of processed cellulose/TiO2 nano-composite is confirmed from Energy-dispersive X-ray spectroscopy (EDX) analysis that illustrated a sharp peak attributed to Ti+4. Meanwhile, the as-fabricated processed cellulose/TiO2 by sol-gel method using NaOH as intermediate stage is considered a facile approach for synthesis of nano-composites of desired morphology and size without using chemical spacer. The photo-catalytic activity of the prepared composite was evaluated in the degradation of methyl orange (MO) dye under ultra-violet illumination.The results confirmed the self-cleaning property of the prepared nano-composite.

Key words: Nanomaterials, Fourier transformer infra-red, X-ray diffraction

Breeding Performance of Red-Vented Bulbul (*Pycnonotus cafer*) in Jhunjhunu Region (Rajasthan), India

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Abstract: Breeding performance of the Red-vented Bulbul (Pycnonotus cafer) was studied in Jhunjhunu region, Rajasthan state during March, 2016 to October, 2017. The population of P. cafer was more observed in human habitat region than the non-human habitat region of the study area. Red-vented Bulbul is a common breeder bird in this region. During study period total 24 nests were observed. Breeding period was observed March to October in 2016 and 2017. P. cafer prefers small, leafy and dense bushes for the nesting. It prefers different plant species as a nesting site. It is found that the hatching success was 48 %, nestling success was 34 % and nesting success was 16 %. It is found that in this region the breeding performance of the Red-vented Bulbul was low. Reasons for the low breeding performance are due to predation, food availability, starvation and desert environmental conditions.

Keywords: Jhunjhunu, Red-vented Bulbul (Pycnonotus cafer), Breeding, Nest, Clutch Size, Fledge.

Inhibitory Effect of Fruit Pulp of Ash Gourd (*Benincasa Hispida* Thunb.) Cogn., Fruit Leachte and Ethrel on Carrot Grass (*Parthenium hysterophorus L.*)

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Abstract: Effect of fruit pulp of ash gourd (Benincasa hispida thumb.) Cogn., fruit leachate and ethrel (2-chloroethyl phosphonic acidc) on vegetative and reproductive parameters in Parthenium hysterophorus L. was observed. The fruit pulp kept around the base of the plant and sprays with fruit pulp leachates and ethrel inhibited both vegetative as well as reproductive growth of the weed. There was a marked reduction in plant height, number of branches, inflorescence and flowers, fruit and seed-set in plants treated variously.

Key words: Fruit pulp, Etheral, *Benincasa hispida* and *Parthenium hysterophorus*

Bactereohlorophyll derivatives are better anti cancer agents

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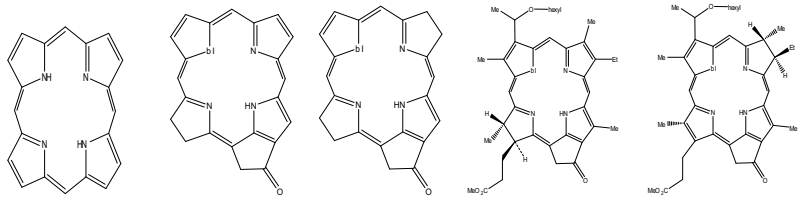
Porphyrins, chlorophyll and bacteriochlorophyll contains tetra-pyrrole system and are useful photosensitizers for the treatment of cancer by using photodynamic therapy. Biosynthesis chlorophyll is believed to complete in two steps. i.e. (i) dark step, this type of process takes place in dark and the (ii) step is light dependent and other steps are known as late steps. The later steps of biosynthesis forms three types of chromophores (1) porphyrins, all the four rings are unsaturated. (II) chlorins in which pyrrole ring 'D' is saturated or hydrogenated and (iii) bacteriochlorins where pyrrole ring B and D are saturated (hydrogenated). It is not possible to understand why the nature selected these three porphyrins related compounds for the life on earth. Chemistry and anticancer properties of chlorin and bacteriochlorin derivatives will be discussed.



Porphyrin Chlorin Bacteriochlorin HPPH Isomer HPPH

Synthesis of these two compounds was carried out by applying simplified method. The main compounds hexyloxy pyropheophorbide (HPPH) and hexyloxy ethyl-3-deacetyl-7,8-dihydrophylloerythrin (isomer of HPPH) are promising agents used in photodynamic therapy for the treatment of various type of cancer will be discussed.

Ethnobotanical Study of Indigenous Knowledge on Medicinal Plants Used by Rural People in Nagaur District of Rajasthan, India

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Abstract: Plant resources are an integral part of human society. This paper reports an ethnobotanical study that focused on the traditional medicinal plants used by local people to treat human diseases. Ethnobotanical data were collected using field visits, group discussion, interview and observation with Priests, Vaidya, Ojha, Bhopa, Gadoliya Luhar, Kanjar, Sansi, Rebari and Rural People. A total of 61 medicinal plants distributed in 54 genera and 36 families were collected and identified. Local people possess traditional knowledge of medicinal plants in the study area. The aim of this study was to document of the mecicinal uses of local plants and to develop an ethnobotanical inventory of the floral diversity.

Keywords: Indigenous, Ethnobotany, Nagaur.

Changes in Biochemical Parameter and DNA Fingerprinting Pattern induced by Fluoride Contaminated Soil in Prosopis Juliflora

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Abstract: Environmental pollution with fluoride (F) is a worldwide problem. F is a ubiquitous, non-biodegradable and hazardous waste product. In this study, *Prosopis juliflora* seedling was used as a bioindicator of F pollution in the range of 25-100 mg NaF kg^{-1} soilrite. In this work, the effect of F exposed to different concentration in *P. juliflora* seedling was studied on various biochemical parameters (organwise Faccumulation, enzyme activities) as well as on random amplified polymorphic DNA (RAPD) assay. Significant increase in biochemical parameters of *P. juliflora* were observed with the increase in F concentration. Results indicated in RAPD profiles of *P. juliflora* with F treatment includes alterations in band intensity as well as gain or loss of bands compared with the control seedlings. These results suggest that changes in genomic template stability (GTS) could be detected with RAPD profiles and this result could be compared with biochemical parameters. Thus, DNA polymorphism detected by RAPD analysis could be as an investigation tool for environmental toxicology and as a useful biomarker assay for the detection of genotoxic effects of F pollution on plants.

Keywords: Fluoride, Genetic diversity, Hyperaccumulator, Phytoremediation, *P. juliflora*

Environmental Education and Public Awareness

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Abstract: The enhanced paced of development activities and rapid urbanization has resulted in stress on natural resources and quality of life. Humans are responsible for depletion of the natural resources and adverse climate change such as ozone layer depletion, global warming and acid rain. Lack of adequate environmental knowledge is an obstacle in achieving a sustainable future for humankind at both global and local levels. Environmental education (EE) has an effective role in creating healthy awareness and preparing suitable environment for the development and maintenance of human minds. There is no one universal definition of EE but ultimately, it focuses on knowledge, skills and the ability of individuals to find solutions to environmental problems. Use of press media, awareness raising campaigns, incorporation in mainstream education (basic, secondary and tertiary), public participation in environmental matters, celebrities in media campaigns and civic education are some of the ways by which environmental education can be heralded. Environmental education prepares the individual to become able to balance between his vital needs and the natural environment that provides spiritual, aesthetical and ethical sources for many communities. Environmental education includes both formal and informal education and training that increase human capacity and capability to participate in environmental management and in solving environmental crisis and challenges.

Keywords: Environmental Education, Public Awareness, Global warming

Threatened Plants of Beer Jhunjhunu Conservation Reserve, Rajasthan And Strategies For Their Conservation

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Abstract: Beer Jhunjhunu Conservation Reserve, a protected forest area of Jhunjhunu district of the state Rajasthan, is endowed with rich plant diversity. An extensive survey of the region during 2013-2015, reveals that the area is luxuriant in vegetation and enriched with many medicinal, rare, endemic and threatened categories of plants. A total of 440 species of flowering plants including one gymnosperm were documented from the study area. In present, different factors like overgrazing, deforestation and over exploitation of natural resources have declining the forest cover of Beer Conservation Reserve Jhunjhunu in a rapid pace. Many plant species are facing threats for their existence. These species require special attention towards preservation on high priority basis. Among the recorded plant species, 35 taxa belonging to 21 families were reported as rare, endemic and threatened from the area. The threatened status of the plant was confirmed with IUCN Red List and other standard publications on rare and threatened taxa of the country .The present study was aimed to identify rare and threatened taxa in the area, existing threats to them and develop strategies for the rejuvenation and conservation of these plants. Conservation of the species in natural habitat and artificial regeneration would be the best opinion to recover the species from near extinction. The present work contributes substantially to generate awareness among local people and government authorities to save rare and threatened plants and their habitats.

Keywords: Endemic, Threatened, Conservation Reserve, Red Data Book, Biodiversity.

Water-Borne Disease Malaria in India

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Abstract:Malaria, the world's most important parasitic infectious disease, is transmitted by mosquitoes which breed in fresh or occasionally brackish water. Today, malaria occurs mostly in tropical and subtropical countries, particularly in The ecology of the disease is closely associated with the availability of water, as the larval stage of mosquitoes develops in different kinds of water bodies. The mosquito species vary considerably in their water-ecological requirements, (sun-lit or shaded, with or without aquatic vegetation, stagnant or slowly streaming, fresh or brackish) and this affects the disease ecology. Climate change (global warming) appears to be moving the altitude limits of malaria to higher elevations, for example in the East Indian highlands and forest Area. Malaria has been a problem in India for centuries. Details of this disease can be found even in the ancient Indian medical literature like the Atharva Vedaand Charaka Samhita. According to the World Malaria Report 2017, in the year 2016, more than half of the population (698 million) was at risk of malaria. According to the Report, India accounted for 6% of all malaria cases in the world, 6% of the deaths, and 51% of the global *P. vivax*cases. The Report estimates the total cases in India at 1.31 million (0.94-1.83 million) and deaths at 23990 (1600-46500) Stagnant puddles, which are a breeding ground for mosquitoes, follow the rains every year causing an increase in the incidence of water-borne diseases. Malaria is the third most common of these diseases in India after diarrhoea and typhoid. In 2017-18, the number of malaria cases in the country rose to 0.84 million. India being one of them, contributes to 96% of the total malaria cases and 98% of the total malaria deaths in the world. India is also one of the three countries that accounts for 97% of the malaria cases.

Key words: Parasitic, tropical and subtropical countries, water-ecological

Antimicrobial and Antioxidant Activities of *Adhatoda Vasica* Leaf Extract on Clinical Pathogens

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Abstract: Leaf extract of *Adhatoda vasica* was tested on pathogenic bacteria species eg. *E-coli* and *Bacillus subtillis* pure culutre y institute of microbial technology Chandigarh by using disc diffusin method. The extract prepared from the leaves of *Adhatoda vasica* in different solvents such as ethanolic, methanolic and water have been found to inihibit the growth of bacterial strains methanolic extract was showed strong inhibition compare to other solvents on both clinical pathogens. Both are pathogenic bacteria that cause diarrhea and many mote uncontrolled diseases due to resistance. Ethanolic extract showed significant inhibition effect against gram nagetive bacteria *E-coli* and hydro extract showed significant inhibation effect against *Bacillus subtillis*.

Key words: Pure culutre, extract , gram nagetive bacteria

Analysis of Spider Diversity in Shekhawati Region of Rajasthan, India

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Abstract: Spiders are the highly diverse group of invertebrates and occupy various habitats. Spider community structure is closely related to variation in habitat structure, food abundance, microclimatic changes and spatial variation. Spiders have been regarded as good indicators of habitat quality due to higher sensitivity to change in their environment. Spiders are attractive because of their intriguing biology and they can be easily collected and maintained in laboratory This article aims on monitoring the population structure and distribution of spider fauna in Shekhawati region of Rajasthan, India. A total of 80 species belonging to 50genera and 15 families were recorded from the shekhawati areas, In all these areas, Salticidae (Groud runner), Araneidae (Orb web weaver), Lycoidae (Groud_active runner) and oxyopidae (Foliage runner) Families were most diverse families. The present study was undertaken to establish a relationship in similar climatic zone. The small population size in caves/rocks may be due to scarce vegetation and limited space for web formation. It was concluded that spider communities fluctuated in these habitat types due to different ecological conditions.

Key words: Invertebrates, Spiders, spatial variation

Importance of medicinal plants in human life

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Abstract: India is consuming around 60 percent medicines of the worldwide consumption. Since prehistoric times, human have been dependent on plants for the treatment of various ailments. While the traditional medicines were obtained from medicinal plants, minerals, organic matter and the herbal drugs were prepared from medicinal plants only. In India, poor and tribals for their basic needs such as food, fuel, shelter, medicine, clothing etc. are using several plant species. The prolonged use of wild plants have played an important role in the socio-economic development of the humans. It seems medicinal use of plants have been developed through observations of wild animals. The officially documented plants with medicinal potential are around 3000 but traditional practitioners use more than 6000. India is the largest producer of medicinal herbs and is known to be the botanical garden of the world. A large number of medicinal plants were mentioned in Ayurvedic literature for their medicinal properties. Charak samhita and Sushruta samhita are good accounts for uses of plants in curing diseases in humans and animals. 'Atharvaveda' contains 114 hymns or formulations for the treatment of lots of diseases. Modern Allopathic system of medicine is also based on plants and herbs. The World Health Organization (WHO) estimates that 4 billion people and 80 percent of the world population use herbal medicine for some aspect of primary health care.

Keywords: Allelochemicals, Herbal drugs, Medicinal plants, Plant metabolites.

Discovery of Universe

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Abstract : All the substances is made by fundamental particles, as electrons, protons. In them the smallest ever discovered is quarks. Neutrons are also formed by quarks. These elementary particles give rise to atoms. When we fuse two light nucleus then we get a heavy nucleus. This is called nuclear. Through this process we get hydrogen bomb or large energy source. But when we fuse neutrons to each other we can get 10000 times greater energy source than a hydrogen fusion. This can be a turning point of physics. Neutrons can be taken as base particle for all the substances. By this we can get more power sources without affecting the nature.

Key words: Electron, proton, elementary particles

Pollution & health Hazards

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Abstract: Environment Pollution is a wide reaching problem and it is likely to influence the health of human. This paper provides the insight view about the affects of environment pollution in the perspective of air, water, land and soil waste pollution on human, animals and trees/ plants. Environment Pollution has various adverse health effects from early health from life. Some of the most important harmful effects are prenatal disorders, infant mortality, respiratory disorder, allergy, malignancies cardiovascular disorder, and increase in stress oxidative endothelial dysfunction, mental disorder and various other harmful effects. According to me still time left in the hands of global institutions, governments and local bodies to use the advance recourses to balance the environment for living and initiates the breathed intellectuals to live friendly with environment. As effective reply the contamination is largely base on human appraisal of the problem from every age group and contamination is control program evolves as a nation wide fixed cost sharing effort relying upon voluntary participation.

Key words: Pollution, infant mortality, prenatal disorders

Some Formulations of *Tephrosia purpurea* (Family: Fabaceae) as Inhibitors of Egg-laying by the Pulse Beetle *Callosobruchus chinensis* Linn

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Abstract: Production of food grain has been the endeavor of human race since the beginning in of civilization. The stored grain pests are difficult to manage with the chemical insecticides because of the health hazards associated with their use. This problem calls for a solution in the form of natural, non-toxic grain protectants which would have minimum effect on non-target organisms and have least residual toxicity. Among important insect pests of storage, the pulse beetle *Callosobruchus chinensis* Linn. (Coleoptera: Bruchidae) is one such pest causing considerable damage to stored pulses. It has been found to cause weight loss, decreased germination potential and reduction in commercial value of the seeds. During the present study, an effort has been made to employ some formulations of plant *Tephrosia purpurea* (Family: Fabaceae) and study the effect on egg-laying by the beetle.The pulse beetle *C. chinensis* was raised on green gram *Vigna radiata* in incubators maintained at 28 ± 2^0C and 70% RH. Different formulations using plant parts (root, stem, leaf and fruit) were employed in the form of aqueous suspension, aqueous extract and ether extract and the treatments were made using different dose concentrations namely 1%, 2.5%, 5% and 10% besides normal and control. Specific number of adult insects were released in muslin cloth covered beakers containing weighed green gram grains and treated with different dose concentrations (w/v). Observations for the number of eggs laid by the pest insect *C.chinensis* was recorded after three days of treatment and it was observed that in general all the treatments of the plant resulted in significant decrease in the eggs laid (no/pair) by the insect suggesting that the select plant has a potential to be used as grain protectant against *C.chinensis*.

Key words: Insecticides, residual toxicity, extract

Impact of Climate Change on India

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Abstract: In recent years climate change shows immense impact on natural and human systems in all continents. Climate change is a big threat to sustainable development especially in India. The huge population, geographic location, high dependency on agriculture and income inequalities make India very susceptible to undesirable impacts of climate change. In addition with rise in mean annual temperature, increasing sea level, the meltdown of Himalayan glaciers are effects of global warming in India. Due to climate change 15% of ground water resource of India are damaged, water table is continuously falling down and quality of ground water is also degraded. Monsoon patterns in India already much affected and it will make monsoons unpredictable. Due to change in monsoon many areas of India become flooded every year which cause a heavy damage to economy of the state as well as country and displacement of millions of people. On contrary some states could face severe drought which affected crop production significantly and influence farmers badly. Frequencies and intensities of tropical cyclones on southern coastal areas become higher particularly in the post monsoon periods. As a growing country, India needs to focus the impacts of climate change and take initiative that are sustainable in nature.

Keywords: Climate, India, Annual temperature

Sustainable Development by Renewable Resources of Energy

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Abstract: There is an intimate connection between energy, the environment and sustainable development. A society seeking sustainable development ideally must utilize only energy resources which cause no environmental impact (e.g. which release no emissions to the environment). However, since all energy resources lead to some environmental impact, it is reasonable to suggest that some (not all) of the concerns regarding the limitations imposed on sustainable development by environmental emissions and their negative impacts can be in part overcome through increased energy efficiency. Clearly, a strong relation exists between energy efficiency and environmental impact since, for the same services or products, less resource utilization and pollution is normally associated with increased energy efficiency. Presented in this paper are (i) a comprehensive discussion of the future of energy use and the consequent environmental impacts in terms of acid precipitation, stratospheric ozone depletion and the greenhouse effect, (ii) some solutions to current environmental issues in terms of energy conservation and renewable energy technologies, (iii) some theoretical and practical limitations on increased energy efficiency, (iv) discussions of the relations between energy and sustainable development, and between the environment and sustainable development, and an (v) illustrative example. In this regard, a number of issues relating to energy, environment and sustainable development are examined from both current and future perspectives. In addition, some recommendations are drawn from the results we present for the use of energy scientists and engineers and policy makers, along with the anticipated effects.

Keywords: Renewable Resources, Energy, Environmental emissions

Plastic Pollution in Dholpur - A Small District Town of Rajasthan

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Abstract: Rajasthan has banned on all types of Plastic bags w.e.f 1st August 2010 and declared the whole state as a Polythene free zone. But despite this ban, Plastic and polythene bags are prevalently used without any apprehension. This study shows that even a small town of Dholpur with a population of approximately 1.5 lakhs is consuming almost equal amount of polythene bags after the execution of the ban. This study also suggests the effective and judicious ways to tackle the problem at lower level.

Keywords : Plastic Bag, Pollution, Environment, Recycle, Reuse.

Effect of Global warming on Indian Agriculture

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Abstract: Agriculture is the backbone of Indian economy which in turn relies on the monsoon season. Rising global temperature is not only causing climate change but also contributing to the irregular rainfall patterns. Uneven rainfall patterns, increased temperature, elevated CO2 content in the atmosphere are important climatic parameters which affects the crop production. Research studies indicate that weathering parameters influence strongly (67%) compared to other factors like soil and nutrient management (33%) during the cropping season. The Intergovernmental Panel on Climate Change (IPCC) projected that the global mean surface temperature will likely rise and may result into uneven climatic changes. This rising temperature may affect crop yield at large scale. It has been reported over 20th century that rising temperature plays an important role towards global warming as compared to precipitation. Researchers have confirmed that crop yield falls by 3% to 5% for every 1°F increase in the temperature. In India, crop production may be divided into two seasons: Kharif (influenced by south-west monsoon) and rabi (mostly influenced by north-east monsoon). Present study shows that the crop production is dependent on temperature. Temperature vs. crop production shows a funnel shape for all the seasons. For the lower temperature both the properties are almost linearly correlated. In rabi, at the beginning production show a negative trend with temperature which slowly converts to the positive trend. In kharif that negative trend is not visible. At higher temperatures production increases for both the seasons but with large scattering. The findings may be helpful to study the effect of climate change on the crop production.

Keywords: Global warming; Climate change; Indian agriculture; Crop yield

Medicinal Importance and Traditional Values of *Ziziphus Nummularia* (Burm. F.)Wight & Am

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Abstract: *Zizyphus nummularia* commonly known as Jharber, The plant belongs to Rhamnaceae family. Various parts of this plant are being used in Ayurveda and other folk medicines for the treatment of various ailments in many regions of Rajasthan. The plant use traditionally in treatment of cold, mental retardation, dysentery, diarrhea, fever, burns, allergy, scabies, eczema, colic, ulcers, wound healing, pharyngitis, bronchitis, anemia, irritability, hysteria, and as a nervine tonic. Leaves and fruits are used for indigestion and inflammation. Dried fruits are used as an anticancer, anodyne, refrigerant, sedative, somatic and treatment of anemia, bronchitis, bums, chronic fatigue, loss of appetite and pharyngitis. The plant is reported to having antitumor, antihelmintic, antibacterial, analgesic, and anti-inflammatory activities.

Key words: - folk medicines, ailments and wound healing.

E-Waste preamble

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Abstract: E-Waste is a popular informal name for electronics product nearing the end of their useful life. E-Waste are considered dangerous as certain components of some electronics products contain material that are hazardous depending on their condition and density.The hazardous content of these material pose a threat to human health and environment. Discarded computers, television, fax machine ,electric lamp, cellphone, CRT, LED, CD, DVD, pager, scanner, audio-video equipments and batteries if improperly disposed can leach lead and other substances into soil and ground water .Many of these products can be reused, recycle in an environmentally sound manner so that they are less harmful to the ecosystem.

Keywords - hazards of E-waste, electronics devices, eco management.

Biological and Thermo-chemical Treatment Technologies for Sustainable Sludge Management

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Abstract : Sludge is a valuable source of nutrients and energy, hence, to waste minimization should be to maximize its use as a resource. Sludge is a semi-solid waste produced from waste water treatment processes. It contains biodegradable organic compounds , inorganic substances, bacteria, viruses, heavy metals. Sludge can also be considered a source of nutrients and energy, which could be recovered by economically viable approaches. In the present paper, several commonly used sludge treatment processes including land application, composting, landfilling, anaerobic digestion, and combustion are reviewed, along with their potentials for energy and product recovery. In addition, there are new thermo-chemical techniques in pyrolysis, gasification, liquefaction, and wet oxidation are use in now days. Thermo-chemical treatment is a good and major sludge disposal option, it provides a pathway for energy recovery . In all scenarios investigated, the reuse of bioenergy and by-products has been shown to be of crucial importance in enhancing the overall energy efficiency and reducing the carbon footprint

Keywords - Sludge , biosolid, energy recovery, bioenergy, environmental impact etc.

Utilization of Fly Ash to Improve Biochemicals Constituants of *Triticum Astivum* (Wheat)

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Abstract: In the present study, we tried to assess the feasibilities of possible effective and safe utilization of fly ash as soil amendment in north Rajasthan wheat field and its impact on wheat plants, especially at Biochemical (Protein, Starch and Phenol) properties. Our results showed that various concentration of FA (2 to 2 %) amendments have significantly improved the Biochemical properties of wheat. Experimental examination shows a best result in wheat physiological response on 12% fly ash from vegetative part of wheat. It was revealed that the application of fly ash has a positive effect on Biochemical properties of *Triticum astivum*.

Keywords: Fly ash, Biochemical properties, Wheat and Soil

Impacts of Global Warming on Medicinal Plants

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Abstract: Global Warming is the slow increase in the average temperature of the earth's atmosphere. The burning of fossil fuels, the large-scale clearing of forests, and other human activities are altering global climates at an alarming rate. Increases in CO_2 as well as other "greenhouse gasses" are expected to raise world temperatures by 0.03°C per year in the 21st century. Global warming and increased atmospheric [CO_2] are already having a major impact on plant distributions. Temperature, rainfall, and the length of day affect phenophases, or the timing of plant life cycle phases. Medicinal plants are highly valuable to human livelihood. Studies on effects of climate change on medicinal plants are particularly significant due to their value within traditional systems of medicine and as economically useful plants. There is evidence that climate change is causing noticeable effects on life cycles and distribution of the plant species. Some studies have demonstrated that temperature stress can affect the secondary metabolites and other compounds that plants produce, which are usually the basis for their medicinal activity.

Keywords: Global warming, fossil fuels, greenhouse gasses, medicinal plants, traditional, metabolites and compounds.

Environmental Value of Social culture for Modern Forest Management and Implication of Forest Right Act. A Case study of Bagidora Forest range Southern Rajasthan

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Abstract: Forest is an important part of cultural landscape and natural resource which is linked with livelihood concerns of traditional communities. In the age of globalization forest resources are rapidly being degraded. Forest managers, planners, policy-makers, and the scientific world have too long ignored and denigrated this valuable traditional knowledge of indigenous communities. Holders of traditional knowledge face an uphill battle in most parts of the world to protect their lands and their practices from political, economic, social, cultural, and environmental pressures. Growing awareness of the importance of environmental, social and cultural values of forest resources supports increased recognition of traditional knowledge and justification towards traditional communities. Traditional knowledge is a kind of an alternative knowledge system which compliment formal forest science and have a vital role in our quest for sustainability at personal, local, regional, and global levels. In India, the government has enacted the Scheduled Tribes and Other Traditional Forest Dwellers Act 2006. The aim of the present paper is to know the contribution of traditional knowledge to modern forest management and connotation of Forest Right Act 2006 in Bagidora forest range of southern Rajasthan where traditional knowledge acts as an important ethological tool of biodiversity conservation.

Keywords: Traditional Knowledge, Forest Rights Act, Indigenous people, Forest Management

Parameter space visualization and sensitivity analysis of mathematical model for Tuberculosis

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Abstract: Mathematical models in systems biology, especially modeling immunology of infectious diseases, can be highly nonlinear with a large number of variables. Then the number of parameters in such models can be even higher. Such difficulties prevent from obtaining the analytical solution. The model non-linearity also adds significance to the initial conditions which can affect the outcome, thereby treating initial conditions as parameters. To understand the effect of variation in parameters on the model outcome, sensitivity analyses are carried out. Two analysis techniques are investigated, namely, eFAST and PRCC. Their results can be biased or inconsistent if model outcomes vary over sampled-parameter space. Based on sensitivity analysis results, few parameters are eliminated to arrive at a reduced order model. The most sensitive parameters are manipulated through external influence to prevent an unfavourable model outcome of the model dynamics. Such methodology is studied with respect to Tuberculosis (TB) infection model for lungs and lymph nodes. We find that eFAST is computationally very expensive to analyze high dimensional parameter space of TB Model. We visualize the parameter space using a high-dimensional data visualization algorithm called t-SNE. The t-SNE plot indicates that not all disease outcomes are equally represented in the parameter space. We choose a small subspace of the parameter space having nearly equal representation of the three disease outcomes, namelt, latency, activation and clearance. With the help of PRCC results, we predict feasible disease prevention and cure strategies valid for the chosen small subspace. The t-SNE plots also show that predicting one single disease prevention and cure strategy for the entire parameter space is not possible.

Key words: Mathematical models, immunology, sensitivity analysis

Xenobiotic Chemicals and their Harmful Effects on Animals

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Abstract: Various chemicals are used in industries, agriculture and daily life. Most these chemicals are xenobiotcs for all animals as they are not part of our natural ecosystem. According to Rachel Carlson (1962) pesticides like DDT affect sexual breeding adult animals and development their embryos. Different pesticides have different effects. According to Lenz (1962} sedative drug thalidomide, which used to manage pregnancies could cause limb and ear abnormalities. These chemicals can cause endocrine disruptions and can cross placenta, which will adversely affect the development. These chemicals are called as teratogens.

Key words: Xenobiotcs, endocrine disruptions, sedative drug

Arousal Capacity of Hibernating *Scotophilus Kuhlii* by Infrared Capacity

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Abstract: Chiropterans, commonly known as bats, are the only true flying mammals. Bats globally comprise of 1,116 species belonging to 202 genera, 18 families. They constitute about a quarter of the entire mammal species and are second to Rodents in term of diversity. Bats have been reported from almost all geographical areas of the world except for the Arctic and Antarctic, extreme desert area and a few isolated oceanic islands. In many countries bats are major contributors to mammalian biodiversity, while in some, particularly small oceanic islands, they are only indigenous mammals and play a vital role as "key stone species" in ecosystem. *Scotophilus kuhlii* is found in primary and secondary habitats, and in both rural and urban areas especially in middle Rajasthan. It roosts in temples, caves, hollow trees, palm fronds, roofs, crevices, cracks and holes in the walls and on the roofs of old houses, dry leaves of trees in colonies of several hundred individuals. It is an early flyer and prefers to feed on hymenopterans and dipterans. In physiological approach hibernated *S. kuhlii* use torpor [reduced body temperature (T_{body}) and metabolic rate] to condense energy expenditure during winter time. Episodic arousals to usual T_{body} are energetically expensive, so hibernators trade off stimulation benefits against energetic costs. This is especially important for bats with a parasite disease causing increased arousal frequency. Hibernators could also accrue some benefits of arousals with minimal T_{body} increase, thus avoiding full arousal costs. We compared skin temperature (T_{skin}) of roosted *Scotophilus kuhlii* using Infra red camera (FLIR C2). During the term "cold arousals", bats exhibited movement following T_{skin} increase of only 2.1 ± 0.2 °C, compare to >26 °C increases during normal arousals of *S. kuhlii*. A few cold arousals were observed mid-hibernation, typically in response to disturbances. Cold arousals may, therefore, represent a voluntary restriction of arousal temperature instead of loss of thermoregulatory control. All technical support provide for this research by UGC minor research project for assessment biodiversity of bats in Shekhawati, Rajasthan

Keyword: Bats, *Scotophilus kuhlii*, Infrared and arousal capacity

Food Preference of *Axis axis* in Keoladeo National Park, Bharatpur (Rajasthan)

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Abstract: Keoladeo National Park is a man made and man managed wetland park. It plays host to thousands of birds and provide grazing ground for different mammals. It is a mosaic of grass land, woodland, woodland swaps & wetland. It declared as Ramsar site in October 1981, National Park on 10 March 1982 and world heritage site in 1985. *Axis axis* is commonly known as *Axis* deer or Chital (Pitra *et al.,* 2004). Chital is most primitive deer of true Cervidae (Flerov, 1960). Food habits of chital in Keoladeo National Park were studied from Nov 2012 to Oct 2013. For this purpose 8 transects were laid in different blocks of KNP. Selection of blocks is based on randam observations of the area. Data were collected by feeding site method (Lovaas, 1958) *i.e.* noting the locations where animals grazed and later inspecting the site. Chital prefers grazing but switched to browsing as needed. It utilized grasses and fallen leaves, fruits, seeds of different trees and shrubs in the park.

Key words: KNP, *Axis axis,* Food Habits, Vegetation, Grazer, Browser.

The critical role of environmental ethics and values in creating ecologically sustainable society

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Abstract: An ecologically sustainable society is a community which is in balance with nature. It should assure its citizen equality, freedom and a healthy standard of living. It should assure sustainable development, which represents a commitment to advancing human wellbeing by continuous maintenance of quality environment for more years within ecological limits of the biosphere. Ecologically sustainable societies can be developed by adopting environmental ethics and values. Environmental ethics is the scientific looking of various issues related to the rights of individuals on the environment. It is concerned with do's and dont's of human beings to the environment. The role of environmental ethics and values in sustainable development consist of cognition, criticism, education, inspiration, adjustment, legislation and promoting environmental regulations. Environmental ethics is maintained by following methods.a) An equitable sharing of resources for urban, rural and wildness-dwelling communities. b)Conservation of resources for future generations. c)The need for gender equity, urban-rural equity, northern-southern countries equity.d) Conservation of traditional value system.e)Conservation of biodiversity and pollution control.f)Liquid, solid and e-waste management.g)Environmental rights of animals.h)Use of Ecofriendly items The formulation of environmental ethics that aims at sustainable development, can not only harmonize the relationship of population and resource, environment and economic development but also guide behavior section, push social and political system transformation, strengthens the legal system, and raise environmental awareness of the public. So final target of educational approaches should be ethical based to raise awareness of personal responsibility and commitment towards maintenance of ecologically sustainable society.

Key Words : Ecologically sustainable society, Sustainable development, Environmental ethics.

Drip Irrigation: Need of Present for Future

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A**bstract**:"If we conserve water today, water will conserve us in future."Water is the unique and vital source of life, without water we can't imagine the life. It is considered as the most important among other known extraterrestrial bodies. Only 1% water is here for us over which a huge population all over the world is depended for the survival. Among this agricultural sector consumes most of the water. Water scarcity reaches at alarming condition today and will reach at lethal level in future. Thus immediate attention is required to secure our and our children's future and drip irrigation can play an important role in conserving the water. Drip irrigation also known as "trickle irrigation" or "micro irrigation" or "localized irrigation". It is an irrigation method that saves water and fertilizer by allowing water to drip slowly to the roots of plants either onto the soil surface or directly onto the root zone through a network of valves, pipes, tubing and emitters. It is done through narrow tubes that deliver water directly to the base of the plant. In drip irrigation, water is applied at a low rate varying from 2 - 20 lit res per hour.In India, the irrigated area consists of about 36 per cent of the net sown area. Presently, the agricultural sector accounts for about 83 percent of all water uses rest 5, 3, 6 and 3 percent uses by domestic, industrial, energy sectors and other consumers respectively. The losses in water conveyance and application in traditional surface irrigation methods can be considerably reduced around 35-50% by adopting drip irrigation methods and can be practiced in a large variety of crops especially in vegetables, orchard crops, flowers and plantation crops. The soil moisture is kept at an optimum level with frequent irrigations. Drip irrigation method is also useful to reduce the labour cost, rate of energy and infection and fertilizer and pesticide cost. Thus, drip irrigation method is an important need of present for future by fulfilling the requirement of intensive water conservation and energy saving agricultural production. "Contribute to save a drop of water today, it will surely make ocean a day."

Keywords:- Emitters, Extraterrestrial Bodies, Fertilizer, Population, Trickle Irrigation .

Assessment of Insect flora of different crop yield in Shekhawati region and their IPM with chemical effect (pesticide and Insecticide)

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Abstract: Integrated pest management (IPM), or integrated pest control (IPC) is a broad approach for economic control of pets. The pest population is lowered below the economic injury level. It is the use of all available pest control techniques and their integration to control the pest populations by keeping pesticides to levels that are very low so as to minimize risks to human health and the environment. In IPM there is growth of the crop in best possible way with least interference and adverse effect on the environment. The pest species can be managed by IPM with least harmful effects on the environment,. Thus IPM reduces the human dependence on the pesticide and insecticides and leads to effect control of target organism without affecting the other beneficial insects.In agro ecosystem insect pollinators, natural enemies, soil micro-organisms etc. are the main biodiversity components. Insect fauna is one of the most diversified biological components of any habitat. The crop field represents an agro ecosystem which is most assured food source for insects. In recent years losses caused by insect pests to crops are high. The arid zone crops are potential hosts of several insect species and some of them are at the pest status minimizing the yield. The study focuses on identification of major pests in Shekhawati region, assessment of local available insecticide and pesticides and implications of IPM in this ecosystem.IPM is the future of pest control because it emphasizes on the reduction of complete elimination of chemicals and adverse methods of pest control. Rather it focuses on use of cultural and traditional method to control the pests. The methods emphasized in IPM are cost effective and environment friendly. They can benefit both the farmer and the ecosystem.

Keyword: Cultural methods, biodiversity conservation.

A Review on Threats and Challenges to Fish Biodiversity of India

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Abstract: Fishes are the most diverse group of vertebrates, comprising around 32,447 species .Fish provides a good and cheapest source of high protein and contains many vitamins and minerals Fishes are sensitive to many stresses from parasites to diseases to acidification. Due to rapid growth rates, large body sizes, and trophic levels, many fish have the capacity to bioaccumulate the toxic materials.Knowledge of the fish fauna of India is still in its initial phase as the survey work is incomplete and flawed .Fish Base has now grown into a huge on-line database and serves as an important tool to researchers .The freshwater fish diversity of our country, shows widespread degradation of aquatic freshwater fish habitats. Concern have been raised over lower production and reduction in biodiversity of fish species which has led to a more comprehensive approach to fisheries management . Milestone Conservation techniques adopted have been stock characterization, captive breeding, seed production and culture of Hilsa (*Tenualosa ilisha*.) ICAR launched an All India Coordinated Research Project on Air-breathing Fish Culture. MPEDA launched the project "Rainbow Revolution of India. The threats to fish diversity are habitat alteration, wanton destruction, exotic fish species, overexploitation and climate change. Conservation Measures includes Brood stock management and artificial reproduction techniques. The present review focuses on a concise freshwater Indian fish biodiversity, which will analyze in depth issues pertaining to the threats and challenges. This paper highlights the situation of freshwater fish biodiversity in many perspectives, and we need to improve knowledge on biodiversity by strengthening the taxonomic capacity using computer and molecular tools.

Keywords: Fish biodiversity, Threats, Conservation, database and fisheries management.

Biodiversity & Ecosystem: Climate Change

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Abstract :- One of the most striking features of the earth's biota is its extraordinary diversity. The term biodiversity includes "variability among living organisms from all sources, inter alia, terrestrial, marine, and other aquatic ecosystems, and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems". There are three levels of biodiversity-genetic, species & ecosystem diversity. The total number of species on earth is estimated between 3 million to 100 million out of which 27000 species become extinct every year. If this goes on 30% of world's species may be gone by the year 2050. Some of the factors that played a vital role in shaping past and present biodiversity are species interactions, environmental change, and cosmic disturbances (meteors, tidal interactions, solar processes). Ecosystems produce multiple services and these interact in complex ways, both negatively and positively. Critical processes at the ecosystem level influence plant productivity, soil fertility, water quality, atmospheric chemistry, and many other environmental conditions that ultimately affect human welfare. Ecosystem contains two compartments the biotic and the abiotic. Changes that are taking place in the ecosystems of the world, including species losses through local extinctions, species additions through biological invasions are unusual. These changes have number of important effects on ecosystem processes. The capacity of ecosystems to adapt to climate change depends on the diversity of species they currently support. Major threats to biodiversity is habitat extinction inter alia, habitat loss, overexploitation, invasive species, pollution, taxonomic extinction. Overpopulation of human and over consumption of natural resources is the root cause of all biodiversity loss.

Key words: Biodiversity, ecosystem , Overpopulation

Phytoremediation: Green technique to eliminate contaminants of Soil and Water

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Abstract : The economic, agricultural and industrial development is essential for the progress and advancement of every nation. But Industrialization, urbanisation and other human activities led to the release of large number of toxic compounds in the environment. Chemicals, heavy metals and industrial effluents are discharged in water bodies and soil which contribute to a variety of toxic effects on living organisms in food chain by bioaccumulation and bio magnification. These toxins cannot be destroyed biologically and get transformed into different oxidation states or different organic complex Thus it is pertinent to explore remedy for removal of these toxic substances both from environment as well as from human beings. Conventional methods to remediate metal-contaminated soils are flushing, stabilization, thermal desorption, encapsulation can be used at highly contaminated sites but are not applicable to large areas. These remediation methods require high energy input and expensive machinery. At the same time, they destroy soil structure and decrease soil productivity. There has been increasing interest for the development of plant-based remediation technologies. Phytoremediation is a low-cost and environmentally sound technique. In phytoremediation the roots of established plants absorb metal elements from the soil and translocate them to the above-ground shoots where they accumulate. After sufficient plant growth and metal accumulation, the above-ground portions of the plant are harvested and removed, resulting in the permanent removal of metals from the site. Phytoremediation is an integrated multidisciplinary approach to the clean-up of contaminated soils, which combines the disciplines of plant physiology, soil chemistry, and soil microbiology. Studies indicate that phytoremediation has been applied for contaminants in small-scale as well as laboratory studies. These contaminants include heavy metals, radionuclides, chlorinated solvents, petroleum hydrocarbons, organophosphate insecticides. From research it has been discovered that Certain species of higher plants can accumulate very high concentrations of metals in their tissues without-showing toxicity. About 45 families have been identified which have the potential to uptake heavy metals. some of the families are Brassicaceae, Fabaceae, Euphorbiaceae, Asteraceae, Lamiaceae and Scrophulariaceae.Therfore Phytoremediation is an environment-friendly green alternative to eliminate contaminants from soil and water.

Key words -Phytoremediation, contaminants, heavy metals, bioaccumulation

Assessment of microbial diversity using modern techniques

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Abstract: The functional and species diversity of microorganisms has been shaped by 3.5 billion years of evolution, enabling them to colonize all aquatic ecosystems, even the most extreme. Microorganisms are involved in all the basic processes, from degrading organic matter to regulating the composition of the Earth's atmosphere equilibriums such as O_2–CO_2 or CH_4. Despite playing this crucial functional role in the terrestrial ecosystem, there has been only limited progress in identifying and classifying prokaryotes, as only 1% of microbes can be cultivated with classical microbial methods. Over the past two decades, the use of techniques based on ribosomal RNA has revolutionized knowledge on the microorganisms present in ecosystems. Microbial diversity studies are now dominated by approaches involving techniques such as cloning-sequencing, fluorescent in situ hybridization (FISH) and genomic fingerprinting using denaturing gradient gel electrophoresis (DGGE) and terminal random fragment polymorphism (T-RFLP) revealing the broad diversity of microbial communities. Phylogenetic reconstruction based on ribosomal RNA has made it possible to highlight the existence of new clades specific to certain ecosystems, such as a highly abundant clade known as SAR11 that is found in all the oceans. Similarly, Archaea have been identified in the euphotic zones of marine ecosystems. Finally, SSU rRNA sequences have made it possible to define 40 phyla, for half of which no bacteria have been isolated or cultivated. For comparison of microbial communities from various areas are the constructions of a dendrogram representing the relatedness of the population.

Keywords: Microorganism, cloning sequence, euphotic, dendrogram

Social Forestry: An Initiative of Rural People of Churu

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Abstract: Social forestry means the management and protection of forest and afforestation of barren and deforested lands with the purpose of helping environment, social and rural development. The term, social forestry, was first used in 1976 by The National Commission on Agriculture, Government of India. It was then that India embarked upon the social forestry project with the aim of taking the pressure off currently existing forests by planting trees on all unused and fallow land. Social forestry is basically for the people, by the people and of the people approach. It is therefore a democratic approach of forest conservation and usage.The rural people of Taranagar district Churu are raising plantations so as to meet the growing demand for timber, fuel, wood, fodder etc., thereby reducing pressure on the traditional forest areas. In this system rural people take care of plants. Handicapped, women and old people also contribute in this task. People unite, make plan and take care of plants to change barren land of study area. It is not always necessary that the rural people grow trees for fuelwood, but very often they are interested in growing trees without any economic motive. They may want it to provide shade for the agricultural crops, as wind shelters, soil conservation or to use wasteland. Farm forestry is also a type of social forestry which is performed frequently by rural people of this area. Some plant species are specially grown by rural people such as *Eucalyptus*, Babul, *Prosopis cineraria* (Khejri), Neem, *Salvedora* etc. In this paper the main emphasis is given on impact of plantation by rural people at barren land for different purpose.

Keywords: Afforestation, Forest conservation, Plantation, Wind shelters, Soil conservation.

Phytochemical and Pharmacognostic Evaluation of Leaves of Lucas Aspera (Lameaceae)

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Abstract: *Lucas aspera* L. known as dudhi , is a medicinal plant belonging to the family *Lameaceae*. *Lucas aspera* is a well known traditional medicinal plant used in various indigenous systems of medicine. It is widely distributed throughout India. The present study provides pharmacognostical, physicochemical and phytochemical details of the leaves of the *Lucas aspera* which are useful in laying down standardization and pharmacopoeial parameters.

Key words: Medicinal plant , pharmacognostical, standardization

Influence of Gokhru leaves extract on corrosion inhibition of aluminium in acidic medium

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Abstract: The plant Gokhru (*Tribulus terrestris*) can be used as eco-friendly corrosion inhibitor for aluminium in aggressive industrial environment The corrosion inhibition efficacy of alcoholic extract of leaves of plant Gokhru for aluminium in sulphuric acid has been studied in relation to the concentration of inhibitor, concentration of acid and immersion time by mass loss method. Inhibition efficiency increases with inhibitor concentration and immersion time but decreases with increase of acid strength.
Keywords: Corrosion inhibitors, *Tribulus terrestris*, Mass loss.

Adaptation to Pollutant: Lessons From Studies with Mung Bean

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Abstract: Mung beans are grown in various concentrations of fly ash (pollutant), emitted from thermal power plant along with control. In this condition, plants are subjected to terminal pollutant (fly ash). Studies have been conducted in pot experiments under net house condition. In addition to phonological adaptations to fly ash, physiological adaptations have also been observed. The moderate concentration of fly ash in combination with 15 kg/ ha nitrogen application improved the plant fresh and dry weights, number of nodules formation, NPR and NRA at the three growth stages i. e. vegetative stage, flowering stage and fruiting stage as well as seed yield at harvest. However, higher concentration of fly ash in soil cause decrease in above studied parameters. The case study highlights the role of pollutant in moderate concentration can play to increase the yield.
Key words: Mung bean, fly ash, nitrogen.

Biodiversity and its Conservation

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Abstract: Biodiversity is defined as the variability among living organisms from all sources including terrestrial, marine, aquatic ecosystem and the ecological complexes of which they are part .The elements that make up biodiversity can be subdivided into three different levels:- Genetic level, Species level ,Ecosystem level.Biodiversity is important because the greater the biodiversity, the greater its resistance to environmental stress. The loss of even one species often can provoke a decrease in the capacity of the system to remain preserved in case of degradation. Biodiversity offers food and fundamentally important in medicine. A very large number of species of plants are used for medicinal purposes since very ancient times. Biodiversity is a source of income to the nation in the sector of tourism and recreational activities also wild natural environments and the presence of animals, in fact attract thousands of tourists from all over the world every year.Today loss of biodiversity due to such reason like - alteration and loss of the habitats, introduction of exotic species and genetically modified organisms, pollution, climate change, overexploitation of resources. We can do something important to preserve biodiversity like don't buy animals and rare plants, avoid killing organisms with no reason, don't deteriorate the environment.

Key words: Biodiversity, Genetic,Ecosystem, resources

Fish Diversity of Anas River Banswara (Rajasthan)

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Abstract: Anas is a left bank tributary of Mahi River. It's flows in the North West direction and joins the main river Mahi on left bank in the Dungarpur district in Rajasthan. It has a total length of about 156 Km and the total drainage area of 5604 Sq.Km. The present study on "Fish Diversity of Anas River" Banswara Rajasthan, was conducted during September 2017 to July 2018. The river has a fairly fish fauna and 7 species from different families have been recorded in the present investigation. *Labeo rohita* and *Catla* fishes predominantly present in the river.
Key words: Fish, fauna, biodiversity, *Labeo*, *Spp.* Anas River.

Environmental Awareness for Sustainable Development Responsibility

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Abstract: Today's century is facing emergence of Environmental Education for sustainable development that is anchored on awareness. It is assumed that an increase in environmental awareness will reverse the misuse of the natural resources. Humans are on the top of trophic level and are the dominant species that constitute the most for the present deterioration of the environment. There is a need to focus to change the outlook of the environment and attitude towards the Utilization of its resources. Environmental education can become more effective tool in creating respect for the environment. We need to rethink our consumption nature and the endless faith in the technology to solve reoccurrence human made ecological problems .The present paper reviews the steps taken to create awareness about environmental laws and conservation methodology for protecting the Earth. This can be attained only through a deliberate awareness of environmental values that promotes sustainable attitude and environmental ethics.

Keywords:, Environmental awareness, Environmental responsibility, Natural Resources and Environmental ethics.

Biological and Mechanical Control of Armoured scale,*Abgrallspis kudhiensis* (Ojha) in Agra Region

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Abstract: Armoured scale insects (Homiptera: Coccoidea) belongs to family Diaspididae and subfamily Aspidiotinae, have a flattened, shield like cover that is less in diameter. Armoured scale insects are sap-sucking plant parasites that cause enormous damage agricultural, horticultural and ornamental plant crops. All the insects of this f*a*mily *a*re parasitic insectS. The present study on *Abgrallspis kudhiensis* parasite on especially Dalbergia sisso plants and dense population of outbreeders causing defoliation, discolouration of foliage and reduced the growth of the plants. *Abgrallspis kudhiensis* insects scale population apparently become adopted to specific host individual and population densities became high only with genetic fitness of the population to the host species and individuals. Armoured scale resistance to applications of synthetic insecticides is found on agricultural horticultural and ornamental crops. Therefore, the present study deals with biological, mechanical control of Armoured scale in Agra Region. The biological control of Armoured scale insects uses of natural enemies, especially the parasitoid wasp, *Aphytis melinus a*nd Mechanical control by water flow.

Key words: Armoured scale insects, horticultural, ornamental crops

Medicinal Plant based Bio-formulation- an Elixir for Pl ant Growth and Disease Control

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Abstract: Current scenario demand of biopesticides highly increased that showing environmental awareness, the pollution potential. Because of health hazards from many conventional pesticides, organic products demand also increasing. In this study, we tried to develop a bioformulation based on dried medicinal plants (Neem (*Azadirachta indica*), Hingota (*Balanites aegypticae*), Aswagandha (*Withania somnifera*), Datura (*Datura stramonium*)), are easily available in the rural area as wild type. This bioformulation was effective to control of disease and also promote the growth of crops and other plants. Its tested-on diseased Tomato and Chilli plants suffering from Damping off symptoms caused by Phythium aphanidermatum. Results showing positive control the disease symptoms.

Key Words: Bioformulation, Medicinal Plants, Bio-control

Isolation, Characterization and Application of Phytase-Producing Bacteria in Formulation of Eco-Friendly Plant based Carp Diets

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Abstract: Aquaculture feed industry depends heavily on the expensive fish meal because of its balanced amino acids and fatty acid profile. The replacement of fish meal by plant based carp diets is nowadays a growing issue. The major disadvantage of it is the presence of anti-nutritional factors phytate, as it chelates nutritionally important divalent cations (minerals), proteins and amino acids, rendering them biologically unavailable and a reduction in growth. Phytate phosphorus, excreted into the environment is acted upon by microorganisms that release the phosphorus, causing pollution in terms of eutrophication. The hydrolytic enzyme phytase initiates the release of phosphate from phytate. In the present study different bacterial strains from 10 culturable fish species were isolated in a pure culture. After comparative assay of extracellular microbial phytase activity and quantitative assay the most promising phytase-producing bacteria (LF1 and LH1, isolated from the foregut and hindgut regions of adult L. rohita) were identified as Bacillus licheniformis on the basis of both phenotypic characteristics as well and 16S rDNA sequence analysis, and were used for fermentation of oilseed meal for 15 days at 37 ± 2°C for formulation of eco- friendly carp diet. Fermentation showed effective result in reducing the anti-nutritional factors phytate and enhancing bioavailability of free amino acids, free fatty acids and mineral concentration. Preparation of fish feed by fermented sesame seed meal by phytase-producing fish gut bacterial strains may be expected to provide both economic and environmental benefits through decreased expenditures on supplemental minerals and mineral outputs to the aquatic ecosystem.

Keywords: Antinutritional Factor, Phytate, Phytase, Eutrophication, Bioavailability

Tinospora cordifolia, one cure for many diseases-A review

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Abstract: This study describes the prominence of a medicinal herb *Tinospora cordifolia* in therapeutics uses in various diseases, morphology, biochemical composition and biological activities. *T. cordifolia* is a widely used in folklore and Ayurvedic systems of medicine, belongs to the family Menispermaceae. Even today in the world of modern medicines, *T. cordifolia* is called 'a magical herb' due to its property of curing a lot of maladies. It has been used for treatment of diabetes, jaundice, chronic diarrhea, cancer, dermatological diseases, general debility, asthma, edema, gout, swine flu (H1N1), hepatitis, hyper acidity, dyspepsia, fever, urinary and skin diseases. Potential of this herb in management of deadly diseases like HIV and cancer makes it a plant of clinical interest. Furthermore, it is a rich source of biologically active compounds, which would attract the attention of drug discovery groups to discover novel bioactive molecules for safer and effective treatment of various diseases.

Key words: Bioactive molecules, Medicinal plants, *Tinospora cordifolia.*

Dimethoate pesticide effect on distribution of ATPase in the retina of Gallus domesticus

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Abstract: Dimethoate is an organophosphate pesticide, it is widely used to fight agricultural pests and it is rapidly hydrolysed in the animal body to form monotoxic products. The ATPase activity was localized with varying intensities in all the layers of retina of Gallus domesticus. The dimethoate treatment resulted in the inhibition of ATPase activity in different layers of retina. The ATPase inhibition was found maximum at highest concentration. Present research maybe proposed that dimethoate pesticide should be used with most care and safety. These are quite likely to affect the vital enzymes profile of the photoreceptors of retina .

Keywords: Pesticide effect, Gallus domesticus, Dimethoate

Biodiversity and its Conservation Strategies

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Abstract: Biodiversity means 'the variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable'. Biodiversity is the variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part. Biodiversity forms the foundation of the vast array of services that critically contribute to human well-being. Biodiversity is important in human-managed as well as natural ecosystems. According to the United Nations Environment Programme (UNEP), biodiversity typically measures variation at the genetic, species and ecosystem level. Main threats to biodiversity are: Degradation, fragmentation and loss of habitat, Spreading of invasive species, Unsustainable use of natural resources, Change of Climate, Inappropriate fire regimes, Changes within aquatic environment and water flows, diseases, pollution, poaching of animals etc.
Human should conserve biodiversity because of its benefits, for example- services and biological resources which are essential to live our life on earth. However, it also provides spiritual benefits as well as social benefit. Decisions humans make that influence biodiversity affect the well-being of themselves and others. Over the years, the depletion of biodiversity has been quite active. Biodiversity conservation is basically aimed at protection, enhancement and scientific management of the biodiversity. Biodiversity conservation has three prime objectives: Maintain crucial ecological processes as well as life support systems, Preserve the variety of species, Make sustainable exploitation of ecosystems and species.

Keywords: Biodiversity, Variability, Ecosystem, Degradation, Fragmentation, Invasive.

Cytogenetic studies in *T. undulata* (Sm.) Seem: A Threatened Tree of Rajasthan

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Abstract: T.undulata is locally known as Rohida and commonly as desert teak. It belongs to family Bignoniaceae. It is monotypic genus and is most important tree species of arid zone. Is important tree as stabilizer of shifting sand dunes and providing shelter for wild life. It is very useful in afforestation of drier tracts due to its drought and fire resistant properties. It is common agroforestry tree sp in Thar desert of Rajasthan for its high survival rates even in extreme drought conditions. It is highly valuable for its quality wood and medicinal properties. The species has been designated as threatened plant species in Rajasthan. United Nations Environment Programmes (UNEP), World Consevation Monitoring Centre (WCMC) Nairobi, Kenya has included T. undualta into category 1 indeterminate of their list of threatened plants to emphasize the status of T. undulata and the urgent need for conservation. Although it is as economical, ethnobotanical and medicinally important tree, attempts for its conservation, sustainable utilization and for genetic improvement are by and large lacking. Therefore present cytologenetic investigations were carried out to study the genetic variability in T.undulata. Somatic chromosome number for this species is concluded as 2n=2x=36 from data collected on chromosome associations, chiasma frequency and their distribution pattern. All accessions were characteristic in having 18 bivalents at diplotene/diakinesis/metaphase I in all PMCs analyzed except two accessions. The mean value of total number of bivalents per PMC was ranged from 16.93 to 17.8. among bivalents ring types were dominated over rod types. Majority of PMCs had shown equal distribution of chromosomes at Anaphase I and high percentage of pollen stainability and complete absence of accessory (B) and supernumerary nucleoli. In origin and adaptation of T.undulata to adverse conditions of arid zone, numerical alteration in chromosomes might have played an important role.

Keywords: Cytogenetic studies, *T. undulata,* Rajasthan, Threatened Tree

Protective Role of LIV.52 against Radiation and Cadmium Induced Hematological (RBC) Changes in the Swiss Albino Mice

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Abstract: The present study was aimed to evaluate protective efficacy of a herbal drug Liv.52 against radiation and cadmium induced Haematological changes in the Swiss albino mice. The animals treated with gamma radiation and/or cadmium chloride with and without Liv.52 were sacrificed by cervical dislocation at post treatment intervals of 1, 2, 4,7,14 and 28 days. The values of Hb found to increase up to day-14 in non drug treated groups and day-7 in drug treated groups. Thereafter a decrease in the value was observed without reaching to the normal. When the animals were treated with radiation and cadmium chloride simultaneously, synergistic effects were observed. In all drug treated groups recovery started earlier than that in non drug treated groups. The Liv.52 treated animals exhibited less severe damage and early recovery as compared to non drug treated groups. Thus, it appears that Liv.52 is potent enough to check Haematological change in the Swiss albino mice.

Keywords: Radiation, Cadmium, Liv52, Haematological change, Hb, Mice.

Effects of Air Pollution on Human Health

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Abstract: Hazardous chemicals escape to the environment by a number of natural and/or anthropogenic activities and may cause adverse effects on human health and the environment. Increased combustion of fossil fuels in the last century is responsible for the progressive change in the atmospheric composition. Air pollutants, such as carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen oxides (NOx), volatile organic compounds (VOCs), ozone (O_3), heavy metals, and respirable particulate matter (PM2.5 and PM10), differ in their chemical composition, reaction properties, emission, time of disintegration and ability to diffuse in long or short distances. Air pollution has both acute and chronic effects on human health, affecting a number of different systems and organs. It ranges from minor upper respiratory irritation to chronic respiratory and heart disease, lung cancer, acute respiratory infections in children and chronic bronchitis in adults, aggravating pre-existing heart and lung disease, or asthmatic attacks. In addition, short- and long-term exposures have also been linked with premature mortality and reduced life expectancy. These effects of air pollutants on human health and their mechanism of action are briefly discussed.

Key Words:- Environment, Air Pollutants,

Common Parasitic Plants of Sikar District in Rajasthan

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Abstract : The Sikar District is located in the North Eastern part of the state of Rajasthan. It is located between 27°21'to 28°12'North latitude and 74°44'to 75°25'east longitude. It is bounded on the north by Jhunjhunu district, in the South - west by Nagaur District and south - East by Jaipur District. It also touches Mahendragarh District of Haryana an its North East corner.The District has an area of 7742.44 km^2 The Parasitic vegetation is very common and spare & comprise. We have collected total of 4 Genus, 6 species belonging to 2 Families such as *Cistanche tubulosa*, *Orobanche aegyptiaca*, *Orobanche cernua*, belonging to family Orobanchaceae, and *Cuscuta hyalina*, *Cuscuta reflexsa* belonging to family Cuscutaceae.

Key Words – Parasitic Plants of Sikar District.

Mollusc fauna and its ecological features in Kot dam in the Northern Aravalli range bordering Indian desert

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Abstract: The Kot dam is situated in the western foot-hills of the Aravalli bordering the Indian desert. It holds water that has narrower and lower ranges of temperature, pH, EC, TDS and alkalinity as compared to the surface waters in the Indian desert. It has better light penetration and dissolved oxygen and reveals considerably narrow range of seasonal thermal fluctuations. Among mollusc fauna in the dam, studied for 15 months, was represented by Only two gastropods were recorded including *Bellamya bengalensis* (Lamarck) and *Indoplanorbis exustus*(Deshayer).The total gastropod population on the banks of the dam ranged only from 11 to 27/m^2 showing higher counts during late monsoon. The dam shows many a species common with those in desert waters, however, some of them differ in their population and seasonality of occurrence.
Key words: Mollusc fauna, Aravalli , desert

Biodiversity: Introduction , concept, Threat and Conservation.

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Abstract: Biodiversity is the foundation of ecosystem services to which human well-being is intimately linked. No feature of Earth is more complex, dynamic, and varied than the layer of living organisms that occupy its surfaces and its seas.. Biodiversity is defined as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. Biodiversity affects many important ecosystem processes in terrestrial ecosystems such as biomass production, nutrient and water cycling, and soil formation and retention—all of which govern and ensure supporting services. If multiple dimensions of biodiversity are driven to very low levels, especially trophic or functional diversity within an ecosystem, both the level and stability (for instance, biological insurance) of supportive services may decrease..Biodiversity contribute to our material well-being .Loss of biodiversity and the related changes in the environment are now faster than ever before in human history and there is no sign of this process slowing down. Virtually all of Earth's ecosystems have been dramatically distorted and altered by human activities and continuously be converted for agricultural and other uses. Many animal and plant populations have declined in numbers and geographical spread. Loss of biodiversity is caused by a range of drivers. A direct driver unequivocally influences ecosystem processes. An indirect driver operates more diffusely by altering one or more direct drivers. Important direct drivers affecting biodiversity are habitat alteration, climate change, invasive species overexploitation and pollution. The main cause of the loss of biodiversity can be attributed to the influence of human beings on the world's ecosystem. The threats to biodiversity can be summarized in the following main points: Alteration and loss of the habitats, Introduction of exotic species and genetically modified organisms, Pollution, Climate change and Overexploitation of resources.
Keywords: Biodiversity, Ecosystem, Pollution

Environmental audit

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Abstract: Environmental audit is a growth area which has received little attention in the auditing literature. Environmental audits may examine: compliance, monitoring programmes, impact predictions, equipment performance, physical hazards, financial risks, products and markets, baselines and benchmarks, management programmes and structures, planning procedures and legislation. There is currently no mandatory requirement for companies to undergo environmental audit, although pressures on them to do so are growing, and there are no generally accepted standards regulating the nature of audit work. In the absence of standards, the views of individual practitioners will have a decisive effect on the form of the audit.
Key words: Environment, auditing literature

Rare and little known Plants of Sikar District in Rajasthan

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Abstract: Bikaner district forming a part of Great Indian Desert in the state of Rajasthan and covers an area of 30,358 Sq km. It live below Latitude 27°11'to 29°03'North and longitude 71°52 'to 76°15 'east. it is bounded on North by Shri Ganganagar District, on west part by Jaisalmer, Partly by Bahawalpur District (Pakistan), on the East by Churu and on the South East by Jodhpur and Nagaur. Some plants are rare and little known as *Cadaba fruiticosa* (L.) Druce., *Maerua arenaria* (DC) Hook & Thoms, *Grewia tenax* (Forsk) Fiori, *Zygophyllum simplex* L. Mant., *Monosonia heliotropioides* (Cav.) Boiss, *Psoralea plicata* Delole, *Chascanum Mariibifolium* fenzlex walp.

Key Words – Rare and little known plant of Bikaner District.

Systemic Acquired Resistance in Cauliflower against Sclerotinia rot

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Abstract: Sclerotinia rot or Stem rot or white rot of cauliflower caused by *Sclerotinia sclerotiorum (*Lib.) de Bary is a serious threat to oilseed rape production with substantial yield losses worldwide. The disease has been widely reported in the last few years in India causing considerable loss in yield of cauliflower production in India. Keeping this in view three abiotic elicitors (Benzothiadiazole, salicylic acid, oxalic acid) were evaluated to find out a suitable and cost effective control measure for this disease. It was observed that abiotic elicitors were found to be effective in reducing disease and inhibiting pathogen growth in the form of lesion on stem and sclerotia formation. The maximum disease control was observed in **s**eed-cum-foliar spray with the treatment of Benzothiadiazole followed by salicylic acid and oxalic acid.

Key words: Salicylic acid, oxalic acid , Indian mustard , *Sclerotinia sclerotiorum.*

Changing scenario of Biodiversity in the Ranthambore National Park (Rajasthan)

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Abstract: Biodiversity is defined as "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." In spite of many tools and data sources, biodiversity remains difficult to quantify precisely. But precise answers are seldom needed to devise an effective understanding of where biodiversity is, how it is changing over space and time, the drivers responsible for such change, the consequences of such change for ecosystem services and human well-being, and the response options available. Deriving its name from the pictorial fort inside, the Ranthambore National Park is one of India's most renowned national parks. Located where the Aravali Range and plateau of the Vindhyas meet, Ranthambore National Park was once where the royals of Jaipur hunted. The national park is also considered a prominent heritage site due to the ancient ruins found inside. Although flanked by the Banas River to the north and the Chambal River to the south, the many lakes inside are not fed by either of the rivers' waters. Having been declared a national park in 1980 with focus on protection of the endangered tiger, adjacent forests were merged with the Ranthambore National Park a little more than a decade later. The Sawai Man Singh Sanctuary and Kaldevi Sanctuary became part of the tiger reserve; making the national park at Ranthambore one of India's largest. It is enthralled to watch the splendid tiger roam about in its natural habitat, in the wild! Alternating between dry deciduous forests and swathes of grasslands, the Ranthambore National Park is recognised as one of the best places in the country to spot tigers. Today, sprawling across a little more than 1300 square kilometres including core and buffer area, the Ranthambore National Park is every wildlife enthusiast, photographer and a spirited traveller's haven. This Paper provides an insight into the basics of Biodiversity, the role of biodiversity of Ranthambore National Park on its surrounding socio-economic milieu, Policy measures taken, analysis and Benefit Assessment of measures taken, recent developments and open problems in this area.

Keywords: Biodiversity, Habitat, Environment, Sustainable Development, Global Warming, Genetic Biodiversity, National Park.

Synthesis, Characterization And *In-Vitro* Antimicrobial Studies of Diorganotin(Iv) Complexes of Schiff Bases Having Nitrogen and Oxygen Donor Atoms

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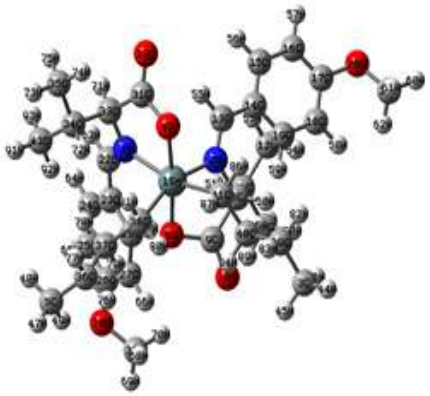
Abstract : A new series of diorganotin(IV) complexes of the type $R_2Sn(L)_2$ (LH: Schiff base derived from amino acids) were synthesized and characterized by molecular weight measurements, molar conductivity, UV-Visible, infra-red, ^{1}H, ^{13}C and ^{119}Sn NMR spectral studies. All organotin(IV) complexes are non-electrolytic in nature. On the basis of these studies it revealed that Schiff base ligands acted as NO donor system and coordinated to tin atom in bidentate fashion with distorted octahedral geometry around tin atom. Also, DFT/B3LYP method was used to analyze the electronic structures and study of the geometries. To compare the biopotency of these complexes, Schiff base ligands and their complexes were also tested for in vitro antimicrobial evaluation against two Gram-positive and two Gram-negative bacteria (*Bacillus cereus*, *Ericscherichia coli*, *Klebsiella pneumoniae* and *Staphylococcus aureus*), and four fungal strains (*Pencillium chrysogenum, Aspergillus niger, Rhizopus nigricans and Alternaria Alternata*) by the serial dilution method and compared with the standard drugs. Streptomycin drug was used as positive control and DMSO as negative control for antibacterial activity, whereas Fluconazole drug was used as positive control for antifungal activity. The ligands on coordination with tin metal showed an evident augmentation in biocidal activity; The results revealed that the synthesized complexes were more noxious towards Gram-positive strains as compared to Gram-negative strains, which may be attributed to the presence of the outer lipid membrane of lipopolysaccharides.



Keywords: Organotin(IV) complexes, amino acid-Schiff bases, spectral studies, DFT calculations, antimicrobial activities.

A Review article on Amino Acids

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Abstract: Amino acids are a group of organic compounds containing two functional groups amino and carboxyl .The amino group ($-NH_2$) is basic while the carboxyl group (-COOH) is acidic in nature. Amino acids contain both acidic (-COOH) and basic (-NH2) groups. They can donate or accept a proton, hence amino acids are regarded as ampholytes , rarely exist in a neutral form with free carboxylic and free amino groups. Amino acids mostly found in the form of dipolar ion or zwitterion. Zwitter ion is a hybrid molecule containing positive and negative ionic groups.More then 300 amino acids have been described, but only 20 amino acids take part in protein synthesis. These 20 amino acids are standard animo acids (magic 20 amino acids) which are building blocks of protein. protein is the polymer of L-α-amino acids.

Keywords: : Animo acids, protein, ampholytes, zwitterion, Functional groups.

Study of Dielectric Properties of Zinc Substituted Nanocrystalline Cobalt Ferrites

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Abstract: A series of nanocrystalline Co-Zn ferrites having chemical formula $Co_xZn_{1-x}Fe_2O_4$ (x = 1.0, 0.8, 0.6, 0.4), were prepared by sol-gel auto combustion route. The effect of zinc substitution in cobalt ferrite in aspects of structural and dielectric properties is contained in this paper. X-ray diffraction (XRD) and transmission electron microscopy (TEM) analysis were used to confirm the nanocrystalline single phase structure of the samples. Dielectric properties such as dielectric constant (ε′), dielectric loss tangent (tan δ_ε) and a.c. conductivity (σ_{ac}) have been studied as a function of frequency. The dielectric constant and dielectric loss of the samples prepared by this technique have lower values than that of the same samples prepared by other methods. The low values of dielectric properties make these ferrites useful in high frequency applications.

Key words: Nanocrystalline, transmission electron microscopy, dielectric constant

Arsenic Contamination: Threat Assessment & Remediation of the Environment

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ABSTRACT: The urbanization and industrialization are essential parts of development. Industrialization leads to various problems that directly or indirectly affect environmental health. Major problems arose with industrial development are metal stress, solid waste, oil spillage, air pollution, emitted radiation, among them metal stress is a major concern around the world. Arsenic (As) is a toxic metalloid and inorganic arsenic is carcinogenic to humans and animals. The toxicity of arsenic was known as early as in 300 B.C. It bears a sinister connotation linked to suicides, witchcraft and murder, and it was a source of despair and inspiration to alchemists wishing to transform metals into gold. About 50 ppb (µg/L) has been the standard for arsenic in drinking water in US since 1942. In 1960s, published data from Taiwan indicated that arsenic in drinking water could cause skin cancer. In 2001, USEPA reduced the limit from 50 to 10 µg/L. WHO newly recommended guideline value for drinking water is 10 µg/L (Australia 7 µg/L). Drinking contaminated water or consumption of food grown on As rich soil are the means of food chain contamination. Remediation technologies, prevention technologies, awareness for social, legal & economic issues, National contaminated sites program have been developed to combat with arsenic pollutant.Many brain storming sessions and more research is require to develop strategies and action plans against arsenic pollution. Much remains to be understood about contaminants in soils, water, air and people. A risk-based approach offers safe, cost-effective solutions. World needs more skills in environmental risk assessment and remediation for betterment of the society.

KEY WORDS: Urbanization, Industrialization, Metalloid

Groundwater Quality Investigation of Dholpur District Using Multivariate Analysis

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Abstract: Groundwater is a valuable natural resource for various human activities. It is also an important source of drinking water in Dholpur, a district town of Rajasthan. Therefore it is essential to assess the quality of drinking water. The present study focused on multivariate statistical analysis of groundwater quality of Dholpur district. In order to investigate the factors controlling the groundwater quality, Nineteen physico-chemical parameters viz. Temperature, pH, EC, TDS, Turbidity, Total hardness, Total alkalinity, Ca^{2+}, Mg^{2+}, NO_3^-, SO_4^{2-}, N_2, DO, COD, F^-, Fe, Pb, Zn and Cu were analyzed. From the correlation matrix analysis of groundwater quality parameters, strong correlations were observed between EC and TDS, Ca, Mg and Total hardness. The weak and negative correlation was observed between F^- and SO_4^{2-}. The factor analysis was applied on all nineteen physico-chemical parameters to investigate the origin of the water pollution sources. Multivariate analysis showed the existence of upto four significant factor which account for 79.0% of the total variance of hydrochemical data. The two factors i.e EC and TDS can be initially assigned to mineralization, mining and salinity due to salt water intrusion whereas the other originates as a result of industrial wastes, domestic wastes and wastes from agricultural activities.

Key Words :- Groundwater, Water quality parameters, Multivariate analysis, Factor analysis.

Limnological and Microbiological Study of Jaisamand Lake, Alwar (Raj.)

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Abstract: This paper deals with the study of physico-chemical and microbiological parameters of Jaisamand Lake, Alwar. The Jaisamand Lake is the source of irrigation and drinking water for nearby rural areas. The lake has been arising out from the overflow of Siliserh Lake and Ruparail River. Monitoring physico-chemical and microbiological quality of water of this lake has been assessed by observing physical, chemical and bacteriological parameters during the year of 2014-15. High values of temperature, pH, free CO_2, BOD, COD, TDS, TSS, alkalinity, total hardness, Chloride, , Phosphate, Nitrate, Sulphate, the standard plate count (SPC), total coliform, faecal coliform bacteria and low visibility, dissolved oxygen and low Fluoride level gives clear indication of poor quality of water.

Key words: Physico-chemical, microbiological parameters

Green Synthesis, Characteristion and Antibacterial Studies of Few Thiosemicarbazones

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Abstract: The therapeutic importance of thiosemicarbazone group containing ligands has promoted the selection of this class of ligands and their complexes for the study. The present work describes the synthesis, characterization and biological investigations on thiosemicarbazone. A series of four aryl thiosemicarbazones have been synthesized by the reaction of thiosemicarbazide with substituted aromatic aldehydes and ketones by conventional heating as well as microwave irradiations method. The synthesized compounds have been characterised by elemental analysis, melting point determination, FTIR, UV-visible spectral analysis. The synthesized ligands have been screened in vitro for antibacterial activity against *Escherichia coli* and *Bascillus subtilis* bacteria.

Keywords: Thiosemicarbazones, Microwave irradiation.

Electrochemical Synthesis of Medicinally Potent Indole Derivatives

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Abstract : Indole nucleus with formaldehyde and secondary amines is very prone to give Mannich's reaction. Among the various substituted, chloroacetophenones used for producing Mannich's bases, are less studied. Mannich's reaction is one of the most extensively used procedure for the preparation of secondary and tertiary amine derivatives by C-C bond formation in organic synthesis. These amines are further used for the synthesis of many intermediates, biologically active and natural products such as alkaloids and polyketides. Electrochemical based synthesis of various 3-(substituted)-1-H indole by Mannich reaction and using these synthesized compounds for the synthesis of 1-phenyl-2-[-3-(substituted)-1-H-indole-1-yl] ethanone by Friedal-Craft arylation with chloroacetophenone. Finally this product is used to synthesize Chalcone derivatives, 3-substituted-1-{(2E)-1-1phenyl-3-(3, 4, 5 trimethoxyphenyl) but-2-en-1-one)} indole has been achieved. It is well known fact that the indole nucleus is associated with a large number of pharmaceutical properties like antibacterial, anticancer, antibiotic, central nervous system modulating etc. In the same way chalcone is an aromatic ketone that forms the central core for a variety of important biological compounds, which are known collectively as chalcones. They show antibacterial, antifungal, antitumor and anti-inflammatory properties.The application of microwave irradiation has led to support for the development of many reaction procedures, which are environment friendly, falling in the domain of green chemistry.

Key words: Mannich's reaction, polyketides, Friedal-Craft arylation, alkaloids

Study on Health Effects of Mobile Tower Radiation on Human Beings

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Abstract: Cell phones have become the basic need of today and there has been an unprecedented growth of mobile industry in India during the last decade. Every Technology has some positive as well as negative impacts. There has been 7 public concern over the adverse impacts of harmful radiation from mobile towers on human health. Some NGO'S are resisting the mobile towers in residential colonies. A study on health hazards on human being have been carried out in nawalgarh town in Rajasthan. To get an idea of harmful health impacts on human beings, a public survey through questionnaire was also held at nawalgarh. The results of public survey indicate that people have seen a rise in health related issues like disrupted sleep, headaches, dizziness, cardiovascular stress, joint pains, fatigue, depression, Alzheimer's, DNA damage in new born babies, cancer etc. related issues since last decade. Hence, based on studies and research carried out so far it can be concluded that there is an increase in short-term and long-term diseases in general.

Key-words :- Health hazards, Mobile phones, Cell towers

An Efficient Green Synthesis of 3-(4,5-diphenyl-1H-imidazol-2-yl)-5- substituted-1*H*-indole Derivatives and their Biological screening

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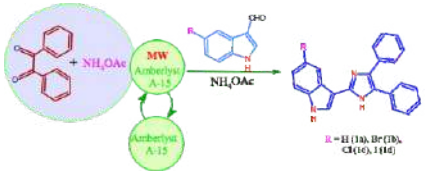
Abstract: Indolylimidazole is a biologically active compound that have 2- substituted imidazole with additional indole ring. These derivatives have shown various biological and pharmacological activities, such as anti-plasmodial, anti-depressants, protein kinase C inhibitor, interleukin-6 production inhibitor, Flt-1 and topoisomerase inhibitor, MRSA PK inhibitor, antimicrobial, antifungal, antibacterial, anti-urease, antioxidant and radio-sensitizing activities, cytotoxicity against murine tumour cells and P388 cells. These indolylimidazole compounds were synthesized and extracted from the plants. In the current study, synthesis of highly substituted indolylimidazole derivative achieved by multicomponent condensation of benzil, indole-3-carbaldehyde, ammonium acetate, and aromatic amine under microwave irradiation using Amberlyst A-15 as a reusable catalyst. The key advantage of this process provides highly versatile, green, efficient one-pot, eco-friendly, very shorter reaction time, cost-effectiveness and reusability of catalyst, easy workup, and purification of product with excellent yields. Newly Synthesized compounds have shown most biological activities against *Staphylococcus aureus, Staphylococcus epidermidis, Escherichia coli, Pseudomonas aeruginosa* and *Candida albicans.* The sensitivity order of compounds was found 1a<1b<1c>1d against *S. aureus, S. epidermidis, and E. coli* and 1a<1b<1c<1d for *C. albicans*. These activities have been compared with standard antibiotics Ampicillin and fluconazole. Bauer-Kirby disc diffusion method was used to measured antimicrobial activity and two-fold dilution method was used to calculating MIC, MBC, and MFC.



Keywords: Pharmacological activities, Amberlyst-15, Microwave radiation, Indolylimidazole, *Staphylococcus aureus*.

Corrosion Inhibition Effect of Arial Parts of *Euphorbia Caducifolia* for Tin in HCL

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Abstract: Corrosion is one of the most damaging and costly naturally occurring events seen today. The most common kinds of corrosion result from electrochemical reactions. It can be prevented if the metal is coated with something which does not allow moisture and oxygen to react with it. It can be controlled by either alloying or by anti rust solutions. The naturally occurring plant products are eco-friendly, compatible, nonpolluting, less toxic, easily available, biodegradable and economic to be used as corrosion inhibitor. *Euphorbia caducifolia* has been selected to study its corrosion inhibition efficiency. It is easily available in any season. It is native to Thar Desert of India and located on rocky terrain, hills. It is used for treatment of bleeding wound, cutaneous eruption, urinary problems, kidney stones, rheumatic pain, bronchitis, jaundice, diabities, stomach pain, hernia etc. It is also called "Thor" and "Danda-thor". It contains caudicifolin) norcycloartane type triterpene, cyclocaducinol, triterpenes euphol, tirucallol and cycloartenol. Corrosion inhibition efficiency of arial parts of *Euphorbia caducifolia* was studied for tin in HCl. Maximum inhibition efficiency was found 95.21% in 1N HCl acid with 0.8% leaf corrosion inhibitor whereas it was 91.96% for stem and 87.31% for flower with same concentration of inhibitor i.e. 0.8%.Inhibition efficiency was studied in different concentration of acid (1N, 1.5N, 2N and 2.5N) with different concentration of inhibitor (0.2%, 0.4%, 0.6% and 0.8%). Weight loss and thermometric methods were used. Inhibition efficiency was found to be increase with increase in concentration of inhibitor and decrease with increase in acid strength.

Keywords – Anti rust solution, corrosion inhibitor, *Euphorbia caducifolia*, weight loss, thermometric.

Physico-Chemical Study of Soil in Dholpur City (Rajasthan)

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Abstract : This study is related to the soil analysis of Dholpur city. In this study various parameter of the soil is analyzed by the standard method of soil analysis and here the sample of various places of the dholpur city was collected and then analyzed with the standard solution of the analytical grade reagents. The different parameters are (pH, TA, TH, soil texture, TDS, Chloride, Conductivity, Suphate ion and DO). The results are very interesting and give lots of information about the soil of Dholpur.

Key words: pH, TH, TA, Conductivity

MHD nanofluid flow over a stretching surface with partial slip

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Abstract: Numerical analysis is carried out to investigate the effect of different types of nanoparticles namely copper, aluminum oxide, ferric oxide and titanium dioxide on two- dimensional electrically conducting incompressible boundary layer in water-based nanofluids in presence of uniform transverse magnetic field over a stretching surface. Governing partial differential equations are transformed into ordinary differential equations by applying suitable similarity variables. The resulting equations are solved numerically by handling the shooting technique with fourth order Runge-Kutta method. To exhibit the effects of several parameters such as volume fraction and slip parameter on velocity and temperature distributions are analyzed numerically and numerical solutions are discussed through graphs for the influence of different types of solid nanoparticles in water-based fluid. Moreover, influences of dimensionless parameters on local skin friction coefficient and local Nusselt number are also computed numerically and illustrated in tabular form.

Key Words: MHD flow, nanofluid, stretching surface, partial slip.

Structural Thermal Properties of Polymer Nanocomposites Films

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Abstract: Polymer nanocomposites films were prepared by the solution mixing method and irradiated with leaser beam at various times. The structural and thermal properties of irradiated films were studied by various characterizations techniques such as Scanning Electron Microscopy (SEM), X-ray diffraction (XRD), Differential Scanning Calorimetry (DSC) and the dielectric setup with LCR meter. The SEM measurement showed the uniform dispersion of nanoparticles in polymer solution. The XRD pattern indicated the presence of nanoparticles in nanocomposites films. The increasing fluences significant loss of average crystallite size, percentage of crystallinity, glass transition temperature (T_g) and thermal stability were observed for many applications such as unique optical, mechanical and electrical properties. The dielectric loss, a. c. conductivity and dielectric constant were also increased with increasing values fluences.

Keywords: Polymer, Nanocomposites, X-ray diffraction and Differential Scanning Calorimetry.

Arsenic Contamination in Water : An effort to develop a low cost removal technique

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Abstract: Arsenic is listed as the highest priority contaminent on Information centre for Arsenic toxicity (ATSDR) and environmental protection Agency (EPA) list of hazardous substances at superfund sites. In India many areas from West Bengal have shown to be affected while Bihar is an emerging area with high arsenic contamination. The removal techniques for arsenic compete with other technologies in which cost appears to be a major determinant in the selection of a treatment option by the users. Therefore in order to develop some cost effective method for removal of arsenic from water. We tried some low cost natural materials like Rice husk (RH) Carbon and Guava Leaf (GL) powder as single adsorbent and their 1:1 proportion as mixed adsorbent.

Key words: Arsenic, contamination, toxicity, adsorbent.

Enviro-Economic Synthesis, Characterization and Antibacterial Study of O-Alkyl or O-Aryl Trithiophosphates of Cadmium

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Abstract:-Cadmium (II) O-alkyl or O-aryl trithiophosphate of the type $Cd[KS(S_2)POR]_2$ (where R= Me, Et, Pr^i, Bu^i, Ph, CH_2Ph) have been synthesized by an environmentally harmless, efficient and quick smooth way from the reaction of cadmium chloride and dipotassium salt of O-alkyl or O-aryl trithiophosphates in 1:2 molar ratio. They are synthesized by solvent free conditions and microwave assisted procedure. These derivatives are yellow colour solids, insoluble in common organic solvents but are soluble in DMSO, DMF and pyridine. These have been characterized by elemental analysis, molecular weight determinations and spectroscopic(IR, ^1H and ^{31}P NMR) studies. On the basis of them square planar geometry has been proposed for these derivatives. The newly synthesized complexes show effectiveness against gram positive and gram negative bacteria and a comparative study of antibacterial effect of synthesized compounds with standard drugs has also been investigated.

Keywords:-Cadmium chloride, dipotassium salts of O-alkyl or O-aryl trithiophosphates, solvent free conditions, microwave assisted procedure, antibacterial activity.

Microwave Assisted Synthesis of Naphthalene

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ABSTRACT : Microwave assisted method is useful for the synthesis of nano-particles and organic compounds. It is more useful than conventional method because reactions occur in a very short time and also obtained yield is very high. It is solvent free method for synthesis. Naphthalene is an aromatic compound with 10 pi-bonds. Naphthalene is widely used in synthesis of other organic compounds. It also has domestic uses such as an insecticide and pest repellent. It is also used for making dyes, resins and leather tanning agents. FT-IR spectra and NMR data are recorded for qualitative analysis of naphthalene and the obtained results are as Ar. C-H Str. (3070 cm^{-1}), Ar. C-H Bend.(780 cm^{-1}), Ar. C-C Str. (1460 and 1610 cm^{-1}) and ^{13}C NMR 3 types of carbon atom in naphthalene so 3 peaks are obtained 133 ppm, 127 ppm, 125 ppm, respectively.

Keywords: Microwave assisted; nano-particles; Naphthalene; IR and NMR.

Microwave Assisted Synthesis and Characterization of O-Alkyl or O-Aryl Trithiophosphate Derivatives of Nickel

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Abstract :- Nickel (II) O-alkyl or O-aryl trithiophosphate of type $Ni[SSK(S)POR]_2$ (where R= Me, Et, Pr^i, Bu^i, Ph, o-$CH_3C_6H_4$, m-$CH_3C_6H_4$ p-CH_3C_6H) have been synthesized by solvent free microwave assisted method from the reaction of Nickel (II) chloride hexahydrate with dipotassium salts of O-alkyl or O-aryl trithiophosphate ligand in 1:2 molar ratio, respectively. Newly synthesized compounds are black coloured powdery solids, soluble in common organic solvents like DMSO, $CHCl_3$, CCl_4, alcohol etc. These compounds have been characterized by elemental analysis, molecular weight determination and spectroscopic (IR, ^1H NMR and ^{31}P NMR) studies. With the help of them octahedral geometry has been proposed for these compounds. These derivatives also show good antibacterial activity against gram positive and gram negative bacteria and comparative study of antibacterial effect has also been made with standard drugs like Imipenem and Linezolid.

Keywords :- Nickel (II) chloride hexahydrated, O-alkyl /O-aryl trithiophosphate, octahedral geometry, antibacterial activity, gram positive and gram negative bacteria.

Synthesis, Characterization and Study of Antibacterial Activity of O-Alkyl/O-Aryl Trithiophosphate Derivatives of Molybdenum

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Abstract:- O-alkyl/O-aryl trithiophosphates of molybdenum have been synthesized by the reaction of molybdenum trioxide with O-alkyl/O-aryl trithiophosphoric acid in 1:3 molar ratio. Complexes of type $Mo[SS(S)POR]_3$ where (R= Me, Et, Pr^i, Bu^i, Ph, CH_2Ph) have been synthesized by using solvent free microwave assisted procedure and conventional method. Benefits of microwave assisted procedure over conventional method are high yield of products, minimum use of solvent and minimum energy consumption . The compounds have been characterized by elemental analysis (C,H,S) , molecular weight measurement, IR and NMR(^{1}H, ^{13}C, ^{31}P) spectral studies. On the basis of elemental analysis, molecular weight measurements and spectral studies, the newly synthesized complexes are monomeric in nature having octahedral geometry.The newly synthesized complexes show antibacterial activities against gram positive and gram negative bacteria. Comparative study of antibacterial effect has also been made with standard drugs. Paper disc method was used for antibacterial activities.

Keywords:- Molybdenum trioxide , O-alkyl /O-aryl trithiophosphate, monomeric, octahedral geometry, antibacterial activity, gram positive and gram negative bacteria.

Physico- Chemical study of water resources of Dholpur City (Rajasthan)

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Abstract: This study is basically related to the water sources of Dholpur city of Rajasthan .the major sources of water in Dholpur city is Chambal river ,Machkund, Ground water and Well water Study of these water sources indicate that various parameter of the Physico chemical was analyzed by using the standard method of APHA and BIS and others.Study indicated that most of the physico chemical parameters are up to the mark and some of the parameters are beyond our expectations. Here we analyzed the Temperature, pH,Total Hardness, Total Alkalinity.Total Dissolve Solids,CO_2, Sulphates,Chloride ions and others.The results shows that all the parameters are under the BIS standard and resources are suitable for the drinking and agriculture perposes

Key words: Chambal River, Machkund, Well water,Parameter,APHA,BIS standard.

De-fluoridation of Water from Various Area of Jaipur City Using Waste Materials

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Abstract: 'Green Chemistry' provides various tools and techniques including the ion-exchange, adsorption, reverse osmosis, precipitation. By employing SPANDS method, fluoride ion concentrations in water were determined spectrophotometrically at 570 nm. first and then Brick powder (BP) was used as waste material as adsorbents in defluoridation of water. Use of these wastes as adsorbents serves two purposes at the same time, one is low cost and eco-friendly and other one is waste management. Brick powder is waste found in brick kiln industrial area situated near by Jaipur City of Rajasthan state. In this paper, dose of adsorbents, contact time and concentration of fluoride ions will be discussed with their interdependence.

Keywords: Fluoride, Brick powder, Analysis of study area.

Water Quality Around Mandawa Town of Jhunjhunu District of Rajasthan

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Abstract: The paper deals with the ground water analysis from various locations of urban and suburban area of Mandawa town of Jhunjhunu district of Rajasthan. Samples were collected from various open wells and tube wells and analysed for pH, EC, TDS, TH, alkalinity, fluoride, chloride and nitrate, using standard procedures. Study reveals that most of the parameters are not within the permissible limits. Overall, the underground water is not suitable for drinking purpose.

Key words: water analysis, alkalinity, parameters

First Principles Study of Zinc Sulphide (ZnS) Nanowire

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Abstract: The electronic properties of very thin zincblend Zinc sulphide nanowires of different shapes were studied using density functional theory in local density approximation. We consider four different shapes of nanowires viz. linear wire, zigzag wire, square wire and hexagonal wire. The geometry optimization and the stability of all nanowires were investigated. We explore the minimum energy configuration for all the structures. The present study reveals that all of the wires are stable but four atom square wire have greater stability in comparison to other structures. The analysis of density of states and band structure of optimized nanowires predicts that semiconducting zinc sulphide nanowires may be metallic or insulating. This behavior entirely depends upon the geometrical structure.

Keywords: ZnS nanowires, electronic band structure, density of states, total energy.

Plant protein mediated green synthesis of magnetite nanoparticles: Investigation into structural and optical properties

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Abstract. Nowadays, nanotechnology has grown to be an important research field in all areas including medicinal chemistry. The size, orientation and physical properties of nanoparticles have reportedly shown to change the performance of any material. The chemical synthesis involves toxic solvents, high pressure, energy and high temperature conversion and microbe involved synthesis is not feasible industrially due to its lab maintenance. Since, green synthesis is the best option to opt for the synthesis of nanoparticles; therefore the nanoparticles were synthesized by using aqueous extract of Datura inoxia and metal ions. Magnetite was of particular interest due to its unique magnetic and electrical properties. Datura inoxia leaf extract was selected as it is of high medicinal value and it does not require any sample preparation and hence is cost-effective. The fixed ratio of plant extract and ferrous and ferric ions were mixed and kept at 80^0C temperature for reduction. The color change from yellow to reddish brown confirmed the formation of nanoparticles. Further, the synthesized nanoparticles were characterized by UV, TEM, TGA/DTG, XRD and FTIR.The magnetite nanoparticles have been prepared by most conventional co-precipitation method. The surface of the magnetite has been modified by the plant protein available in the leaf extract of *Datura inoxia*. The surface layering has been confirmed by Fourier Transform Infrared (FTIR) and thermo gravimetric analysis (TGA) confirming the formation of protein-magnetite core-shell structure. The average size of the plant protein coated magnetite has been found to be 14 nm (<20nm). Size control and influence of particle size on the optical properties has been studied. The band gap value has also been calculated.

Keywords: *Datura inoxia*; surface engineering; core-shell structure; colloidal and magnetic stability; nonhysteretic magnetic behaviour, band gap, surface plasmon resonance and Optical properties.

Synthesis of Unreported 2-thioxotriazolo(4,5-d) pyrimidin-4-one derivatives (8-azpurines) for anticancer activity

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Abstract: Triazolo(4,5-d) pyrimidines are of interest to medicinal chemists as potential antitumor, antiallergenic , antiviral, antibacterial, diuretic agents, etc. 8-Azaguanine "1" was found to possess antitumour activity as long ago as 1949, and was the first purine analogue to be incorporated into polynucleotides. 8-Azahypoxanthine "2" is less cytotoxic but its ribonucleoside 8-Azainosine "3" shows substantial activity against several tumour cell lines . A wide variety of 1,2,3-triazolo(4,5-d) pyrimidines have been prepared and their biological properties evaluated.

Keywords: Triazolo(4,5-d) pyrimidines , Anticancer activity, Cytotoxic

Mass Loss Methods Offer Study of Schiff Bases As Corrosion Inhibitors on Metal in Acidic Medium

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Abstract: A new class of corrosion inhibitors namely Schiff base were synthesized. The influence of Schiff base in different concentration of acid on the corrosion behavior of copper in H2SO4 was studied by mass loss method. The adsorption of inhibitor on copper metal surface obeys the Langmuir adorption. Mass loss methods have been employed to study of the corrosion inhibition of some newly synthesized Schiff bases viz. N-(anisalidine)-2-Amino pyridine (SB1) N-(Salicylidine)-2-amino-3-methyl pyridine (SB2) for copper metal in H2SO4 solutions. Results of inhibition efficiencies from the mass loss technique shows that inhibition efficiency increased with increase in the concentration of Schiff bases as well as concentration of acid. Maximum inhibition efficiency is shown at highest concentration of Schiff bases in acidic media.

Key word: Schiff base, adsorption

Various Treatment Method of Removal Fluoride

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Abstract : India is among 23 nations where in a large population suffers from dental and skeletal flourosis due to high fluoride concentration in ground water. Fluoride occurs naturally in public water systems as a result of runoff from weathering of fluoride-containing rocks and soils and leaching from soil into groundwater The Defluoridation is only required in small scale, mostly in rural areas in developing countries. Defluoridation of water by the Nalgonda technique is a commonly used household process in areas of endemic fluorosis in villages around Nalgonda (Andhra Pradesh, India). To overcome the above situation, it is very essential to adopt any appropriate defluoridation technique considering the local conditions, economic status and viability of the treatment method, literacy of community, easy availability of media and reuse of exhausted media for treatment purpose etc

Keywords: Fluoride, Commonly Technique, Treatment Method.

Green Chemistry

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Abstract: The aim of green chemistry is to reduce chemical related impact on human health and virtually eliminate contamination of the environment through dedicated, sustainable prevention programs. Green chemistry searches for alternative, environmentally friendly reaction media and at the same time strives to increase reaction rates and lower reaction temperatures. The green chemistry concept applies innovative scientific solutions to solve environmental issues posed in the laboratory. The goal of the Pollution Prevention Act of 1990 was not simply to regulate the quantity and type of emissions but to place limits on the industry in order to reduce the amount of pollution it generated. Green chemistry is also known as the sustainable chemistry. It has number of benefits that includes :

Prevent waste wherever possible. Promote "atom economy" (that is, maximize the efficiency of production so that fewer by-products are made during the manufacture of the final product). Synthesize less-hazardous chemical by-products. Design safer, less-toxic chemical products. Use safer solvents and auxiliaries in chemical processes. Design energy-efficient chemical-manufacturing processes. Use renewable feedstocks. Reduce or avoid the production of derivatives. Use catalysts (most of which require fewer materials to carry out a chemical reaction). Design chemicals that break down into harmless products after they are used. Promote the development of real-time analysis of chemical products before hazardous substances can form. Promote inherently safer chemistry (such as the use of safer forms of various substances) to prevent accidents from occurring.

Keywords: Green Chemistry, Atom economy, Waste

Studies on Design, Synthesis, Biological Activity and DNA Cleavage of Tetrazole Imine Base and Calcium Channel Blocker - An Experimental and Theoretical Approach

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Abstract: Novel Tetrazole imine and its binary Cu(II) and Ni(II) complexes were synthesized and characterized by employing spectro - analytical techniques viz; Mass, UV, IR, 1H NMR, elemental analyses, thermo-analytical methods, SEM and magnetic susceptibility measurements. The equilibrium studies were carried out using pH-metric technique to get an insight of the number of dissociable protons and protonation sites in candidate compound. The pH-Metric studies were also carried out in presence of metal ions to establish the formation of corresponding metal complexes in solution. The antimicrobial studies carried out by screening the tetrazole imine base and their metal complexes against bacteria inferred positive results. The DNA cleavage studies on title compound and its metal complexes using PBR322 DNA indicated that the tetrazole imine base has no role in cleavage of DNA and in its metal complexes, only Cu (II) complex played marked role in cleavage Tetrazole containing drugs also play an important role as angiotensin-II receptor antagonists and reduce the blood pressure by interfering with the conversion of angiotensin I to angiotensin II. The combinatorial molecules which will be designed , synthesized and evaluated for anti-hypertensive along with some more biological activities may be tested and used for the treatment of diseases.

Key words :- Novel Tetrazole Imines Binary Cu(II) and Ni (II) complexes, DNA cleavage , Calcium Channel Blocker, Spectro- analytical studies.

Ruthenium(III) Chloride Catalyzed Oxidation of Paracetamol by N-Chloro-p-toluene sulfonamide (Chloramine-T) in Alkaline Medium

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Abstract: The kinetics of ruthenium (III) chloride catalyzed oxidation of paracetamol by N-chloro-p-toluene sulfonamide in alkaline medium has been studied. The reaction is second order first order with respect to each reactant. The effect of catalyst indicates simultaneous uncatalyzed reaction. Rate is retarded by hydroxide ion. A plausible reaction mechanism has been suggested and the rate law is derived to account for such experiential observations.The activation parameters such as energy and entropy of activation have been calculated to be (74.25±0.42) kJ mol^{-1} and (-94.72±2.57) JK^{-1} mol^{-1} respectively. No evidence for participation of free radicals was observed.

Key words: Ruthenium(III) chloride, catalysis, oxidation, paracetamol, CAT

Study of Electronic Properties of Cadmium Sulphide (CdS) Nanowire

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ABSTRACT: The electronic properties of very thin Cadmium Sulphide (CdS) nanowires of different shapes were studied using density functional theory in local density approximation. We consider four different shapes of NWs viz. linear wire, zigzag wire, square wire and hexagonal wire. The geometry optimization and the stability of all NWs were investigated. We explore the minimum energy configuration for all the structures. The present study reveals that all of the wires are stable but four atom square wire have greater stability in comparison to other structures. The analysis of density of states and band structure of optimized NWs predicts that semiconducting Cadmium Sulphide nanowires may be metallic or insulating. This behavior entirely depends upon the geometrical structure.

Keywords: CdS nanowires, electronic band structure, density of states, total energy.

Structural and Electroactive Properties of Ion Beam Irradiated Polycarbonate Films

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Abstract: Semicrystalline polycarbonate thin films have been prepared by solvent casting method and irradiated by 55 MeV carbon ion beam under vacuum at room temperature with various ion fluences. The Electro active properties of the ion beam irradiated films were illustrated by means of UV-Vis spectroscopy, Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD), thermally stimulated discharge current (TSDC), For XRD we conclude that the effect of carbon beam irradiation on polycarbonate film that crystallite size in polycarbonate is decreased. For UV–Visible absorption spectra show that the energy band gap of polycarbonate decreases with ion fluences. The FTIR spectra of carbon ion beam irradiated polycarbonate film shows the cross linking and chain scissoring was observed. TSDC shows that activation energy, released charge, α-relaxation peak, and charge carrier mobility decrease while relaxation time and peak current increases with ion fluences.

Keywords: XRD; UV-Vis; TSDC; Polycarbonate

Effect of Nanoclay on the properties of Polylactide based blend

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Abstract: The effect of sepiolite nanoclay on the thermal, morphological and rheological properties of maleic anhydride grafted styrene-ethylene-butylene-styrene (SEBS) toughened polylactide (PLA) blend is evaluated. Effect of sepiolite on the thermal properties of PLA based blend is analysed by differential scanning calorimetry. The morphology of the nanocomposites is evaluated by field emission scanning electron microscopy and transmission electron microscopy. The visco-elastic properties of the nanocomposites in melt state are characterized by dynamic rheology.

Key words: sepiolite nanoclay, polylactide, visco-elastic

Nanomaterials catalyzed green chemical synthesis of Biginelli compounds

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Abstract: The progress in the field of solvent-free reactions is gaining more importance because of their high efficiency, operational simplicity and environmentally benign processes. These are considerably safe, nontoxic and inexpensive. The easy accessibility to nanoparticles has prompted investigations on their applications in catalysis. Many metal oxides especially FeO, Al_2O_3, MgO, ZnO and TiO_2 etc. are excellent adsorbents for a wide variety of organic compounds and increase the reactivity of the reactants. FeO is certainly one of the most important metal oxides due to its non toxicity, moisture stability and reusability. The 3,4-dihydropyrimidin-2-(1*H*)-ones (DHPM's) have recently emerged as important target molecules due to their therapeutic and pharmacological properties such as antiviral, antimitotic, anticarcinogenic, antihypertensive and noteworthy, as calcium channel modulators. Owing to the immense therapeutic and medicinal significance of DHPM's and as part of our work on one-pot multicomponent reactions catalyzed by metal nanoparticles herein, we report the one pot synthesis of component condensation of aromatic aldehyde (1), malononitrile (2) and Urea (3) in the presence of FeO nanoparticles (30mg) under solvent free condition which enhance their efficiency from an economic as well as a green point of view. This procedure is simpler (preserving the one pot synthesis), economical, milder, faster, and is also consistent with the green chemistry theme since no solvent is needed and affords excellent yields.The synthesized compounds have been characterized by IR, ^{1}HNMR, and SEM images.

Keywords: Green synthesis; nanoparticles; multicomponent reactions; Biginelli compounds.

A novel approach of zerovalent iron decorated functionalized carbon Nanotube for removal of antimonite Sb(III) and antimonate Sb(V)

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Abstract: In this work carbon nanotubes were prepared by floating catalytic chemical vapour deposition method using ferrocene and benzene as hydrocarbon source. CNTs were prepared by nitric acid with oxidize CNTs followed by coating with nano zero valent iron to yield nano zerovalent iron decorated CNTs [CNT-Fe(0)].The adsorbents were characterized by various techniques like SEM, XRD,IR and XPS. The maximum adsorption capacity of Sb(III) AND Sb(V) was found to be 250 mg/g using CNT-Fe(0) at pH 5. The high adsorption capacity was shown due to high surface area of CNTs and reactive nature of zero valent iron particles. By using 0.05 M HCl as desorbent, the recyclability of the sorbent was studied upto 5 times. The diversity of adsorbent was studied by removal capacity of both Sb(III) and Sb(V) at ppb level from tap water and nuclear contamination formulation.

Key words: carbon nanotubes, zero valent iron, adsorbents

Design, Synthesis and Antimicrobial Evaluation of Novel 3-chloro-1-(3-(1-(4-isobutylphenyl)ethyl)-5-thioxo-1,5-dihydro-4H-1,2,4-triazol-4-yl)-4-phenylazetidin-2-one Derivatives

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Abstract: A novel and expedient protocol have been developed to afford some triazole derivatives (7a-7j) synthesized and were screened for their anti-antibacterial activity against *S. aureus*, *P. aeruginosa* and *E. Coli* using broth dilution method. Fluorescence spectral studies were also carried out to ascertain the antibacterial potential of compound 7c against two bacterial strains i.e. *P. aeruginosa* and *S. aureus.*Amongst all derivatives, compound 7c and 7e exhibited impressive antibacterial activity.

Key words: Antimicrobial, triazole derivatives, Fluorescence spectral

One-Pot Synthesis and Insecticidal Activity of 5',6'-DIHYDRO-3'-(4”-HYDROXY-9”,10”-DIOXO-9'',10''-Dihydro Anthracen-1-YL)Spiro[3H-INDOLE-3,2'[2H-1,3]THIAZINE]-2,4'(1H,3'H) Diones In Aqueous Medium

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Abstract: In organic synthesis recently, surfactants (surface-active reagents) have attracted considerable interest because of their high catalytic activity and benign character in the context of green chemistry. Introduction of surfactants in aqueous medium has been proved to increase the reactivity of aqueous mediated reactions *via* the formation of vesicular cavities or micelles with hydrophobic core and hydrophilic corona at ambient conditions. Indole-2,3-dione and its derivatives are versatile starting materials for the construction of highly functionalized molecules with significant biological activities. plants also.. Anthraquinones have been the subject of much interest for a number of years due to their various biological activities. Also, anthraquinones are the parent compounds for a large palette of anthraquinone dyes. The simplest amongst these, 1-amino-4-hydroxyanthraquinone displayed antimicrobial activity and is used in dye industry.Therefore, it appeared to be of interest to investigate the one-pot reaction of indole-2,3-diones, 1-amino-4-hydroxyanthraquinone and 3-mercaptopropionic acid to synthesize spiro[indole-thiazine] derivatives.Considering the significance of surfactants and in our continuous ongoing efforts to develop new efficient protocol for the synthesis of bioactive heterocycles employing green tools from readily available building blocks, herein we report for the first time, a green, efficient and new procedure for the synthesis of indole derivatives *viz.*, 5',6'-dihydro-3'-(4''-hydroxy-9'',10''-dioxo-9'',10''-dihydro anthracen-1-yl)-spiro[3H-indole-3,2'[2*H*-1,3]thiazine]-2,4'(1*H*,3'*H*) diones, in aqueous micellar media using cetyltrimethylammonium bromide (CTAB), as a surfactant in water. The compounds synthesized were screened for their insecticidal activity following the literature methodusing *Periplaneta americana* (cockroach) and results were compared with the control drug (Cypermethrin) and found to show excellent results.

Key words: Surfactants, micelles, Anthraquinones, antimicrobial activity.

Impact of IPM with chemical effect (pesticide and Insecticide) in different crop yield in Shekhawati Region

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Abstract: Toxicology involves the study of adverse effects of chemical substances on any living organism and the diagnosis of exposure to these toxins. Toxicology focuses on the relationship between dose and its effects on the exposed organism. The more dosage leads to high toxicity. Factors influencing chemical toxicity include the dosage (and whether it is acute or chronic), route of exposure, species, age, sex, and environment. Toxicology may include both environmental agents as well as chemical compounds (insecticides and pesticides) which are used in human interests to control undesired insect species. These toxins are well known to produce toxic effect in not only the target organism but also the unrelated or beneficial organisms. These substances may lead to disturbances in growth patterns, discomfort, disease and death of non target organism .The pesticide residue is found inside the insect bodies and can finally enter the human system. The population of insect pests is decreasing by 4% every two years. The study focuses on assessment of locally available insecticides and pesticides and their uses for crop utility in Shekhawati region. Trial approaching on different crop patterning with classified insecticides and pesticides. Also the assessment of insecticide residues in the bodies of insect pests. So the use of insecticides and pesticides for the control of pests should be limited and can be partially or fully be avoided. The Chemical build up in the bodies of beneficial insects and other organisms like cattle can lead to loss of biodiversity in Shekhawati region. The study focuses on incorporating IPM (integrated pest management) rather than chemicals for pest control.

Keyword: Pesticides, *Bifenthrin , Chlorothalonil , Cypermethrin*

Pyrimidines: The Versatile Pharmacophores

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Abstract: Pyrimidine is a core structural unit in a wide variety of bioactive compounds that exhibits significant biological activity and plays an important role in the medicinal chemistry. Pyrimidines are biologically active six membered aromatic heterocycles with two nitrogen atoms in the ring at positions 1 and 3 in the ring. Pyrimidine and its derivatives show a wide array of biological and pharmacological activities like anticonvulsant, antibacterial, antifungal, antiviral and anticancer properties. This broad spectrum of bioactivity has been facilitated by the synthetic versatility of pyrimidine, which has allowed the generation of a large number of structurally diverse pyrimidines. Pyrimidines are synthetically versatile substrates, where they can be used for the synthesis of a large library of heterocyclic compounds.Recently, the catalyst technology is emerged as a powerful tool for many chemical transformations and has been applicable for pyrimidine synthesis also. This technique allows faster conversion of a wide variety of starting materials to high value products at lower costs, with minimum generation of by-products.

Key words: Aromatic heterocycles, Pharmacophores, Pyrimidines

Tuning of Catalytic Property Controlled by the Molecular Dimension of Palladium–Schiff Base Complexes Encapsulated in Zeolite Y

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Abstract: Planar palladium–Schiff base complexes are synthesized, maintaining the order of their molecular dimensions as PdL1 < PdL2 < PdL3 < PdL4 < PdL5 in free state, as well as encapsulated in zeolite Y, where L1: N,N′-bis(salicylidene)ethylenediamine and L2, L3, L4, and L5 are derivatives of L1. All encapsulated complexes have shown better catalytic activity for the sulfoxidation of methyl phenyl sulfide in comparison to their homogeneous counter parts. These hybrid systems are characterized with the help of different characterization techniques such as X-ray diffraction analysis, scanning electron microscopy–energy-dispersive X-ray spectrometry, X-ray photoelectron spectroscopy, Fourier transform infrared, and UV–visible spectroscopy; all of these studies have suggested that the largest complex deviates by the maximum from its free-state properties, and a radical change in the reactivity of the complex is observed.

Keywords: Zeolite Y, Palladium–Schiff Base Complexes, X-ray photoelectron spectroscopy

Green synthesis of coumarin-3-carboxylic acid derivatives using aqueous fruit extracts as catalyst

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Abstract: Application of fruit juices as a natural and biocatalyst allows mild and highly selective transformation and synthesis in a facile and environmentally friendly manner. Moreover, fruits are inexpensive and easily available in the market, and its juice can be extracted easily which can be used as catalyst in the organic transformations. Fruit juice of lemon, pineapple, tamarind, Acacia concinna, Sapindum trifolistus, and coconut is extensively used in organic synthesis. A simple, efficient and green procedure for the synthesis of 3-carboxycoumarins has been developed which involves the treating of 2-hydroxybenzaldehydes with Meldrum's acid (2,2-dimethyl-1,3-dioxan-4,6-dione) and catalyzed by pineapple juice as well as aqueous tamarind juice at room temperature. This Knoevenagel condensation of various aromatic aldehydes with Meldrum's acid using pine apple as well as aqueous tamarind juice for synthesis of 3-carboxycoumarin and its derivatives may be considered as an excellent improvement over the existing methods. The protocol is much more efficient as the reactions are carried out at room temperature, yields are also quite high and the reactions go to completion within 2-7 min. All the compounds were characterized by their melting points and IR spectra. Various derivatives of 3-carboxycoumarin can be synthesized by this method.

Keywords: Green synthesis; 3-carboxycoumarin; Meldrum's acid; aqueous fruit extract.

Study of Charge Transfer in Nano Zns Compound Semiconductor

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Abstract: In the last two decades, materials with reduced dimensions have attracted significant attention growing interest due to their unique electronic, optical and magnetic properties which are different from their bulk counterparts. Among these, II-VI group semiconductors materials are most attractive because of their technological applications. ZnS is an important member of this family and is used widely as an important phosphor for photoluminescence, electroluminescence devices and is also a very attractive material in optical applications especially in nanocrystalline form. It has a wide optical band gap 3.6 eV and has two different crystal structures (zincblende and wurtzite), both of which exhibit direct band gap . Nano material of ZnS of different size prepared. These samples were characterized by XRD and SEM techniques Theoretically ionic model used for charge transfer study. Result were compared to other experimental and theoretical result. It was found that as particle size decreases charge transfer also decreased.

Keywords: ZnS Semiconductor, Electroluminescence, Nano-crystalline

Spectral analysis and biological evolution of Ho (III) complexes with quinoline derivatives

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Abstract: The importance and versatility of derivatives of quinolines is well established in many forms of drugs, potential use of lanthanide complexes as diagnostic molecule have also been reported in literature but studies on biological aspects of complexes of lanthanides related with bioactive species are lesser. The constructions and characterizations of lanthanide complexes are currently of great interest because of their unique physico-chemical properties and various applications in medical field. The present work describes the synthesis, spectral and biological investigations on the complexes of quinoline derivatives with Ho(III) ions in agreement to Green chemistry approach. The magnetic moment of Ho (III) complexes showed slightly higher-values which originated due to low J-J separation leading to thermal population of next higher energy J levels and susceptibility due to first order Zeeman Effect. For various peaks of Ho(III) Intensity (Judd Oflet T_2, T_4, T_6 and oscillator strength $P_{obs}\times10^6$, Bonding $b^{1/2}$, Symmetry ($T_4/T_{6)}$ and Cordination (T_4/T_2) RMS deviation σ parameters have been computed using partial and multiple regression methods. In this research investigations on micellar doped Ho(III) systems have been reported. Antimicrobial activities of compounds have also been determined.

Keyword; Quinoline, Ho(III), Antimicrobial activity, bonding parameters

Implications of Nano-Technology in Environment

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Abstract: Nanotechnology has potential applications in many sectors including consumer products, health care, transportation, energy and agriculture. In addition, nanotechnology presents new opportunities to improve how we measure, monitor, manage, and minimize contaminants in the environment. Nanotechnology also has the potential to improve the environment, both through direct applications of nanomaterials to detect, prevent, and remove pollutants, as well as indirectly by using nanotechnology to design cleaner industrial processes and create environmentally responsible products. Nanotechnology helps the environment

Applying the principles of green chemistry process to produce nano-materials and their end products

Nanotechnology and green chemistry are the magic weapons for environmental protection

Environmental applications

1. Nanotechnology is an emerging field that covers a wide range of technologies which are presently under development in nanoscale.

2. Plays a major role in the development of innovative methods to produce new products, to substitute existing production equipment and to reformulate new materials and chemicals with improved performance

3. Resulting in less consumption of energy and materials and reduced harm to the environment as well as environmental remediation.

Applications of nanomaterials

Inorganic nanomaterials for a variety of biological applications

(1.) Protein purification (2.) DNA binding (3.) Antibacterial and anti-fungal activity

Polymeric nanoparticles

(1.)Food packaging (2.)Solar cells (3.)Bioremediation (4.)Biosensing (5.)Targeted drug delivery

Keywords: Nanotechnology, Environment, Green chemistry

Green chemical approaches towards electro- organic and biotransformation

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Abstract: This paper reports novel green chemical approach for the synthesis of amine and alcohols by microbial transformation using Baker's Yeast (Saccharomyces cerevisiae) in free as well as in Immobilized form and electrochemical technique. Microbial transformation of carbonyl and nitro compounds were carried out in acidic medium. Cyclic voltammograms of the substrates were recorded at different pH (5.0, 7.0& 9.0) to find out the optimum conditions of electrochemical reduction. In this reduction the substrates was carried out galvanostatically using Stainless Steel Electrodes (SS-316) as working electrodes. The Products such as alcohols and amine were isolated and purified by chromatographic technique and characterized by different spectral techniques.

Keywords: Baker yeast (BY) , Immobilized Baker's Yeast (IBY), Cyclic voltammograms,

Polymer mimics like Biomacromolecular antifreeze proteins

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Abstract: Antifreeze proteins are biopolymers which are produced by some plants, insects, vertebrates, fungi & bacteria and these help surviving in sub zero temperatures. These proteins inhibit growth and recrystallization of ice crystals which are fatal for life process. Research in this field is of importance as in the fields of cryosurgery and cryopreservation of tissues , prevention of ice growth on wind turbines & on aeroplane wings and to find out better technologies for frozen foods, we need to understand how in nature the antifreeze proteins work and what are their structures and properties. This review paper discusses various progresses in this field in recent times which is aimed to encourage further research in the field of biodegradable antifreeze compounds. In these times of high environmental pollution it is highly relevant to synthesize biopolymers which will not negatively impact the environment but at the same time help solve the problem of saving the life of cells and tissues at sub zero temperatures.

Keywords: Polymer, Bio-macromolecules, Cryosurgery and cryopreservation

Impacts of Nanotechnology on Environment and Health: Benefits and Risks

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Abstract: In recent years nanotechnology is emerging as an efficient source of novel solutions of many world wide environmental problems with scientific and industrial development. It is most advanced science that contributes in vast areas i.e. health, environmental, legal, industrial, agricultural sectors of human welfare. The concept "green nanotechnology" opens the door to generate eco-friendly products to reduce greenhouse gases and hazardous wastes, enhances the processes that are energy efficient and save raw materials to build and sustain a "green economy". Moreover, the technology has impact on the research in engineering, biology, chemistry, computing, materials science, industry and communications. Major fields of applications of nanotechnology are improved and cost effective manufacturing, water purification systems, energy production, nano medicines, better food storage, crop improvement, chemical-mechanical polishing, magnetic recording tapes, sunscreen, automotive catalyst, bio-labeling, electro-conductive coatings, fiber optics and large scale auto fabrication. Concurrently, concern has been raised on the potential environmental, health, and safety risks against nanotechnology. Advanced researches have shown the adverse effect such as DNA damage, cancer, oxidative stress, brain damage and bioaccumulation in living organisms. A large surface area of nanoparticals causes hyper reactive state which can cause damage to biological systems. The modified material has quantum effect that alters optical, electrical and magnetic properties of matter. However, United States Environmental Protection Agency and the Health and Consumer Protection Directorate of the European Commission have started dealing with benefits and risk assessment of nanotechnology on environment and health but more research and scientific discussion are required for the betterment of society.

Key Words: Nanotechnology, Health, Environment, Risk

Right to Polluted Free Environment Under Indian Constitution

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Abstract : The 21st century is witnessing interaction of human beings with nature in such a manner that the environmental issues have assumed such proportions as to affect all humanity around the world. Extensive exploitation of natural resources and its consequential effect, rapidly destructing the environment globally, industrialisation, urbanisation, population explosion, over exploitation of resources, depletion of traditional sources of energy, disruption of natural ecological balance, destruction of living species for economic reasons etc are some of the major ramifications of development, contributing towards the environmental deterioration. Environmental pollution to the unfavourable alteration of our surroundings which occurs mainly because of the activities of human being, pollution includes release of materials into atmosphere which make the air unsuitable for breathing, harm the quality of air, soil and give out substances which damage the health of all the living beings, human beings, plants and animals.

Key word: Exploitation, industrialisation, urbanisation

Gandhian Perspective for Human Rights in India

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Abstract : The struggle to protect and preserve human rights is as old as human civilization itself. It has been a long and slow historical process for the realization of these rights. Today, we notice the cases of violation of human rights at various levels. The prominent among these are unemployment, poverty, economic disparity, inhuman condition of work in factories, trafficking of women and children. Besides the process of globalisation has also an adverse effect in human rights. Due to the rapid system of globalisation, it creates mass poverty, unemployment and economic disparity which are the major factor responsible for violation of human right. Under such a critical and vulnerable condition the Gandhian way of saving the humanity has become very much relevant. The appropriate and effective remedy of this violence is not counter violence rather non-violence. We all came across that M.G. whole philosophy is rooted on the welfare of whole mankind. As we know that, ever human on this earth has the right to live in peace. To him, in pursuit of these human rights the only hope for the human was for every one of us to become non-violent. Gandhi was always ready to challenge the condition which destroyed peace in life.

Key words: Civilization, human right, globalisation, poverty

Pollution And Health Hazards

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Abstract: pollution is reaching worrying proportions worldwide. Urbanization and industrialization along with economic development have led to increase in energy consumption and waste discharges. The global environmental pollution, including greenhouse gas emissions and acid deposition, as well as water pollution and waste management is considered as international public health problems, which should be investigated from multiple perspectives including social, economic, legislation, and environmental engineering systems, as well as lifestyle habits helping health promotion and strengthening environmental systems to resist contamination. we will enumerate the consequences of releasing pollutants in the environment. We cause most of the pollution and we will suffer the consequences if we don't stop. We are already seeing its effects in the form of global warming, contaminated seafood, increased cases of lung diseases and more. We release a variety of chemicals into the atmosphere when we burn the fossil fuels we use every day. We live in an ecosystem where the action of one has the potential to affect the many. This can be a good or a bad thing, depending on what the action is. Our mistakes has polluted the environment that we live in and we are waking up and owning to the fact. We are trying to reverse the damage. The good news is that every positive action counts. The small effort you make towards a greener environment can start a healing ripple effect. We may still save what is left of our natural resources and make the world a better place to live in for our future generation.

Key words: Pollution, greenhouse, Legislation, ecosystem

Impact of Agriculture on the Socio-Economic Milieu: A Geographical Analysis of Rajasthan

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ABSTRACT: Agriculture is a primary economic activity defined as the science and art of cultivation on soil and the rearing of livestock. In other words, it is the process of producing food, feed, fibre and many other desired products by the cultivation of certain plants and the raising of domesticated animals (livestock). India's first Primer, Jawaharlal Nehru (1947 to 1964), advocated that “Everything, except agriculture can wait”. It is of no surprise that farmers and farming activity were given sacred status in Indian civilisation where Goddess Annapurna is the goddess of food and nourishment in Hinduism. In modern times, Agriculture in India boasts of a series of achievements – Largest producer of milk; Second largest producer of rice, wheat, fruits, and vegetables, Fifth largest producer of poultry and so is the state of Rajasthan. Agriculture has huge Implications for human life and human society – social, political, cultural, ecological, security, strategic etc. Hence, it is of no surprise agriculture possibly the only economic activity which has 'culture' as a suffix corroborating its multiple and multi-dimensional implications. However, it continues to suffer from various problems like malnutrition, farmer distress, farmer suicides, post-harvest losses, challenges of climate change etc. This Paper provides an insight into the basics of Agriculture, its socio-economic impact, Policy measures taken by Government, analysis and Benefit Assessment of measures taken, recent developments and open problems in this area.

Keywords- Climate extreme, monsoon, global warming, Green Revolution, Biotechnology, Shifting cultivation, Nomadic Herding, Genetically modified Crops.

Vastu Shastra: The ancient Science of Plants and Energy and its relevance in modern times

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Abstract: The word Vastu is derived from the word 'Vastoshpati' used in the Rig-Veda, and is meant to provide protection, happiness and prosperity. Vastu Shastra is being practiced since the Vedic period. It is an ancient science of living. Our environment plays an important role in our health and welfare of the human society. Nowadays, Vastu shastra is also known as a modern science which is used in designing and construction of house regarding the flow of Energy. The flow of energy is related to the five basic elements (earth, water, fire, air and space).Various natural renewable energies are utilized from the environment, such as solar energy from Sun, Lunar energy from Moon, Earth energy, Electric energy, Magnetic energy, Thermal energy, Wind energy, Light energy cosmic energy, etc. Utilization of these energies in an appropriate manner can uplift the comfort of living conditions of man and environment.According to Vastu Shastra, plants are not just decorative, they can also clean and purify the air in our homes, and act as anti-pollutants. Indoor plants play vital role in creating healthy environment. They purify and revitalize the air through the process of photosynthesis and by removing harmful gases like CO_2. They can even reduce components of indoor air pollution, even volatile organic compounds such as benzene, formaldehyde, toluene, and xylene. Recent studies proves that the important indoor plants such as Aloe, Bamboos, Tulsi, Cycas, Dracena, Devil's Ivy, Ficus, Money plant Lily, Spider plant, etc, are kept inside the living places, office or factory in specific direction as per vastu, can improve the air quality and remove harmful effects of various air pollutants and allows inflow of fresh air and natural light that promotes health, wealth, peace and happiness.

Key words: Vastu Shastra, cosmic energy, anti-pollutants

Limnological characteristics of Siliserh Lake, Alwar

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Abstract: Limnological parameter and plankton diversity are an important criterion for determining the suitability of water for irrigation and drinking purpose. Siliserh Lake, Alwar has the greatest importance for mankind. The specific status of limnological characteristics and diversity of plankton in the Lake Siliserh have been done through seasonal survey of two annual cycles (2016-17 and 2017-18). The water remains moderately alkaline (pH 7.2), Electrical conductance (0.386 ms/cm), TDS (205 mg/L), chloride (136 mg/L), hardness (356 mg/L), and alkalinity (207 mg/L) show low mean value. Average dissolved oxygen was at 5.25 mg/L while average nitrate and phosphate level were 3.7 and 2.7 mg/L respectively. On the basis of water quality parameters in general Lake Siliserh were found to be eutrophic. A high rate of primary production 305.024 mgc/m2/hr), diversity of phytoplankton (74 forms) and zooplankton (105 forms) and fish 12 species were also observed during the period of study. Therefore, Lake Siliserh has rich number of species and biodiversity of aquatic animals.

Key words: Eutrophic, Lake Siliserh, Limnological characteristics, Phytoplankton, Zooplankton

Air Pollution and Health Hazards

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Abstract: Air pollution is a major concern of new civilized world, which has a serious toxicological impact on new human health and the environment. The source of pollution vary from small unit of cigarettes and natural source such as volcanic activities. It has a number of different emission source, but motor vehicles and industrial processes contribute the major part of air pollution. Air pollution has now emerged in developing countries as a result of industrial activities and also increases the quantity of emission sources. About 4.3 million people die from household air pollution and 3.7 million from ambient air pollution. According to the world health organization six major air pollutants include particle pollution, ground level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. Long and short term exposure to air suspended toxicants has a different toxicological impact on human including respiratory and cardiovascular diseases, neuropsychiatric complications, the eyes irriation, skin diseases and long term chronic diseases such as cancer. Air pollution is considered as the major environmental risk factor in the incidence and progression of some diseases such as asthma, lung cancer, psychological complication, autism, fetal growth and low birth weight. In this we aimed to discuss toxicity of major air pollutants sources of emission and their impact on human health.

Key words: Air pollution, human health toxicity

Effect of Air Pollution on Human Health

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ABSTRACT: Air pollution is a major problem of recent decades, which has a serious toxicological impact on human health and the environment. Air pollutants have various adverse halth effect from early life some of the most important harmful effect are perintal disorders, infant mortality, respiratory disorders, allergy, malignancies, cardiovascular disorders, increase in stress oxidative, endothelial dysfunction, mental disorders, and various other harmful effects. Air pollution is considered as the major environmental risk factor in the incidence and progression of some diseases such as asthma, lung cancer, ventricular hypertrophy, alzheimer's and parkinson's diseases, psychological complications, austism, retinopathy, fetal growth, and low birth weight. In this review article, we aimed to discuss toxicology of major air pollutants, sources of emission, and their impact on human health. Air pollution is reaching worrying proportions worldwide. Urbanization and industrialization along with economic development have led to increase in energy consumption and waste discharges. The global environmental pollution, including greenhouse gas emissions and acid deposition. As well as water pollution and waste management is considered as international public health problems. Which should be investigated from multiple perspectives including social, economic, legislation, and environmental engineering system, as well as lifestyle habits helping health promotion and strengthening environmental system to resist contamination.

Key words: Perintal disorder, infant mortality, urbanization, industrialization

Environment: Importance and Awareness

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Abstract: For their survival, existence and progress human directly or indirectly depends on the environment and natural resources that includes both biotic and abiotic factors that affect their day-to-day life. For a better and healthy lifestyle it is essential that the environment around us must be wealthy so as to we can enjoy a superior physical, mental and economical state of life. In recent time, with increasing population, increasing demand of food, shelter, energy and various resources of everyday use including housing, clothing, vehicles, automobiles etc. put great impact on natural resources. Due to advancement in science and technology as well as in human intelligence, nature and ecosystems are facing environmental degradation such as soil erosion, soil, water and water pollution, deforestation and desertification, climate change, ozone layer depletion, global warming and acid rain etc. Environmental awareness is must to minimize these kind of environmental issues. Environmental education is necessary to achieve these goals by creating awareness and knowledge, attitude, behaviour, skills and involvement of people in protecting the environment and resources. There is no any device that have exact measurement of environmental awareness among the people but amount of positive impact on environment and resources can be observed by using various environmental awareness programmes. Environmental awareness programmes are today's need. We can fulfil this need through teaching and making aware citizens about importance of resources and environment in present time and about fear of absence of resources and impact of dangerous pollutants on environment on living being in future. Therefore, it is vital to take necessary social, economic and political steps to assure a better environment for the fulfilment of need and wants of every citizen on the earth.

Keywords: Environmental awareness, Natural resource, Abiotic factor, Global warming.

An overview of anti-competitive conditions in America

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Abstract: Influential branch of public law, competition law , and encompasses a series of positive and negative regulation of the market that are aimed at controlling entity into existence . A great scholar of Rights and the science of economics politicians in explored this is a complex issue , yet have important principles and it works , its growth strategies and behaviours and avoid imposing hundreds competitive review .it can be another success in various fields such as political, military, and competitive. Its goal is to compete at a high level , stable investments.

Keywords: Competition , Monopoly , Dumping , Unfair Behaviour

Environmental degradation due to plastic consumption

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Abstract: Plastic contamination is right now one of the greatest natural concerns. It might appear as though a lot of plastic waste are inescapable on the planet we live in, yet you can help with the plastic contamination issue by monitoring its perils and finding a way to lessen squander. Plastic has poisonous toxins that harm the earth and cause land, water, and air contamination. It can take hundreds or even a great many years for plastic to separate, so the harm to nature is dependable. Ecological dangers presented in the earth by plastic creation and plastic squanders keep on being a noteworthy issue today, firmly associated with the expansion of plastics utilization by the populace. In addition, little endeavors are engaged with a few sections of the world related to plastic waste gathering, reusing and reuse. Numerous substance mixes utilized in the plastics fabricating as added substances, specifically plasticizers are hazardous to human wellbeing and nature, alongside some debasement items that might be discharged amid the plastic life cycle. Remembering the potential effects and dangers created by these items in the earth and for people, the paper features that the present prerequisites and propensities are to lessen the requirement for plastic, the upgrade of reusing and recouping the waste, at the same time with the substitution of plastic from non-renewable energy source with a constant broadening range of biodegradable polymers. Bioplastics started to be perceived as a positive and critical creation of substance and plastics industry, giving numerous and changed chances to natural effects and dangers decrease. A large number of plastic production lines are delivering huge amounts of plastic sacks which are famously utilized by the general population for shopping purposes in view of its simplicity, inexpensiveness and accommodation of utilization yet their extremely risky negative effect is never featured or, at any rate, straightforwardly examined in a progressively genuine tone. It has been seen that transfer of plastic waste is a genuine worry because of ill-advised accumulation and isolation framework. CPCB put endeavors to merge creative specialized choices for more secure transfer of plastic waste, these are portrayed in the accompanying sections. It is worth to take note of that before embracing any innovation, it is important to isolate plastic waste from metropolitan and others strong waste. The real points of interest of bioplastics are that they can decrease carbon dioxide generation and are biodegradable or compostable, prompting the decrease of the waste sum sent to landfills. By utilizing inexhaustible assets for creation rather than oil, bioplastics can diminish reliance on oil. Biodegradable plastics add to maintain a strategic distance from the issue with decimation of microscopic fish and phytoplankton and waste transfer. In this paper we have recognized and talked about a few effects and dangers presented by plastics creation and waste, just as a few choices to lessen potential misfortunes produced by different kinds of dangers. In spite of the fact that plastics have changed individual's day by day life, there are ceaseless contentions about difficulties and openings on their inventory network, creation and utilization. Discussions on plastics utilization and disposing of are opposing and allude for the most part to the amassing of waste in landfills and in common natural surroundings, producing likewise troubles for untamed life because of ingestion or trap in plastic. Likewise, the draining of synthetic compounds as an outcome of plastic items debasement in certain ecological conditions and the possibility to exchange synthetic concoctions to natural life and people are viewed as natural dangers. The new class of biodegradable bioplastics and plastics shows a genuine enthusiasm for practically every one of the segments of the general public and industry. Bioplastics began to be seen as a positive imperative creation of the concoction business, offering various and different open doors for an enhanced connection plastics condition.

Key words: bioplastics, natural concern ecological risk, human health, plastic waste, recovery

Environmental Law

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Abstract: Environmental law, also known as environmental and natural resources law, is a collective term describing the network of treaties, statutes, regulations, common and customary laws addressing the effects of human activity on the natural environment. The core environmental law regimes address environmental pollution. A related but distinct set of regulatory regimes, now strongly influenced by environmental legal principles, focus on the management of specific natural resourncs, such as forests, minerals, or fisheries. Other areas, such as environmental impact assessment, may not fit neatly into either category, but are nonetheless important components of environmental law.

Key words: Environmental law, natural resources

Role of Literature in Environmental Education

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Abstract: Literature, being one of the Fine Arts, serves not only in shaping personalities but in forming the social structures as well. One of the most fundamental objectives of Social Studies is, as mentioned by Professor Houser, "to promote self-development and social understanding for the improvement of society at large". Success in raising environmental awareness along with the concomitant change in the children's conduct (a result not always achieved through the typical use of Environmental Education) through the reading of relevant books has been demonstrated by different researches. Moreover, the significance of environmental awareness, especially to youngsters, is worth being stressed since they are the future adult citizens to participate dynamically towards the conservation of the environment. To that direction, children's Ecological Literature may lead a contributory role. Children's books with a literary character are far more interesting to children than knowledge books and offer them a chance to acquire knowledge on different environmental concepts. Nowadays, due to the extent and the intensity of environmental problems plaguing our planet, ecologically-oriented Literature has become a constantly developing field especially when it comes to Children's Literature. Literature can sensitize the students on environmental issues and at helping them adopt an environmentally responsible behaviour.

Key words – Environmental awareness, Literature.

A Study of Environmental Awareness Among College Students of Sri Gaganagar District of Rajasthan

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ABSTRACT: The environmental issue becomes major global concern these days due to increasing human population, industrialization and globalization. The environmental related issues are multiplying in recent years. The human desire to modern technologies and changing Lifestyle pattern poses serious threat on the environment. The pollution levels are alarming day by day. In order to achieve the sustainable and equitable development it is not only significant to choose policies and programs that support efficient use of resources and to implement technologies but also the environmental awareness which shows the way to reduce the environmental damage and results into sustainable development. This paper mainly focused on environmental awareness and practices in Sri Ganganagar District of Rajasthan. It also discuss environmental practice among college students with regard to the use of plastic and its disposal , alternatives for plastic, rainwater harvesting and also their participation in environment related programs . The target group is college students because Environmental education is a part of their curriculum and these young minds are inculcated values of education and related practices so as to develop future responsible citizens. The area of research is confined to college students of Sri Ganganagar District of Rajasthan. Ganganagar is a agriculture economy primarily based upon the water supplied through Gang canal and Indira Gandhi Canal. The study reveals that the level of awareness is high among the respondent , irrespective of their socio-demographic difference but in practice level there is difference between the different age groups (i.e PG students participating more than UG students) This study also processes some recommendations to safeguard the environment in India. The growing concern with environmental issues and their impact on general awareness is one of the most noticeable phenomena of the last two decades. This is a conventional believes that the environmental degradation would resolve as soon as developing countries grow economically. Since their socio-economic conditions insists them to avoid environmental friendly technology as well as Pro-environmental Regulation and policies. However several studies indicate that many developed countries already equipped with environmental policy, legal framework and economic instruments, which are regarded as highly sophisticated by international standards and yet face the degradation of the environmental condition. Major difficulties are not only the lack of legal and economic framework for the Environment protection but also the lack of participation among general public in Pro-environmental behaviours. Some of the environmental problems which are critical at the present are widely known because of growing awareness of the all levels of society including Government, general public and scientific community.However the present study is trying to discuss the environmental awareness and practice among the college students of Sri Ganganagar district of Rajasthan and its impact on their behavioural change towards sustainable development. It is inevitable for us to face the fact that it would not be easy to find a solution to environmental problems. India has more than 40% of young people in the world. The sensitization and practice of environmental manner is will improve the present environmental conditions.

Key words – Environmental Awareness, Sustainable Development.

Environmental Education

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ABSTRACT: Environmental education (EE) refers to organized efforts to teach how natural environments function, and particularly, how human beings can manage behaviour and ecosystems to live sustainably. It is a multi-disciplinary field integrating disciplines such as biology, chemistry, physics, ecology, earth science, atmospheric science, mathematics, and geography. The United Nations Educational Scientific and Cultural Organization (UNESCO) states that EE is vital in imparting an inherent respect for nature amongst society and in enhancing public environmental awareness. UNESCO emphasises the role of EE in safeguarding future global developments of societal quality of life (QOL), through the protection of the environment, eradication of poverty, minimization of inequalities and insurance of sustainable development (UNESCO, 2014a). The term often implies education within the school system, from primary to post-secondary. However, it sometimes includes all efforts to educate the public and other audiences, including print materials, websites, media campaigns, etc.. There are also ways that environmental education is taught outside the traditional classroom. Aquariums, zoos, parks, and nature centers all have ways of teaching the public about the environment.

Key words: Environmental, ecosystem, awareness.

A Study of Environmental Education and Awareness

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Abstract: Environmental Education aims to create an environmentally literate citizenry, poised and motivated to take action on pressing environment issues & from climate change to habitat conservation and from endangered species to water scarcity. Environmental education is about engaging students, community members, policy makers, the young and the old. It is about empowerment, skills development, and providing opportunities for action. At its best, environmental education represents hope and change. The United Nations has designated the period 2005 to 2014 as the decade of " Education for Sustainable Development". The objective is to integrate the concepts of sustainable development in education processes around the world. Environmental education is an integral aspect of this concept. It is a process of action-oriented, political learning. Need for Environmental Education and awareness:-1)All major natural resources in the country are in grave danger of irreparable damage, 2)A society cannot survive if its natural resources are rendered unfit for use by its people.3)The only hope of salvaging this grave situation is by making the young aware that they need to proactively begin to protect the environment they will inherit.4)Science and Technology can help in a limited way but cannot deliver it. 5)Development process and ignorance of people about retaining the ecological balance. Indeed, no citizen of the earth can afford to remain aloof from the issues related to the environment. It is therefore essential that the study of the environment becomes an integral part of the education. Environmental awareness festers a sense of connection to the natural world, promotes sustainable development and encourages conservation of irreplaceable natural resources and vulnerable plant and animal species. Environmental awareness aims at developing responsible actions necessary for preservation, conservation and improvement of the environment and its components. Environmental awareness seems as an educational tool helping people around the world, understand the economic aesthetic and biological important of preserving natural resources and eliminating or reducing the harmful aspects of man-made alteration. It helps people to understand the consequences of human activities or various levels identifies remedial solutions.

Key words: Environment, climate change, awareness

A study of Nanophysics aspects and properties for consumer goods

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Abstract: The first use of concepts in nano-technology was given by Richard Feynman. We studied that nano-technology had been provided a lot of separation , consolidation, and deformation of materials by one atom or by one molecule . We study in this work all nanophysics aspects, in particular, nano-technology is impacting the field of consumer goods, providing products with novel functions ranging from easy to clean to scratch-resistant. Our study results are accomplished consumer goods.

Key words: Nano-technology, nanophysics, consolidation, deformation

The Protection of Environment in India: A Study of Legislative Policy

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Abstract: A good environment helps all round development of one's personality and for good health, we depend on a secure environment but the human factor is the largest contributor to environmental degradation. Environmental protection and its preservation is today the concern of all. In recent origin, the Stockholm Declaration of 1972 was perhaps the first major attempt to conserve and protect the human environment at the international level. As a consequence of this Declaration, the States were requiring to adopt a legislative measure to protect the environment. India with the intention to implement the decisions taken as Stockholm, enacted three Major Acts, namely The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act,1986 to provide for prevention and control of pollution and improvement of environment. The general enactments for environmental protection contained in the Indian Penal Code, Constitution of India etc. were tailored by specific laws in response to the Stockholm Declaration of 1972. In 1976, the Constitution of India was amended by the forty-two amendment making specific provisions for environmental protection and improvement in the form of Fundamental Duty under Article 51A (g) and the Directive Principle of state Policy Under Article 48A. Moreover, the right to a healthy environment is protected by Article 21 of the India Constitution. The main focus of the paper is to show in detail about the relevant provisions of the various environmental laws and find out the advantages of the environmental policy and law in India.

Keywords: Environmental protection, India, Legislative Policy

Role of Literature in Environmental Awareness: The Environmental Movement

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Abstract : Role of literature in environmental awareness is not new. One can find expression of the natural environment in the account of the garden Eden in the Bible. Pastoral poetry is one of the first literary forms aiming at positioning the reader to close proximity to nature. This pastoral form was inaugurated in the third century BC. This poetry presents idealized depiction of rural life. The survival of simplicity, peace and harmony that had been lost by a complex and urban society is expressed in this poetry. In the recent centuries Thoreau and other writers in America and England were already drawing attention to the threats to the environment by urbanization and industrialization. In the twentieth century, increasing at the rapidity and extent of the human despoliation of nature, led to what came to be called the environmental movement. Some notable advocates of environmental protection in the twentieth century were American writers like John Burroughs and John Muir. Increasing warnings by scientists and conservationists draw attention to the degradation of the environment. Rachel Carson's book Silent Spring (1962), dealt with the devastation by chemical pesticides on wildlife. In the climate of crisis eco-criticism is rapidly growing field of literary study. This field of literary studies has its own journal ISLE (Interdisciplinary Studies in Literature and Environment). Various articles in different periodicals, a proliferation of college courses, and conferences concern with the literature of the environment, encompassed all continents. Many literary writings are oriented towards heightening their readers' awareness. A number of writings impel not only the well being but, the survival of human life as well.

Keywords: literature; environmental awareness; pastoral; environmental movement

Climate Change is a Natural Process

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Abstract: To understand current climates and predict future climates, it is absolutely essential that they be considered in the framework of climate change over geologic time. The Mesozoic was essentially a time of widespread warmth and aridity. During the last 1000 years a long cool time , known as the little Ice Age , was a dominant feature. A description of the year 1816, known as the year 'without a summer'. The 20th century also had both 'warm and cool time'. There is little doubt that changes in Earth - Sun relationship may be a basic cause of long term climatic change on earth. Variation in solar irradiance, sunspot activity, variation in atmospheric dust, human - Induced changes in earth's surface etc. may be cause of short term climatic change on earth. All the increase in temperature in the past 100 years may be due to natural process. So we should talk about pure environment only and not climate change because it is a natural process.

Key words: Climates, solar irradiance, temperature

Faunal Biodiversity of Shekhawati Region

Dr. Ashok Kumar
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Abstract: Nine species of lizards viz. Hemidactylus triedrus, H.flaviodis flaviviridis, Gimnodactylus, scaber, Calotes versicolor, Agama agilis, Acantodactylus contoris, Ophisops jerdoni, O.min/ crolephis and O.tridactylus Species.The bird species are sparsely distributed. The gray partridge (Francolinus pondicerianus) is fairly distributed in the district. The gray quail (Cotumis cotumix) is commonly found in this region. The common sand grouse (Pterocles exustus) is found abundantly in fallow lands, barren stony hill slopes and scrub lands. This is always found in group of 10 to 1000 birds.The great India bustard (Choriotes nigriceps), a large and heavy bird is found in very few numbers.Pea-fowl (Pavo crisatus) inhabits the piedmont zones of the district. Besides these two species of doves, Indian collard dove (Streptopelia docaocto), the little brown dove S.senegalensis, two species of babblers, Turdoides striatus and T.caudatus are widely distributed. Mong hawks, the sparrow hawk and common kite (Milvus migrans) are found abundantly.Two species of shrews (Mammals) suncus murinus sindensis, bigger in size. S.m. sindensis breeds from march to September every year. Two species of hedgehogs, the Indian pale hedgehog (Paraechinus micropus) and the long cared hedgehog (Hemiechinus auritus) are distributed commonly.Rhesus monky (Macaca mulata), Pteropus gignateus, Rhinopoma Kinneari, Hayaena, Canis lupus, Feral dog, Felis chaus, Canis aureus, Gazella, Blue bull, Lepus etc. also found in Shekhawati region.Registration of the activity pattern of coexisting species of gerbils was also undertaken. Two peak activity cycles (mobility, out of the burrows) was observed, a characteristic of all four gerbils. But for all nocturnal species (I.indica, G.gleadowi and G.nanus), the active period was very much dependent on moonlight, more expressed two short bimodal pattern of foraging and association with burrow entrances in moon nights, taking into consideration the high level of partitioning of habitats by sympatric gerbils. The results of this study bring out the importance of inter-specific interference competition in structuring of the communities.

Key word: Hemidactylus, choriotes nigriceps, shrews, Rhesus monkey.

Biodiversity of Rajasthan

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Abstract: Rajasthan has a varied topography that ranges from the semi-arid barren desert, scrub,thorn forests, and rocks to wetlands, water-filled valleys and lush, green forests. The great Indian desert, also known as the Thar desert, the aravali mountain range, Vindhyan or Deccan trap, and the wetlands of the Indo Gangetic plains play a major role in the topography of Rajasthan.Rajasthan consist of large variety of wildlife animals and birds. Migratory birds like the common crane, coots, pelicans, the rare Siberian cranes, imperial sand goose and falcons visit Rajasthan during the winters. Rajasthan boasts of four national parks and eight sanctuaries. Sariska National Park is situated in the Aravalli hills in Alwar provides shelter to a large variety of wildlife animals including Tiger, Sambhar, Chital Nilgai, Leopard, Jackal, Hyena, Wild dog, Four horned Atelope, Wild Boar, Common Langur, Caracal, Jungle Cat, Porcupines and Crocodiles. Ranthambore National Park in Ranthambore is a well known tiger reserve under Project Tiger, Keoladeo Ghana National Park, also known as the Bharatpur Bird Sanctuary is one of the world's best bird sanctuaries and the largest bird sanctuary in Asia. The Desert National Park is located in the desert sands around Jaisalmer is associated with the endangered great Indian bustard.

Key words: Topography, Aravalli hills, sanctuaries

Wild life Conservation and Habitat Loss

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ABSTRACT: Wildlife Conservation is the practice of protecting wild plant and animal species and their habitat, wildlife playas an important role in balancing the Ecosystem and provides stability to different natural process of nature like rainfall changing of temperature, fertility of soil, the goal of wide life Conservation is to ensure that nature will be around for future generation to enjoy and also to Recognize the importance of wildlife and wilderness for humans and other species alike" Fewer natural wildlife habitat areas remain each year. Habitat loss due to destruction, fragmentation and degradation of habitat is the primary threat to the survival of wildlife.

Keywords:- Conservation, Degradation, Ecosystem, Habitat, Wildlife.

Faunal Biodiversity of Shekhawati Region

Dr. Ashok Kumar
Prince College, Sikar

Abstract: Nine species of lizards viz. Hemidactylus triedrus, H.flaviodis flaviviridis, Gimnodactylus, scaber, Calotes versicolor, Agama agilis, Acantodactylus contoris, Ophisops jerdoni, O.min/ crolephis and O.tridactylus Species.The bird species are sparsely distributed. The gray partridge (Francolinus pondicerianus) is fairly distributed in the district. The gray quail (Cotumis cotumix) is commonly found in this region. The common sand grouse (Pterocles exustus) is found abundantly in fallow lands, barren stony hill slopes and scrub lands. This is always found in group of 10 to 1000 birds.The great India bustard (Choriotes nigriceps), a large and heavy bird is found in very few numbers.Pea-fowl (Pavo crisatus) inhabits the piedmont zones of the district. Besides these two species of doves, Indian collard dove (Streptopelia docaocto), the little brown dove S.senegalensis, two species of babblers, Turdoides striatus and T.caudatus are widely distributed. Mong hawks, the sparrow hawk and common kite (Milvus migrans) are found abundantly.Two species of shrews (Mammals) suncus murinus sindensis, bigger in size. S.m. sindensis breeds from march to September every year. Two species of hedgehogs, the Indian pale hedgehog (Paraechinus micropus) and the long cared hedgehog (Hemiechinus auritus) are distributed commonly.Rhesus monky (Macaca mulata), Pteropus gignateus, Rhinopoma Kinneari, Hayaena, Canis lupus, Feral dog, Felis chaus, Canis aureus, Gazella, Blue bull, Lepus etc. also found in Shekhawati region.Registration of the activity pattern of coexisting species of gerbils was also undertaken. Two peak activity cycles (mobility, out of the burrows) was observed, a characteristic of all four gerbils. But for all nocturnal species (I.indica, G.gleadowi and G.nanus), the active period was very much dependent on moonlight, more expressed two short bimodal pattern of foraging and association with burrow entrances in moon nights, taking into consideration the high level of partitioning of habitats by sympatric gerbils. The results of this study bring out the importance of inter-specific interference competition in structuring of the communities.

Key word: Hemidactylus, choriotes nigriceps, shrews, Rhesus monkey.

Environmental Awareness in Ancient Vedic Literature

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Abstract : From time immemorial, protecting the environment has always been a priority and legal protocols were implemented wherever necessary. Ancient Indian civilization always believed to live in harmony with nature and traditionally toned hygienic environment as described in Vedas, Upanishads, Smiritis and Dharmashastras. Worshipping nature as deity and recognizing earth as mother as they are the basic necessities of human kind to exist on the earth shows a kind of conservation ethics that comes through history, culture, religion and Vedic philosophy. The most ancient scriptures in the world, the *Vēda* (derived from the Sanskrit root "*vid*" which means to know) are treasures of vast scientific knowledge. They contain several references on the weather cycle, rainfall phenomena, hydrologic cycle, environmental protection, ecological balance, and related subjects that indicate a high level of awareness possessed by the seers and people of that time. Hymns in the four Vedas, *Rgvēda* , *Yajurvēda* , *Sāmavēda* , and *Atharvavēda*, reveal full cognizance of the undesirable effects of climate change; skew in the weather patterns, water pollution, distortion in ecological balance, and environmental degradation; and appropriately caution against them. 'Environmental Education' is a very new and latest area of study but it has very ancient roots in our culture since Vedic Period. Man has been very conscious about his environment since the very beginning of his religious and cultural development. The ancient Indian heritage had already provided a spacious spiritual home for the environmental ethos. It is interesting to know that the Vedas have several references in them on environmental protection, ecological balance, weather cycles, rainfall phenomena and other environment related prospects directly indicate the high level of awareness of Vedic people. Ecology was sacred science for them. The ancient sacred literature of the Vedas enshrines a holistic and poetic cosmic vision.This paper presents an attempt to appraise the concept of environmental awareness in ancient Vedic literature.It is widely recognized that scientific advancement has considerably altered our way of life. Unlimited exploitation of nature by man has disturbed the ecological balance between man and environment. Rapid industrialization has left us with polluted air, water, soil, wild life and exhausted natural resources. The pollution is a necessary evil of all development. It is very difficult to think of man as something separate from physical environment because life and environment are interdependent. To check the degradation of the environment and to restore the balance of nature is the most important challenge to mankind.

Key words: civilization, Ecology, industrialization

Desert Adapatabilities in Blepharis Sindica T. Anders – An Endangered Medicinal Plant from Indian Thar Desert

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Abstract: Despite of being limited by moisture availability, Indian Thar desert is one of the vegetationally richest desert ecosystems. In Indian Thar desert, several plant species exhibit high fidelity regarding their ecological distribution and occurrence. Day to day increasing ecological pressures is pushing the entire ecosystem towards a much higher rate of biodiversity depletion. Ecological threats over individual species as well as community levels are in notable amount at present time worldwide. Medicinal plants have a well documented role in human health issues since past times and similarly have unavoidable values in present time due to their safe mode of action. Unjudged and almost unscientific harvest of plant materials is putting an alarming threat over different medicinal plants in varied ecological areas of the world. To fulfill all known and miscellaneous requirements, it is the most urgent work for us to ensure the sustainity of the existing arid zone ecosystems. Blepharis sindica T. Anders. (Locally known as Bhangari or Billi-Khojio) is an endangered plant of Acanthaceae family growing in sandy habitats of Indian Arid Zone. Seeds of this plant have great medicinal properties in different ways like aphrodisiac, diuretic, expectorant and also as tonic. The lignified, dried and soil buried blackish brown spikes (cones) disperse seeds after a slight moisture absorption and seeds start to germinate. The previous studies reveal that its hygroscopic hair coated seeds play a very finely tuned way to adjust its early seed germination physiology. Besides seedling establishment, entire vegetative and reproductive growth remain better in less moist sunny periods in comparison to occasionally wet spells. The plant exhibits tuned hydrophobic growth strategies with a slight need of water reflecting it's highly adjusted life according to prevailed dryness in the arid areas. Unusual or unequally precipitations, especially at the monsoon beginning exert the most threatening constrain on its growth cascade. Ecological, ecophysiological, phytosociological, biological, germplasml and soil studies reveal that sandy soil with higher efficiencies of percolation, open sun light, a good soil seed pool, pollution and disturbance free land, low grazing risks etc. are the some key requirements for better expression and insurance of its gene pool. Continuous existence of all biological components in a highly synchronized manner is always prerequisite to meet regular demands of different phytoproducts. Ecological evaluations and designing of species specific study based conservation plans will certainly ensure the sustainability of our ecosystems in immediate future.

Key words: Thar desert, Adaptabilities, Blepharis sindica, Endangered, Aphrodisiac, Hydrophobic, Seed Germination

Recycling — A Part of Circular Economy

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ABSTRACT: A major component of circular economy is recycling of waste materials and recycling basically involves turning used materials that are labelled as recyclable over to your local waste facility designated in a disposal container as “recyclable” materials to be taken and reused as materials for a new purpose. A recyclable product is turned to create a new and different product. Not only are the natural resources limited but recycling efforts can significantly reduce additional waste that will not only harm the planet today but the future generations as well. Many products, we use in our daily lives come from trees and trees can be conserved by recycling these products. Major benefit of recycling is that it saves our natural resources as they are already depleting. It also saves energy, it saves environment and all that but here we are talking about how it is/ can be used for economic growth. This paper is about how business-minded fans of circular economy are trying to reduce, reuse and recycle the waste products. In conventional economy, everything is linear: extraction, production and disposal but in circular economy, consumption patterns are cyclic in nature. Once used, all goods provide by-products that can be reused in other manufacturing processes, creating a virtuous cycle which is more environment-friendly. It is estimated that circular path adopted by India could bring in annual benefits of 40 lakh crores by 2050.

Key words: Recycling, natural resources, conservation

Pollution and Its Socio-Economic Cost

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Abstract: Pollution is reaching worrying proportions worldwide. Urbanization and industrialization along with economic development have led to increase in energy consumption and waste discharges. The global environmental pollution, including greenhouse gas emissions and acid deposition, as well as water pollution and waste management is considered as international public health problems, which should be investigated from multiple perspectives including social, economic, legislation, and environmental engineering systems, as well as lifestyle habits helping health promotion and strengthening environmental systems to resist contamination. We will enumerate the consequences and cost of releasing pollutants in the environment. It is causing two way cost: one on account of discharge and other on account of rectifying cost. At the household level, the economic loss on account of pollution includes the cost of treatment and wage loss during sickness. Pollution impacts ecosystems and related economic activities like agriculture and livestock. Air pollution causes climate change. Hence, pollution leads to the real and potential loss of the overall development opportunity in an economy. We cause most of the pollution and we will suffer the consequences if we don't stop. We are already seeing its effects in the form of global warming, contaminated seafood, increased cases of lung diseases and more. We release a variety of chemicals into the atmosphere when we burn the fossil fuels we use every day. We live in an ecosystem where the action of one has the potential to affect the many. This can be a good or a bad thing, depending on what the action is. Our mistakes has polluted the environment that we live in and we are waking up and owning to the fact. We are trying to reverse the damage. The good news is that every positive action counts. The small effort you make towards a greener environment can start a healing ripple and cost effective effect. We may still save what is left of our natural resources and make the world a better place to live in for our future generation.

Key words: Pollution, urbanization, industrialization, contamination

Pollution in Rajasthan-A Study

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Abstract: As far as the environment in Rajasthan is conserved it is among the worst performers in the country. A latest compendium of "Environment Statistics India 2012" released by the ministry of statistics and programme implementation (MOSPI) indicates that Rajasthan's environment situation is appalling. The state has the fifth highest consumption for pesticides in the country. This despite Rajasthan's contribution to agriculture being under 10% nationally. Moreover, agrarian states like Punjab and Haryana have witnessed a dip in usage of pesticides even as it goes up in Rajasthan. The excess use of pesticides, organisms develop resistance and lead to major health issues. "The pesticides used in agriculture sometimes go into the food chain or in water bodies which may result and become health hazards. This study is basically a descriptive study. This paper studies the different types of pollution in Rajasthan and their hazards on the health of the people of Rajasthan. The objective of the study is to find the harmful effects of population on the health of the people of Rajasthan.

Key words- Environment, Pesticides, Agriculture, Hazards, Resistance,

Environmental Change: Impacts on Society

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Abstract: As a society, we have structured our day-to-day lives around historical and current climate conditions. We are accustomed to a normal range of conditions and may be sensitive to extremes that fall outside of this range.Climate change could affect our society through impacts on a number of different social, cultural, and natural resources. For example, climate change could affect human health, infrastructure, and transportation systems, as well as energy, food, and water supplies. Some groups of people will likely face greater challenges than others. Climate change may especially impact people who live in areas that are vulnerable to coastal storms, drought, and sea level rise or people who live in poverty, older adults, and immigrant communities. Similarly, some types of professions and industries may face considerable challenges from climate change. Professions that are closely linked to weather and climate, such as outdoor tourism, commerce, and agriculture, will likely be especially affected.

Key Words: Society, Human health, Tourism, Commerce and Agriculture

International Solar Alliances: Imperatives for success

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Abstract:- International Solar Alliance was jointly announced by India and France at UN Paris Climate Change Conference in 2015 for promoting solar energy through means of enhancing research and technology and capacity building of the "Surya Putras" or sunshine countries falling between Tropics of Cancer and Capricorn. Indian stakes are very high in the success of this project as it is the India's first international and intergovernmental organisation headquartered in India besides this being the major global policy initiative of India since NAM. Its success will not only improve the energy and economic scenario in developing countries but it will also earn India its rightful place as an inspiring force for the third world. It can be a channel for countering the Chinese dominance in African continent through a 'new reconnect' with developing nations. It has the potential of launching India into the position of global leadership thereby cementing her claims for UN Security Council permanent seat. Already, our P.M. has received 'Champions of the Earth' Award for this initiative which is indicative of a solid foundation laid for the goal of sustainable development. However, challenges are equally complex as there is lack of public understanding regarding role, scope and future direction of ISA. Besides the need for generating viable financial instruments for solar projects, there is a lack of standardisation in solar technology and instruments which is a prime cause of high costs. Solar energy plans and policies are incoherent across the member states which demands convergence for successful transfer of innovative technology from lab (Research and Development) to street (developing countries).

Key words: Solar Alliance, energy, solar projects

Mapping India's research on Geographic Information System (GIS) using scientometrics

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Abstract: In recent decades an upsurge of interest regarding Geographic Information System (GIS) has been observed in scientific community. The GIS application tools are used in geography, climate change, disaster management, forestry, agriculture, geostatistics, groundwater, ecology, hydrology, archaeology, aquatics, humanitarian, land use planning, and many more related areas. The present study aims at quantifying the amount of research work done related GIS from India along with revealing much important information. A total of 2591 records containing citation data were retrieved from Web of Science (WoS) server during 1989 to 2018. The R package bibliometrics and wrapper R scripts were used to perform scientometric analysis commonly known as bibliometrics. There were 632 sources which published these reports with average citations of 10.2 per article. The total number of authors was 5020 with 126 single-authored articles. The number of authors and co-authors per article were 1.94 and 3.65 respectively. A country collaboration network was built with the help of igraph package and exported to Gephi. Statistical network properties were obtained using Gephi and the network was simulated accordingly. Excluding India, USA was found to be the highest producing and collaborating country based on total citations and the number of collaborations. Further text-mining provided various keywords and their frequencies which revealed that the highest number of reports were available on groundwater using GIS. Thus, the study provides an overview of work done so far using GIS applications in the Indian subcontinent, which may open up the new intuition for better understating and use of GIS technology.

Keywords: Scientometrics, WoS, GIS, Meta-analysis, Bibliometrics

Environmental Education and Awareness

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Abstract: It is now time to join hands across the globe to protect and preserve our environment and thereby safeguard human health along with the natural environment: air, water, and land. We need to preserve our wetlands, our rainforests, our farmlands and arctic zones and we need to save the endangered species. Effective protection of the environment is critical to sustainable development. Which in turn is critical to poverty reduction. Human development and growth will be short-lived if we do not conserve the natural environment and its resources. Environmental protection requires activity on many levels. From preventing global warming to safeguarding living beings from the effects of poor air quality or toxic chemicals and supporting basic necessities for man to survive. There are many ways we can help save our planet. Environment effective housing through improved energy efficiency of buildings and effective economic growth through more efficient use of resources, such as re-use, recycling and recovery of waste are just the beginning. Practices such as organic farming, sustainable forestry, natural landscaping, wild gardening or precision agriculture, sometimes combined into sustainable agriculture, are increasingly becoming part of nature and ecology conservation. Balanced use of water sources and maintaining safety, quality and availability of drinking water by preventing contamination of drinking water and groundwater to protect public health. Preventing and regulating water pollution from industries, municipal sewage treatment facilities, construction sites, farms, and urban areas. Maintaining, enhancing, and monitoring aquatic based resources such as aquatic ecosystems, sport and commercial fisheries, lakes and wetlands. Management of waste as a resource. Encourage the reduction, recycling and re-use of wastes as raw material for new products. Management of solid and hazardous waste through storage, treatment and disposal. Moving Towards Zero Waste for an efficient economy and a cleaner environment.As governments around the globe are establishing air and water emission limits, individuals too need to come forward and join the clean earth campaign. As a society we produce, use, and dispose of far more chemicals than ever. It's time we realized that this is not the legacy we are supposed leave behind for our children to inherit.

Key words: Environment, global warming, Zero Waste

Laplace Transform

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Abstract: The Laplace transform is powerful tool formulated to solve a wide variety of boundary value problems. The strategy is to transform the difficult differential equations into problems in the Laplace domain, where solutions can be easily obtained. One then applies the inverse Laplace transform to retrieve the solution of the original problems. This project consists of three parts, the first part define Laplace transform and the inverse Laplace transform of some elementary functions. The second part is concerned with the complex inversion formula and explains the modification of Bromwich contour in case brach point. In the third part some applications are solved.

Keywords: Laplace transform, Bromwich contour, boundary value problem.

Biodiversity and Biopiracy

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Abstract: The increasing importance of traditional knowledge (TK) of indigenous communities in the economy as well as in biodiversity conservation, has attracted the uncompensated use of such knowledge by multinational companies and research organizations for commercial purposes. Numerous cases of biopiracy have highlighted this issue and have increased demands for protection of TK from such misappropriation, causing many biodiversity rich countries to design and adopt different protective regimes. This paper seeks to highlight the need for protecting TK by taking a look at some global biopiracy cases.

Key words: Traditional knowledge, biodiversity,conservation

Impact of Tourism on Environment in Ajmer Division of Rajasthan, India

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Abstract: Ajmer division of Rajasthan has four districts in its divisional area i.e. Ajmer, Bhilwara, Tonk and Nagaur. Ajmer is bustling city, located almost 133 km southwest to the state capital Jaipur and only 12 km from the Hindu deity, pilgrimage town of Pushkar. Cities of Ajmer division are home to a number of tourists, Ajmer division can be a perfect representation of the diversity of the Indian culture and ethics, and displays a perfect blend of religion, community, culture, etc., coexisting and flourishing in harmony. Ajmer remains a popular tourist attraction, in addition to being a pilgrimage centre for both Hindus and Muslims. The final resting place of the Sufi Saint, Khwaja Moinuddin Hasan Chisti, is visited by Muslims from all over the world; in fact, the Dargah is revered equally by both Hindus and Muslims. The Bhilwara is another well known district of this division. The Bhilwara city is Famous as the "city of textiles and looms". Shahpura town of this district is home to the world renowned Ramdwara of Ramsnehi Sampraday. The Tonk is known as city of 'Nawabs'. The famous Bisalpur Dam of this district not only serves the thirst of Tonk but also act like a life line of Ajmer district and state capital. The Nagaur district of this division is famous for marble city Makrana and Merta city for Hindu mystic poet of the Bhakti movement Meerabai.

Keywords: Ajmer division, Tourism, Environmental impacts and sustainable tourism.

Conference of Parties (COP) and India

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Abstract: Global warming is most is men made calamity to lives. The United Nations Climate Change Conferences are yearly conferences held in the framework of the United Nations Framework Convention on Climate Change (UNFCCC). They serve as the formal meeting of the UNFCCC Parties (COP) to assess progress in dealing with climate change. The main objective of Conference of Parties (COP) to frame polices to control long-term rise in the average temperature of the Earth's climate system. The first UN Climate Change Conference was held in 1995 in Berlin on 7April, 1995. All COP was theme based. In COP 1, concerns raised about the adequacy of countries abilities to meet commitments under the Body for Scientific and Technological Advice (BSTA) and the Subsidiary Body for Implementation (SBI). In latest COP 2018 was held in Poland (Katowice). India actively take part in all conference of Parties and implement various resolution which passed by COP in scheduled time the National Solar Mission, Biomass energy, Smart Cities, planning to promote an offshore wind energy market, introduction of BS VI by 2020, make common man to aware about climate change and many other efforts are part to fulfill commitment made by India to world under Conference of Parties accord. In this paper I would like to put some light on main objectives of Conference of Parties and how India fulfills its commitment.

Key words: UNFCCC, COP, SBI.

Save the World: Role of mathematical Works and Calculations

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Abstract: In this paper we consider the issues related to the interrelations between mathematics and environment.They mainly emerge as a result of dealing with different mathematical formalisms in representing various environmental phenomena. It turned out that the mathematical as well as the physical pathways have converged to one point discovering many inconsistencies in the use of mathematical formalisms and physical approaches in modelling the environmental interfaces. In that sense we consider the ways that helps us in saving the planet Earth as well as world. These ways are as designing better weather forecasts and climate models, getting 'bang for buck' out of supercomputers, making the most of renewable energy sources, preparing for change, making sense of 'big data' , developing new technologies and making maths accessible to everyone.

Keywords: Phenomena , formalism , modeling , renewable , 'big data' .

lmpact of Climate Change on Biodiversity in India

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Abstract: India's 3,166,414 sq. km area shows a notable diversity of habitats due to significant variations in rainfall/altitude/topography and latitude that cause major seasonal changes in vegetation. They include wide range of eco-zones like desert/high mountains/highlands, tropical and temperate forests, swamplands, plains, grasslands/riverine areas, as well as, island archipelago.It hosts four biodiversity hotspots: the Himalayas, the Western Ghats, the hilly ranges that straddle the India-Myanmar border and the Nicobar group of islands. These hotspots have numerous endemic species. Because of its size and range of latitude, topography and climate, India is home to a great diversity of eco-regions, ranging from permanent ice and snow covered Himalayas to tropical rainforests India is endowed with an immense variety of natural resources in its rich animal (91,200 species) and plant heritage (44.447 species), besides over 250 breeds of farm animals. According to world biogeographic classification, India represents two of the major realms (Palaearctic and Indo-Malayan) and three biomes (Tropical Humid Forests, Tropical Dry/Deciduous Forests and Warm Deserts/Semi-Deserts).These include 12 biogeographic regions. However, the Wildlife Institute of India has proposed a modified classification-which divides the country into 10 biogeographic regions and 20 biogeographic zones. The rich vegetation wealth and diversity in the country is enormous due to the variety of climatic and altitudinal variations coupled with diverse ecological habitats.A loss in biodiversity affects the stability of an ecosystem resulting in a reduction of its resistance to disruption of the food web (by loss of the weak interaction effect), resistance to species invasion and resilience to global environmental change.Ecosystem diversity supplies important ecosystem services, viz., carbon sequestration, plant pollination, pest control by natural predators, watershed protection and erosion control, maintenance of soil fertility and pasture regeneration and breakdown of waste and pollutants, etc. Additionally, ecosystem diversity can contribute to development by encouraging nature-based tourism. Thus, ecosystem services improve local well-being by providing clean water and productive agricultural systems.

Key words: Biodiversity, topography, natural resources

Mathematics: Meaning, Importance and uses

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Abstract: Mathematics is an indispensable subject of study. It plays an important role in forming the basis of all other sciences, which deal with the material substance of space and time. What is the meaning of Mathematics? Mathematics may be described as the fundamental science. It is that branch of science that uses numbers and symbols. Numbers and symbols are arranged using systematic mathematical rules. Mathematics may be broadly described as the science of space, time, measurement, quantities, shapes and numbers and their relationships with each other.The study of mathematics is based on reasons. The universe exists in space and time, and is constituted of units of matter. To calculate the extension or composition of matter in space and time and to compute the units that make up the total mass of the material universe is the object of Mathematics. For the space-time quantum is everywhere full of matter and we have to know matter mathematically in the first instance. Pure Mathematics vs. Applied Mathematics: Mathematics can be pure, i.e., the branch of science that deals that focuses on abstract concepts.

Key words: Mathematics, symbols,Applied Mathematics

Complex permittivity measurement of Saline soil of local area at x band

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Abstract: Complex permittivity of soil is a useful parameter in remote sensing applications, which in turn is useful for agriculture, hydrology and meteorology. Complex permittivity of soil is dependent on the texture structure of the soil, frequency of measurement, moisture content in the soil, salinity, and temperature, etc. Complex permittivity of saline soil of the Lakshmangarh area (Sikar) is measured, and evaluated the real and imaginary part at X-band. The sample of saline soil was collected from Lakshmangarh region at a depth of 15cm from the upper surface. Collected soil was dehydrated, grinded and sieved. The technique for the estimation of dielectric constant and dielectric loss was used for the dry and wet soils at X-band, employing two-point method. All the calculations have been done in the matlab.

Key Words: Complex relative permittivity, saline soil,Microwave, X band.

Review on Different Staphylococcus Species In India

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Abstract: This review was accomplished to examine the staphylococci etiology and antimicrobial resistance in India with highlighting on the prevalence of methicillin resistant *Staphylococcus aureus*. *Staphylococcus* species is catalase positive, a feature differentiating them from *Streptococcus* species, and these are oxidase-negative, its role as one of the commonest pathogens in both communities acquired and hospital acquired infections. Staphylococcal species isolated from skin wound are usually assumed to be commensal organisms that have multiplied different risk factors; these may include parasitism, poor nutrition, stress , trauma and other skin infections. The staphylococci make up the family of gram-positive cocci, staphylococcaceae. The term "staphylococcus" was synthesized from the greek word *staphyle*, meaning grapes like clusters and the term coccus, meaning grain or berry. When these bacteria divide, they do so along two axes, so form clumps of bacteria. This is as opposed to Streptococci, which divide along one axis, so form chains. Staphylococci on the basis of colonial pigmentation whereby the most pathogenic species formed a golden pigment and less pathogenic staphylococci formed white colonies. Staphylococcus aureus is the most common human bacterial pathogen and is an important cause of skin and soft tissue infections, endovascular infections, pneumonia, tonsillitis, pharyngitis, septic arthritis, endocarditis, enterocolitis, osteomyelitis, meningitis, Toxic shock syndrome, sepsis, etc. Methicillin-resistant Staphylococcus aureus (MRSA) represents a challenge for all healthcare institutions in India.

Keywords: Staphylococcus, India, MRSA

The Analytic Aspect of Phyto-Chemicals of Aloe Vera Medicinal Plant of Khetri Region, Rajasthan

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Abstract: The present paper discusses the distributional potentiality of natural vegetation i.e. Aloe vera. Khetri Region is located in the South-eastern part of Jhunjhunu district, Rajasthan state with it's geographical extension in between 27° 40' 24" to 28° 17' 12" N latitude and 75° 39' 59" to 76° 12' 59" E longitude The Khetri zone has a great variety of climates (semi-arid and arid) biotic and edafic conditions, physiography and diversity of natural vegetations which has on a wide range of natural ecosystem. The plant covers a wide range at global level by covering Tropical America, West Indies, Egypt, Netherlands, Southern Mediterranean region, Cape Verde, Islands, Canary Islands etc. In India it has specific distribution by covering Madhya Pradesh, Rajasthan i.e. in western and central India and the species is naturalised in India. The plant belongs to the family - 'Liliaceae'. It is known Ganwarpatha, Grithkumari, Ghigwar, Barbados Aloe etc. by the local name. From vegetational group point of view, it falls under the group of 'Under Shrubs'. Being a phyto- scientists, the best efforts has been made in this research paper to conserve and analyse of decreasement of natural vegetation and associated factors in Semi-arid region, Rajasthan. Further in this aspect, one can visualise very well the results of any sort of contribution of the efforts made by Department of Forest and public awareness in this aspect, in enhancement of the land under green coverage through implementation of successful aforestation and plantation programmes. It's leaves as a whole (after removing the small spines from it's margins) are the applied parts and portion of the plant, which have certain phyto-chemicals which are useful in the cure of some diseases. It's leaves contain anthraquinone glycosides which are collectively known as 'aloin'. The percentage contents of aloin in *Aloe vera* plants is obtained upto 30%. The results suggest to take up immediate steps to adopt the improved forest management technologies with people's participation to lack of effects of decreasement of natural vegetation in the region but it is not possible to conserve completely. Further the results of the study could be fruitfully utilized by the planners bio-scientists, botanists, phyto-georaphers, naturalists and policy makers to evolve suitable forest management technologies and strategies commensurate to the bio-conditions of the region.

Keywords: Phyto-chemicals, Aloe vera, Kheri

Industrialization in India's Urban Areas Its Impact of Health

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Abstract: It is a process that has occurred in history of economically development of nation, states and government. It is a series of radical changes and involvement of economic cultural and scientific overview of a specific place and remains a model to other undeveloped nations for example third world country for looks at the achievement of developed nations like United States and China. Health - It is the state of being physical, psychological and social well of an individual. Healthcare Delivery - This is the delivery of healthcare services to an individual and it includes diagnosis and also treatment and prevention of diseases that can affect the physiological functioning of the normal body of both healthy and unhealthy individual.In comparison with urbanisation and industrialisation process at the global level, India is moving on a uniform pattern to become an urbanized country. The share of urban population in the country is growing by 6% per decade (Butsch, Sakdapolrak, and Saravanan 2012). It means that India will become up to the greater extent fully urbanized between 2040 and 2045. In the recent scenario, approximately 15% of the urban population of India is residing in one of the four largest metropolitan cities namely, Delhi, Mumbai, Kolkata, Chennai which will grow to 42% by 2020 (Tripathi 2013). This growing pace of urbanization is posing health related problems for the urban population due to poor environmental hygiene. It is the result of the growing pace of industrialization that poses risks to the urban population in every dimension. Current urbanization is the consequence of India's New Economic Policy (NEP) which was inaugurated in the 1990s' (Kanchana et al, 2014). A higher pace of industrial growth is one of the foremost objectives of this policy. Small Scale Industries such as leather industry which can be started by investing very little financial resources and in a relatively smaller place like home is contributing significantly to industrial waste. Industries like paper mills, cotton mills, and leather mills are highly clustered in semi-urban areas like Kanpur, Surat and are known as the largest generator of solid waste. This kind of small-scale industrialisation in these urbanized areas is relentlessly demanding huge quantity of water, proper sanitation arrangement.

Keywords: Industrialization, Urban areas, Impact of health

Air Pollution in Metros - its Magnitude & Health Impacts

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Abstract: Pollution refers to the contamination of the earth's environment with materials that interfere with human health, quality of life or the natural functioning of the ecosystems. Currently India is struggling with air pollution which is having a tremendous toll on health of Indian people. Air pollution is responsible for many health problems in the both urban and rural areas with many deaths and low birth weight babies associated with it. Major contributors to air pollution are vehicular exhaust, biomass burning and industrial exhaust. Of late, the air pollution status in Delhi has undergone many changes in terms of the levels of pollutants and the control measures taken to reduce them. Since the number of vehicles are increasing day by day, measures need to be taken to curb this menace. The already existing measures need to be strengthened which are making a strong and robust public transport, strict guidelines for vehicular exhaust, regular monitoring of particulate matter and health education through mass-media. Although, the governmental efforts alone are not enough.

Key words: Pollution , Health problem, Deaths, Particulate matter

Fluorosis Extension in Rajasthan with Special Reference to Jhunjhunu

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Abstract: Fluorosis is a slow, progressive disease, which affects every organ, tissue and cells in the body and results in health complaints having overlapping manifestations with several other diseases. Fluoride contents enter in to the body by water, food, fluoride dust, air fumes, cosmetics, drugs, industrial fluoride and neighbourhood. Water is the main source of fluoride contents. Presence of fluoride in drinking water above 1.5 ppm leads to fluorosis. Fluorosis problem is not health problem but now it has become a social problem too. At least 33 districts in Rajasthan including Jhunjhunu have been identified as having excess fluoride in drinking water. In the present study, 20% villages are having higher fluoride concentration than who permissible limit. It is also a fact that there is no method presently available that would remove fluoride ions totally from drinking water.

Keywords: Fluorosis, Jhunjhunu, Drinking water, Fluoride

Animal Biodiversity Data: Present Scenario with Special Emphasis on Systematic Studies

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Abstract: Goal of systematic studies is to identify given organism and its nomenclature according to current methods of nomenclature, and finally classification of the same form based upon its characteristic character, which clearly justify its position with respective to its evolutionary development. Initial studies were clearly based upon morphological data, but current systematic studies are based upon phylogeny only, which depict animal position in phylogenetic tree or dendrogram based upon 5s rRNA sequence data, Cyctochrome c amino acid sequencing data, morphological data, ultrastuctural data, genomic DNA G+C content, chemotaxonomy data and various molecular marker data.

As morphological data has lost its validation in constructing phylogenetic tree due to loss of many species in past and current as well, which create vacant position in dendrogram due to non-availability of lost morphological data, and hence newly formed species are not correctly co-related to its ancestor. So instead of going to a single database, current approach mainly rely upon total systematic or systematic based phylogenies, which encompass the entire available database to relate one species with other or place newly described species in a given phylogenetic data. Another aspect which leads to divergence or convergence in animal kingdom, which ultimately leads to speciation, is the convergence of unicellular forms to multicellular and vice-versa, is the disturbance in environmental conditions and ecological interaction in between various organism or group of organism. Hence genomic data in addition to earlier data will only play a significant role in revalidating animal biodiversity data in context with present scenario.

Key words: scenario, systematic, phylogenetic tree, dendrogram, speciation.

If Vitamin A Can Induce Lens Regeneration in Rabbit and Other Mammals Will Science Find a Way for Human to do it?

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Abstract: In our previous studies, vitamin A was found to induce lens regeneration in amphibian tadpoles, adult frogs, chick embryos and swiss albino mice (jangir et al.. 1995 : 97; shekhawat et al., 2001 and jangir, 2002). The present study was carried out on 30 days old young rabbits. 15 animals were employed for the experiment. Out of these, 10 animals were treated with vitamin A and remaining 5 were kept untreated after their lentectomy. Intra_peritoneal injections of vitamin A (0.5 ml of 600 iu/ml) were given to lentectomized 10 animals on alternate day up to the day of termination of experiment (60^{th} day after operation) Lentectomized eyeballs were removed from the operated animals at different time points for histological evaluation. The lens regeneration had occurred in 8 (80%) out of 10 vitamin A treated operated animals, while it was not reported even in a single of untreated control animals. The lens regeneration beings from the appearance of depigmented cells at the dorsal papillary margin of iris, as more cells loose their pigments (dedifferentiation), they form a hollow epithelial vesicle cells of the inner wall of the vesicles elongate and protrude into the lumen forming primary lens fibers. The lens epithelium then proliferates into the secondary lens fibers from the equatorial zone. At above 60 days after operation the nucles of primary lens fibers id enclode by secondary lens fibers. At late stage the nuclei of lens fibers progressively disappeared and well differentiated lens of normal status developed. Biochemical study also provides evidence that most of the crystalling from the regenerated lens share with those of the normal lens crystallins. Thus, vitamin A was found to induce lens regeneration in young rabbits. Regenerated lenses were found similar not only in shape, size, transparency but also in histological and biochemical features to normal intact iences.

Keywords: Vitamin A, lens regeneration, Rabbit

Fuel of 21st century: Hydrogen

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Abstract: The energy needs of the world continue to grow at enormous pace, particularly in Asia. Along with this is the alarming rise in CO_2 levels in the atmosphere accompanied by ice loss in the Polar Regions. Clearly breakthroughs are needed in various energy areas to be able to supply the energy for such growth, to do this in a manner that does not disrupt the current environment balance, which is already tilting in a negative direction. In view of environmental pollution and exploitation of fossil energy resources the development of new energy concept is essential. During the last one-decade hydrogen has attract worldwide interest as a secondary energy carrier resulting in lot of research work on its production, storage and use. Hydrogen is an ideal secondary energy source in the many ways:

1. One advantage associated with hydrogen is its high energy density, the highest energy density of any chemical fuel.
2. Second advantage of hydrogen as a fuel is its facile conversion into other forms of energy and the easy, economic transportation and,
3. One of the main advantages of hydrogen as a fuel in comparison with coal, Oil and natural gas, is that since water is the only combustion product, its use neither pollutes the air nor does it lead to an increase in the concentration of carbon dioxide in the atmosphere with associated climatic changes.

Hydrogen present one of the best alternatives to petroleum but one of the most important challenges for the development of the "HDROGEN BASED ECONOMY" is the availability of safe and cost effective hydrogen storage. Compared to the commercial system such as gasification or liquefaction, solid metal hydride is a safe alternative of hydrogen storage .Hydrogen is readily absorbed by a number of metals and alloys like a sponge and occupies interstitial lattice sites. In this way a high volumetric energy density can be achieved. Hydrogen can be desorbed again by increasing the temperature of the hydride, thus storage is reversible. In the case of crash, heat supply would stop and hydrogen flow from the tank would cease immediately because the desorption process is endothermic and thus lowers the temperature. This paper reveals overview of novel solid hydrogen storage materials, highlighting their main advantages and drawbacks.

Keywords: Fuel, 21st century, Hydrogen

A Review on Bioactive Compounds from Chenopodium Album and Capparis Decidua

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Abstract*:* Bioactive compounds are extranational constituents which typically occurs in small quantities in plants and in certain foods such as fruits, vegetables, nuts, oils, and whole grains that have positive effect on the health of organisms consuming it. Interest has recently reviewed in the investigation of plants to identify novel bioactive compounds that might lead to development of new anticancer drugs.

Chenopodium album is a wildherbaceous weed of rabbi season crops belongs to family Chenopodiaceae and is widely used as a green vegetable. Many bioactive compounds have been isolated from it with trypsinase inhibitor activity which have inhibitory effect on cancer causing genes. *Capparis decidua* is a xerophytic deciduous bushy shrub. Its fruits are used to make very tasty pickle. A bioactive compound Stachydrine has been isolated from its fruits which also have anticancerous property by inhibiting invasion and metastasis of cancerous cells.

Key words: Bioactive compounds, anticancer, metastasis, invasion.

Natural Bird-Watching: A Scientific Research and Recreational Activity

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Abstract: Bird-watching, or birding, is a form of wildlife birds observation, this is a recreational activity or citizen science. It can be done with the naked eye, through a visual enhancement device like binoculars and telescopes, by listening for bird sounds. Bird-watching often involves a significant auditory component, as many bird species are more easily detected and identified by ear than by eye. Most bird-watchers pursue this activity for recreational or social reasons, unlike ornithologists, who engage in the study of birds using formal scientific methods. Watching birds by binoculars is good for human mental wellbeing. Watching birds helpful to cure for an individual with mental illness like anxiety, depression and stress. This is seen across the age groups, according to research studies done in United Kingdom. Bird-watching can be as simple as common birds in neighborhood like house sparrow, sunbirds, koels, robins, doves, pigeons, parrots and even crows. The research suggested that, people spending less time in natural environment have reported more with anxiety and depression disorders. Research studies have not concluded on a particular species of birds which were able to reduce mental illness, but they have suggested that more the avian biodiversity they observed at farmlands, parks, urban gardens, etc., could more like to impact on positively on their mental wellbeing. Increase in the urbanization, has lead to slow disconnection of men from nature, leading to increase in stress, anxiety and behavior disorders. Activities in the nature birding or bird-waching have also resulted in the restoration of mental health which are cost effective measures which can be easily implementable. Many theoretical works suggest that nature helps in restoring the mental and cognitive decline. This study provides evidence that the well-being benefits that people receive from interacting with the birds in their garden, farmlands, parks, urban gardens, etc. is dependent on their familiarity with different species, and that these benefits are enhanced by increased species richness and evenness means enhancement of α-Biodiversity. Attention should be given to strategies that focus on increasing the avian biodiversity of songbirds and colorful birds within urban and semi-urban green spaces, as well as increasing the ability of recreational green space users to recognize different components of the natural environment.

Keywords: Tourism Bird-watching, birding, recreational activity, urbanization and α-Biodiversity

Physical and Chemical Analysis of Vermicompost Using Decomposing Vegetable and Waste Food

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Abstract: The use of earthworms for composting of organic matter has been known technology since many years. Vermicomposting is a proper process for stabilization of organic waste particularly decomposing vegetble and food waste. The aim of this study is the chemical and physical analysis of vermicomposting characteristics which derived from decomposing vegetble and food waste. In present investigation attempt has been made to investigate the physicochemical parameters like pH, temperature, moisture, salinity, nitrogen, electrical conductivity, nitrate, phosphate, from vermicompost of Esienia foetida species. For conducting this study, the shade of size 5x5 meter and height 1.50 meter was constructed for producing vermicompost and then by the primary media, soft soil, composting waste and Eisenia foetida worm the loading of it was started and after 30 to 90 days the sampling have done. In these samples the total carbon, total nitrogen, phosphorous percent, electrical conductivity and moisture parameters were evaluated. The results showed that the percentages of organic matter, ash, total carbon, total nitrogen, the ratio of carbon to nitrogen, phosphorous, electrical conductivity, moisture and the pH of the mature compost (90 days) respectively they are 40±1.4, 43±0.57, 16±0.23, 1.02±0.001, 17±0.45, 1.8±0.2%, 11000±300 µs/cm, 48±3.5 and 5.3±0.1% all the evaluated parameters were consisted with the standards. On the basis obtained results, it could be concluded that the decomposing vegetble and food waste could produce high quality vermicompost.

Keywords: Vermicompost, Decomposing Vegetable and Waste Food, Esienia foetida

Evaluation of Toxicity of *Nerium Oleander* Leaf Extract

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Abstract: Some plants can be poisonous if you eat them. Others can hurt you if you get them on your skin. For some plants, all parts of the plant are poisonous. For others, only certain parts of the plant are harmful. Some of the poisonous plants are *Datura stramonium*, *Nerium Oleander, Crotalaria juncea* and *Calotropis procera*. *Nerium oleander* is an evergreen shrub or small tree in the family Apocyanaceac. All parts of the plant *Nerium oleander* are poisonous and contain numerous toxic compounds which are harmful to consumers. The toxic compounds found in oleander are oleandrin and neriin. This plant looks delicate and innocent, but is so toxic that even ingesting honey made from its nectar can produce symptoms. The toxicity of *Nerium oleander* is considered extremely high and it has been reported that in some cases only a small amount had lethal or near lethal effects. Oleander is also known to hold its toxicity even after drying. Nowadays chemical pesticides are commonly used to control pest. One of them is the chemical rodenticide which is used to control rodents. The extensive and continuous application of chemical rodenticide without adequate ecological considerations has led to develop a high degree of resistance among rodents. Therefore, now it has become necessary to search for an alternate means of rodent control. In the present investigation LD_{50} of *Nerium oleander* leaf extract was calculated to explore the use of plant as toxicant to control rats. For determination of acute LD_{50} value of leaf extract various calculated doses of liquid concentrate of the extract were given orally to albino rats (*Rattus norvegicus*). The treated animals showed the symptoms of intoxication after half an hour of the treatment. Rats showed dose-dependent signs of toxicity ranging from loss of locomotion activity, incoordination of movements, ataxia and sluggishness. The animals started, itching the nose and mouth on the cage floor. They were tried to make tunnels under the bed. Decrease in food and water intake and defecation of very soft faeces was also observed. The LD_{50} value for the leaf extract was 4348.500g mg/kg b.wt. However, LD_{50} of the leaf extract was found higher than chemical rodenticide, herbal toxicants are relatively environment friendly and also safe to target species.

Key words: *Nerium oleander*, *Rattus norvegicus* leaf extract LD_{50}, chemical rodenticide.

Health Risk of Food Preservative and Solutions

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Abstract: Preservatives are food additives used to preserve packaged food to prolong food's life, to enhance the taste or to keep colour and nutrients of the food intact. Several regulations for the use of preservatives and some standards have been laid down by WHO, food safety and standards authority of India (FSSAI). Commonly used preservatives like high fructose corn syrup (HFSC), Aspartame, Monosodium glutamate (MSG), Potassium bromate (E924), Diacetyl, Sodium benzoate (E211), colour additives are related with large spectrum of health risk like obesity, diabetes, headaches, nausea, vertigo, slurred speech, memory loss, blindness, ringing in ears, loss of change of taste, over eating, lung diseases, leukemia and other blood cancers, attention deficit hyperactivity disorder (ADHD). Natural healthier alternatives are present that can be used to overcome health related problems. These healthier alternatives are cloves, lemons, garlic, sage, vinegar, oregano cinnamons, thyme, etc. These natural alternatives are rich with phenolic compounds well known antioxidant, citric acid as antibacterial agent, oregano as antioxidant, antibacterial and antifungal agent, garlic as antiviral and anti-bacterial agent, sage has antioxidant and anti-bacterial properties, vinegar as antimicrobial agent, cinnamon has limited antimicrobial spectrum.

Keywords: Preservatives, food safety standards, food nutrients, diseases

Wild Plant Sap Adventures as Bio-Fertilizer and Bio-Pesticide: A Case Study

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Abstract: World food demand continuously increasing because of higher growth of population. For competing the demand of food, people are using more quantity of chemicals and pesticides but their high concentration damaging the soil fertility. That's why we are looking that hygienic and more quantity production is a challenging. Current study provides competing solution by utilization of Wild Plant Sap (WPS. WPS prepared by Azadirachta indica leaf, Calotropis gigantean and procera Leaf, Nicotiana tabacum Leaf, Datura stramonium leaf, Ocimum tenuiflorum leaf and Balanites aegyptiaca leaf etc. This sap applied regularly after 15 days for soil treatment and spraying after plantation of different vegetable and fruits crops to control many type of disease like dumping off, leaf curling, root rot etc. Results are showing WPS more effective as bio-fertilizer and bio-pesticide.

Keywords— *Wild Plant Sap (WPS), Bio-fertilizer, Bio-pesticide*

Biodiversity: Importance and Climate Change Impacts in Rajasthan

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Abstract: Biodiversity is the variability among living organisms, including genetic and structural difference between individual and within and between individual and within and between species. Biodiversity plays a direct role in climate regulation. Biodiversity conservation will lead to strengthening of ecosystem resilience and will improve the ability of ecosystem to provide important services during increasing climate pressures. This review basically focuses on the importance of biodiversity, the consequences faced by the plants, animals, humans and ecosystem owing to the global warming and climate change and the possible mitigation and adaptation strategies in terms of biodiversity conservation which can protect the planet from the consequences of climate change.

Key Words: Biodiversity, climate change, mitigation and adaptation

Green Synthesis of Silver Nanoparticles

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Abstract: Nanotechnology is defined as 'the understanding and control of matter at dimensions of roughly 1–100 nanometers, where unique phenomena enable novel applications'. In the last decade, engineered nanoparticles have become an important class of new materials with several properties that make them very attractive for commercial development. Development of biologically inspired experimental processes for the synthesis of nanoparticles is evolving into an important branch of nanotechnology. Metallic nanoparticles are traditionally synthesized by wet chemical synthesis techniques where the chemicals used are quite often toxic and flammable (Li. e*t al.,* 2006).

Silver nanoparticles have attracted intensive research interest because of their important applications as antimicrobial, catalytic (Chen *et al.,* 2005). Besides these nanoparticles play a role in drug delivery, diagnostics, imaging, sensing, gene delivery, artificial implants, tissue engineering and in medical textiles for their efficient antibacterial and antimicrobial properties (Shahverdi *et al*., 2007; Morones *et al*., 2005). Among biological processes, phytosynthesis of silver nanoparticles has been shown as an easier and more rapid method than the tedious and time-consuming microbial synthesis processes. Applications of plants for the production of nanoparticles has drawn attention of scientists because of its rapid, economical, eco-friendly protocol and it provides a single step technique for the biosynthesis of nanoparticles.

Keywords: Nanotechnology, Metallic and Silver nanoparticles, Phytosynthesis, Ecofriendly.

Effect of Cross Linker to The Surface Morphology and Nanostructure of Siloxane Polymer Nanocomposite Films

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Abstract: We report the surface morphological and nanostructural studies of siloxane polymer nanocomposite films prepared by direct crosslinking between liquid PDMS polymer precursor and different crosslinkers like PMHS and organochlorosilane having a long alkyl chain viz. *n*-octadecyltrichlorosilane and trichloro (*1H,1H,2H,2H*-perflourooctyl) silane. The morphological structure of the films were studied by SEM, TEM and XRD measurements while the nanoscale structure was probed by small angle neutron scattering measurements. Contact angle measurements were used to characterize the microstructure morphology, hydrophobicity and other physico-chemical properties of the membrane. Structural morphological studies showed loose and less dense arrangements in case of films prepared using organosilanes while good and strongly dense in case of PMHS polymer crosslinker. The surface hydrophobicity was higher in case of organosilanes compared to polymer crosslinker. Pervaporation studies for the separation of dissolved organics in waste water also showed differences.

Keywords: Siloxane polymer, nanocomposite films, Neutron scattering

Determination of some insecticides of Thiophosphoric acid group

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Abstract: A quick and convenient method has been developed for the determination of insecticide of Thiophosphoric acid group. e.g. Parathion, Fenthion, Fenitrothion and Thiophos-ME in technical form and in their formulation. Thiophosphoric acid group are powerful insecticides mainly used for the control of bitting and sucking insect in the cultivation of field crops. Fruits, vegetables, vines, hopes and ornamentals, Because of their insecticides activity their determination has widely been studied.1-10.All these method involve sophisticated instruments and complicated techniques. Aliquots (1-5mg) of the sample are allowed to react with excess N-Bromosuccinimide (NBS),(0.02 N) reagent in acidic medium for required reaction time at room temperature(25-30^{O}c).The unconsumed reagent is back determined iodiometrically. SD, CV and percentage error are determined experimentally and prove the method to be precise and reproducible.

Keywords: Insecticides, Thiophosphoric ,NBS

Green Chemistry for Environmental Sustainability

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Abstract: The term Green Chemistry was coined in the 1990s, which is also called sustainable chemistry is a philosophy of chemical research and engineering that encourages the design of products and processes that minimize the use and generation of hazardous substances. Green chemistry is a multidisciplinary field and covers areas such as synthesis, solvents, catalysis, raw materials, products and efficient processes. Hundreds of tonnes of hazardous waste are released to the air, water, and land by industry every hour of every day and the chemical industry is the biggest source of such waste and the number of agents considered toxic is continuously increasing due also to a series of more restrictive laws. It is better to prevent waste than to treat or clean up waste after it has been created. Chemical syntheses wherever practicable, synthetic methods should be designed to use and generate substances that possess little or no toxicity to human health and the environment as well. Chemical products should be designed so that at the end of their function they break down into innocuous degradation products and do not persist in the environment. Promoting green chemistry is a long-term task, and many challenging scientific and technological issues need to be resolved; these are related to chemistry, material science, engineering, environmental science, physics and biology. Scientists, engineers and industrialists should work mutually to promote the development of this field. There is no doubt that the development and implementation of green chemistry will contribute greatly to the sustainable development of our society.

Keywords: Green Chemistry, Sustainable, Hazardous, Environmental science

Transport Properties of Nano Composite Films

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Abstract: Silicon nano structures have intresting possible applications in new generation electronics. The fabrication techniques usually involve a high temperature post deposition annealing. Here we report on the spontenous grouth of silicon quantum nano dots in silicon nitride films by plasma enhanced chemical vapour deposition (PECVD) using silane and ammonia as a reactant gas sources. The growth rate was kept low by working at low discharge power and a low was selected (250). This approach is particularly interesting because in principle it allows for use of low cost substrates and application of typical device structures adopted in thin film silion electronics. Photoluminescence and electrical properties have been investigated.

Keywords : Quantum nano dots, Silane, Deposition temperature, Photoluminescence.

Study Of Glass Transition Temprature Of Polymethyl Methacrylate(Pmma) And Carbon Nanotubes(Cnt)/Pmma Nanocomposite

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Abstract: We have studied glass transition temprature of polymethyl methacrylate(PMMA) and carbon nanotubes(CNT)/pmma nanocomposite by dynamical mechanical analyzer(DMA). It is the most sensitive technique for monitoring relaxation events such as glass transition and measuring mechanical properties (young's modulus, tensile strength, elongation, toughness etc). DMA shows –

1. CNT embedded into PMMA matrix shows the excellent dispersion.
2. DMA results indicate that mechanical properties and thermal stability increase when CNT are filled into PMMA due to the interaction between CNT and polymer chain and decrease of free volume.
3. The increasing behavior of glass transition temperature and storage modulus of CNT/PMMA nanocomposites is explained on the basis of mobility of molecular segments and rigid structure of polymer.

Glass Transition Temperature(T_g) : The figure shows the tan δ curves with temperature for PMMA and CNT/PMMA nanocomposites. It is observed from figure that for CNT/PMMA nanocomposites there is a shift in tan δ peak towards higher temperature as compared to pure PMMA. The temperature at the max. Value of tan δ is often regarded to be the value of glass transition temperature (Tg). Glass transition temperature represents a major transition for polymer, as the material moves from hard glassy state to soft rubbery state. The Tg of pure PMMA is 1030C and Tg of CNT/PMMA is 1130C. It is also observed that the addition of CNTs in PMMA. There is a decrease in the magnitude of the tan δ peak. This increasing behavior of glass transition temperature can be explained on the basis of free volume theory.

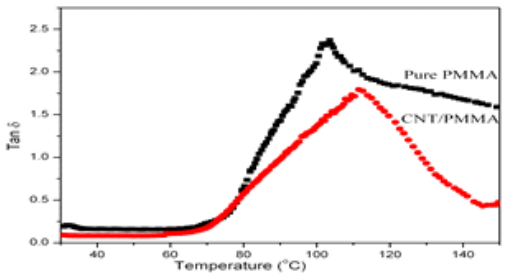

Figure: Tan δ versus temperature curve of PMMA and CNT/PMMA composite

Bioremediation of Cu (II) from aqueous solution using hybrid of tamarind and guar gum as an adsorbent

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Abstract: Water is the most common liquid on our planet, vital to all life form. Water pollution is the contamination of water bodies, it occurs when pollutants are discharged directly or indirectly into water bodies without adequate treatment to remove harmful compounds. Copper has been found to cause stomach and intestinal distress, kidney damage and anemia and prolonged inhalation of copper containing fumes has been linked to increase in lung cancer. USEPA has regulated drinking water concentration not to exceed 1.3ppm for copper. The present work is used for the treatment of effluent stream containing Cu(II) by hybrid of tamarind and guar gum. The optimum shaking speed, mass of a adsorbent, contact time, pH, temperature were determined. In present work we also discuss the effect of ratio of tamarind and guar gum as an adsorbent for the removal of Cu(II). This work also describes a brief review on the mechanism of Cu(II) adsorption by adsorbent.

Keywords: Bioremediation , Guar gum, Tamarind

Transition Metal Free Decomposition of *N*-Tosylhydrazones into Sulfinate Esters

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Abstract: *N*-Tosylhydrazones generate sulfinates selectively when treated with a stabilized Wittig ylide in a polar aprotic solvent at elevated temperature. The transition metal and base free decomposition method is applicable to *N*-Tosylhydrazones generated from a number of aromatic and heteroaromatic aldehydes and ketones. In the case of *N*-tosylhydrazones derived from *O*-allyl and *O*-propargyl salicylaldehydes, selective formation of sulfinate occurs over intramolecular [3 + 2]-cycloaddition reaction.

Keywords: *N*-Tosylhydrazones, Sulfinate esters, Metal free.

Efficient Hydrogen generation from alkaline aldehydes facilitated by magnetite nanoparticles

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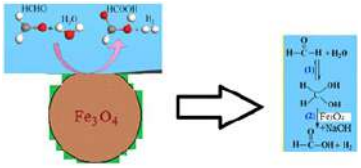
Abstract: Nanoparticles are the particles whose size ranges between 1-100 nm. The nanoscale size, shape and large surface area to volume ratio transmit unique properties to nanoparticles because of the structural and electronic changes which contrast them from bulk materials. Catalysis is one of the unique application of nanoparticles. In recent years, nanocatalysis has become an emerging/apparent field of science due to its enhanced activity, productivity and selectivity . The nanocatalysts are magnetically recyclable and reusable and possess long term stability. It was found that magnetite (Fe_3O_4) nanoparticles prepared by controlled chemical coprecipitation method is a convenient catalyst for inhibiting Cannizzaro reaction and facilitating hydrogen generation by catalyzing organic aldehyde solution under room temperature and atmospheric pressure.



Kinetic study showed that different reaction parameters such as reaction temperature, base and aldehyde concentration, amount of nanocatalyst can accelerate the rate of hydrogen production. This is an efficient and convenient CO- free hydrogen production method from aldehydes especially HCHO. The pure H_2 gas collected by downward displacement of water could be a promising and sustainable procedure for serving as an auxiliary hydrogen supply for Proton Exchange Membrane Fuel Cell (PEMFC).

Keywords- Nanocatalysis, Magnetite nanoparticles, Cannizzaro reacton.

Eco Friendly Synthesis of Pyrazolo Pyrane Derivatives

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Abstract: In previous decades, numerous researchers have worked on developing innovative carbon based products for wide range application. Carbon materials have a great deal to offer at nanoscale because they possess excellent electrical and thermal conductivity as well as high mechanical strength and lightness. With the diversity of their nanostructure these characteristic values can be achieved over an extremely wide range of conditions. For these reason they are extensively studied for various application in photonics and optoelectronic, biotechnology and nano-medicine, advanced electrodes and poly-composites. Among them graphene oxide nano- sheets present an excellent concern due to their high surface area and has a great deal of oxygen bond in its edges and defectives sites , such as hydroxyl(-OH) , Carboxylic (-COOH) ,epoxide groups (C-O-C) on accessible sides. Keeping these properties in mind we use graphene oxide composites. GO were synthesized by simple one pot chemical route and well characterized by XRD, TEM, SEM and FT-IR analysis. In this paper, synthesis of biologically active heterocyclic organic compound pyranopyrazoles by three component reaction of pyrazolone, isatin derivatives, malononitrile and in the presence of graphene oxide in methanol at 80^0C, is reported. The method is environmentally friendly as it is carried out in water, and gives high yield of product within 30 minute, which possess many biological properties such as fungicidal, bacterial, vasodilator activities and act as anticancer.

Keywords: Graphene Oxide, Pyranopyrazoles, XRD, TEM, SEM and FT-IR .

Biologically Active Cobalt Complex of Triphenodithiazine

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Abstract : - Metal complexes play an essential role in agriculture, pharmaceutical and industrial chemistry. Ligand, a metal surrounded by a cluster of atoms or ions, is used for the preparation of metal complexes also named as Schiff bases. Tricyclic and bicyclic aromatic compounds are important schiff bases and have wide applications in food industry, dye industry, analytical chemistry, catalysis, fungicidal, agrochemical and biological activities. Triphenodithiazine is an important compound in phenothiazine class. Since pharmacological activities of phenothiazine have been attributed to the basic nature of nitrogen of the ring which donate electrons to biological receptors, triphenodithiazine should also show same types of activities. Numerous transition metals (including Cobalt) can adopt a wide variety of coordination numbers, geometries, oxidation states, and ligand binding affinities that can be exploited in the development of new therapeutic drugs. Cobalt, is an important element in the formation of cobalamin or vitamin B12. In this present work we have done biocidal studies on cobalt complex of triphenodithiazine and compare its activity. The antibacterial activities of this eco-friendly complex have been studied against E. coli, Bacillus, Staphylococcus and Streptomycesby using agar well diffusion-method. It is found to be an active antibacterial complex.

Key words: Triphenodithiazine, drugs, antioxidants, biologically active

Removal of Coloring Impurities from the Water of Textile Printing Industrial Units of Sanganer (Jaipur)

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Abstract: Water is an essential component for every living organism to survive on Earth. Almost 70% of water bodies in India are polluted by so many effluents like- Sewage, Industrial waste etc. Synthetic Dyes are which are used for textile printing industries are very hazardous for living bodies. These industries produce lots of waste containing toxic Dyes and Heavy metals. A huge amount of the industrial waste water is drained in the fresh water bodies by which not only river(Dravyavati Nadi) water but ground water is also get polluted. In this article, some simple and economical methods for decolourizing the coloured water of these industries have been investigated for recycling in order to save fresh water. Dyes which are used in these industries are –Cono Red, Methylene Blue and Rhodamine 6GDN. Here the adsorbent Guava (Psiduim Guajava) Leave Powder is used for the removal of Congo Red. By this method the colour of dyes could be removed to the extent of 80-85% in one single operation. The main aim of this work is to develop a cost effective process because huge amount of coloured water is involved for recycling.

Key Words: Textile printing, synthetic dyes, recycling, adsorbent & Psiduim Guajava

Thermoelectric Properties of Cs2InXCl6 (X=Sb, Bi) : A First Principles Study

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Abstract: A unique combination of electronic and thermoelectric properties of halide double perovskite could make robust material of energy application. Using Density Functional and Semi-classical Boltzmann transport theory, we investigate electronic structure and thermoelectric (TE) properties of halide double perovskite (HDP), Cs2InXCl6 (X=Sb, Bi). We have used the Tran-Blaha modified Becke-Johnson (TB-mBJ) potential with spin-orbit coupling to compute the band gap and the computed value 0.91 (0.81) for Cs2InSn(Bi)Cl6 , nicely agrees with previous reports 1.02 (0.91) eV [Wu et al., Adv. Sci. 2018, 5, 1700759]. The Boltzmann Transport equation (BTE) within relaxation time approximation (RTA) is solved upto 800K and electronic transport calculations reveal that present material has a good Seebeck coefficient 1.5 (1.33) mV for n-type of doping at 300K. Further increase in temperature decreases the Seebeck coefficient value for p(n)-type of doping. We obtain a high value of electrical conductivity (σ/τ) with scattering time for p-type of doping. Further, the Maximum Power Factor (PF/τ) with scattering time for n-type of doping is around 27 (19.28)x10^10 W/mK2 sec at 800 K for n-type of doping. Our preliminary results shows that Cs2InSbCl6 could show good TE properties in comparison to Cs2InBiCl6 with n-type of doping at 800K.

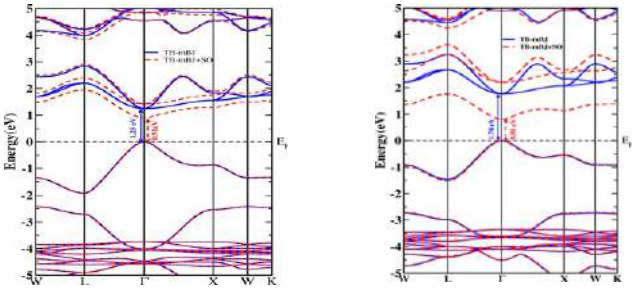

Fig. Band structure of Cs2InSb(Bi)Cl6 at the left (right) panel.

Key words: Electronic and thermoelectric properties, energy, Seebeck coefficient

Sustainable and Green Approach in the Indian Chemical Industry

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Abstract: Green chemistry, also called sustainable chemistry, is an area of chemistry and chemical engineering focused on the designing of products and processes that minimize the use and generation of hazardous substances. Whereas environmental chemistry focuses on the effects of polluting chemicals on nature, green chemistry focuses on the environmental impact of chemistry, including technological approaches to preventing pollution and reducing consumption of nonrenewable resources. The overarching goals of green chemistry—namely, more resource-efficient and inherently safer design of molecules, materials, products, and processes—can be pursued in a wide range of contexts.The development and evolution of the chemical industry is directly responsible for many of the technological advancements that have emerged since the late 19th century.The development and evolution of the chemical industry is directly responsible for many of the technological advancements that have emerged since the late 19th century. In a perfect world, these would be prepared from inexpensive, renewable sources in one practical, efficient, safe and environmentally benign chemical reaction. Unfortunately, with the exception of the chemical processes found in nature, the majority of chemical processes are not completely efficient, require multiple reaction steps and generate hazardous byproducts. While in the past traditional waste management strategies focused only on the disposal of toxic byproducts, today efforts have shifted to eliminating waste from the outset by making chemical reactions more efficient. This adjustment has, in part, led to the advent of more sophisticated and effective catalytic reactions, which reduce the amount of waste. The 2001 Chemistry Nobel Laureate Ryoji Noyori stressed that catalytic processes represent "the only methods that offer the rational means of producing useful compounds in an economical, energy-saving and environmentally benign way". The diversification within the Indian Chemical Industry is large and covers more than 8,000 commercial products. Support from the Government and initiatives by the industry are leading India to be the next big manufacturing destination and global supplier of chemical of international sustainable quality.

Key words: Green chemistry, pollution, hazardous substances

Relevance of 3D QSAR and Molecular Docking Studies in Optimization of Calanolide Derivatives as Anti -HIV Agent

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Abstract: (+) Calanolide is natural product extracted from tropical rainforest tree *Calophyllum lanigerum,* which act as non-nucleoside reverse transcriptase inhibitor of HIV-1. Among the HIV-1 RT inhibitors, non-nucleoside reverse transcriptase inhibitors (NNRTIs) have gained a definitive place due to their unique antiviral potency, high specificity and low toxicity in antiretroviral combination therapies used to treat HIV. At present there are six NNRTIs were approved for HIV-1 treatment, namely, nevirapine (NVP), delavirdine (DLV), efavirenz (EFV), etravirine (ETR), and rilpivirine (RPV), and doravirine (DOR). Calanolide derivatives are selected, designed and QSAR study has been done, finally from the QSAR results' docking has been done. To compare and to narrow down the Docking results we have chosen VLife Molecular Design Suite 4.3.2 (VLife MDS) tool by selecting a target non-nucleoside reverse transcriptase inhibitor of HIV-1 (PDB ID: 3HVT) to analyze the binding affinity of the protein with respect to the calanolide. The best scored compounds will be efficient for designing new molecules as well as for the anti-HIV therapy.

Key words: Calanolide derivatives, 3D QSAR, Docking, PDB, HIV

Magnetohydrodynamic Free Convection and Mass Transfer Flow Past a Moving Vertical Porous Surface with Oscillatory Suction

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Abstract : Numerical solution to the problem of steady free convective MHD flow of an incompressible viscous electrically conducting fluid over a moving vertical porous saturated plate with mass transfer is presented here. In the study the permeability of the porous medium is assumed to be constant. The theme of the present investigation is to study the effects of permeability variation and oscillatory suction velocity on free convection and mass transfer flow of a viscous fluid past a uniformly moving infinite vertical porous plate. The governing partial differential equations are transferred to the nonlinear ordinary differential equations. These transformed ordinary differential equations are solved numerically using fourth order Runge-Kutta methods. The effects of various flow parameters are discussed through graphs and tables.

Key words: Magnetohydrodynamic, porous media, permeability, suction.

Design of Electrospray Ionization (ESI) source for the Study of Gas-Phase Reactions of Ligated Transition Metal Ions

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Abstract: Previous studies in our laboratory have shown that reactions involving bare transition metal ions often produce ligated metal products. It is desirable to examine the reactions of these ligated metal ions. However, the current methods of ion production in our reactor are not adequate to produce these species. The primary goal is to extend the versatility of the selected ion drift cell reactor. In order to study reactions with these ligated ions, implantation of an ESI source is necessary to address this deficiency. A hybrid ESI source has been designed specifically to be compatible with our instrument. Unique design details will be discussed.

Key words: Transition metal ions, ligated metal ions

Effect of nanoconfinement on the structure and properties of water clusters: An *ab initio* Study

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Abstract: An *ab initio* investigation of water clusters confined in armchair carbon nanotubes (CNT) from CNT(4,4) to CNT(8,8) with the varying diameters has been performed by using the density functional theory based calculations. Different parameters have been investigated including structure, hydrogen bonding pattern and vibrational spectra of water-CNT complexes. Our results reveal that one dimensional water chain parallel to CNT axis is formed in narrow nanotubes CNT(4,4) and CNT(5,5), whereas in CNT(6,6), zigzag structure is observed. Increase in CNT diameter results more symmetric structures similar to the gas phase. Vibrational analysis show a red shift in stretching frequency of the hydrogen bond assisted O-H in CNT(6,6) due to the reduction in O—O separation. Whereas a significant blue shift in stretching frequency mode is observered in highly confined CNT(4,4) and CNT(5,5). It implies that the hydrogen bond strength between water molecules is strongest in CNT(6,6). It is also observed that water cluster gets stabilized close to CNT wall due to H-pi interaction between water molecule and the pi-electron cloud of CNT. This study demonstrate that the degree of confinement is extremely important in deciding the properties of confined water molecules.

Key words: water clusters, parameters, Vibrational analysis

RS and GIS based Assessment of River Bhagirathi in India

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Abstract: The Bhagirathi river is also known as the holy Ganges is one of the largest River of India with rich cultural Heritage .This study is aiming at the changes that are taking place along the banks of River from Gomukh, its origin point in Himalayas up to the lower regions Rishikesh. Study of five sampling stations –Gangotri, Harshil, Uttarkashi, Tehri and Rishikesh has been done using integrated methods of RS and GIS. Samples from these five stations have been compared for their physico- chemical parameters during the time period of 2014-2017.The river has been studied by using LANDSAT and IRS images ,which have helped in indicating the socio-economic Status and ecological transformations, effect of increasing urbanization and mushrooming industries on the physico-chemical parameters like temperature, turbidity, EC,DO,COD,BOD,TDS ,hardness, calcium, magnesium ,chloride, sulphate, etc.ions. and heavy metals. The values have been compared and has been found that despite of all the changes and growth around the banks the values are in permissible limits and water can be used for different purposes, except during monsoon at Uttarkashi, Tehri and Rishikesh treatment of water is required before human consumption although it may be used for agriculture.

Key Words- Bhagirathi, RS, GIS, LANDSAT and IRS.

Novel InGaAs/GaAsSb Heterostructure for 1.55 µm Applications

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Abstract: In this paper, we report a novel nanoscale heterostructure based on InGaAs-GaAsSb material system emitting radiations of 1.55 µm wavelength region. Generally, such a wavelength is emitted by type-I heterostructures, but in this work the designed heterostructure has a type-II band alignment and thus the presented work has a novelty. Here, we report the peak emission spectra of InGaAs-GaAsSb nanoscale heterostructure having highest optical gain at 1.55 µm wavelength.

Keywords: Heterostructures, Band alignment, Wavelength, Lasers.

Ecoenzyme- A Garbage Enzyme Being Used as Organic Cleanser

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Abstract: During our schooling days, we were taught that enzymes are produced by living organism like bacteria. Enzymes are protein chains that bring about biochemical reaction which is essential to help increase metabolism in our body. Another important property of enzyme is that they breakdown water-insoluble dirt into smaller molecules. This makes them a perfect cleaning agent. There are lot of "enzyme cleaners/ detergents" commercially sold in the market.

Eco-Enzyme, also known as "Garbage Enzyme" was first introduced by **Dr. Rosukon Poompanvong** who is the founder of **Organic Agriculture Association** of Thailand. The idea of the project is to cultivate enzymes from organic waste that we would normally throw into garbage bin as organic cleaner. His findings proofed not only this enzyme is cheap and easy to make (in huge volume) but it is also an effective cleaning detergent. Best of all, it is environment friendly.

Key words: Enzyme, biochemical reaction, cleaning agent

Enhanced Removal of Anionic Dyes by Tea Waste Supported Polyaniline (PANI-TEA) Nanocomposite from Aqueous Water Samples

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Abstract: A novel and low-cost bioadsorbent of tea waste supported PANI (Tea–PANI) was prepared by dispersion of aniline in Tea waste powder followed by chemical oxidation of aniline for highly efficient dye removal from drinking water. Batch adsorption studies were carried out by varying the adsorbent dosage, initial dye concentration, contact time and initial pH to evaluate the efficiency of dye removal. In order to get a better comparison, adsorption experiments were also carried out using Tea waste powder individually and in mixture with nano-PANI. Kinetic parameters for the adsorption of dye on the selected adsorbents are also reported. It was found that application of Tea waste with PANI for the removal of anionic dyes from aqueous solution is very promising.

Keywords: Bioadsorbent , PANI, Nanocomposites, Tea waste

Structure reactivity analysis in the Oxidation of some monoubstituted Benzaldehydes by Morpholinium Fluorochromate

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Abstract: Oxidation of some monosubstituted benzaldehydes by morpholinium fluorochromate in dimethylsulphoxide (DMSO) , leads to the formation of corresponding benzoic acid. The reaction is of first order with respect to MFC. A Michaelis-Menten type kinetics was observed with respect to the reactants. The reaction is promoted by hydrogen ions; the hydrogen ion dependence has the form $K_{obs} = a+b\ [H^+]$. The oxidation of [^{2}H] benzaldehyde (PhCDO) exhibited a substantial primary kinetic isotope effect. The reaction was studies in nineteen different organic solvents and the effect of solvent was analyzed using Taft's and Swain's multi-parametric equations. The rate of the oxidation of para- and meta-substituted benzaldehydes showed excellent correlation in term of Charton's triparametric LDR equation, whereas the oxidation of ortho-substituted benzaldehydes were correlated well with tetraparametric LDRS equation. The oxidation of para-substituted benzaldehydes is more susceptible to the delocalized effect than the oxidation of ortho- and meta- substituted compounds, which display a greater dependence on the field effect. The positive value of ŋ suggests the presence of an electron-deficient reaction centre in the rate-determining step. The reaction is subjected to steric acceleration by the ortho-substituents. A suitable mechanism has been proposed.

Key words: Oxidation, kinetics, fluorochromate

Antibacterial activities of Ni doped TiO_2 nanoparticles

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Abstract: The synthesis of Ni doped titania (TiO_2) nanoparticles were achieved via simple novel sol gel technique, in which Titanium-n-butoxide and $NiCl_2$ were taken as precursors. Effect of different wt% of dopant in TiO_2 was studied on photocatalytic degradation of Aniline blue and Toluidine Blue. The study suggested the increased photocatalytic degradation with increased time duration. The synthesized samples were analyzed by surface electron microscopy (SEM) and X-ray diffraction studies. The antibacterial activity was investigated against Gram-positive Staphylococcus aureus bacteria. Studies revealed that on increasing the dopant concentration, the diameter of zone of inhibition also increased upto 1.5 wt%.

Keywords: nanoparticles, sol-gel, antibacterial, photocatalytic activity

Synthesis of mesoporous SnO_2 nanospheres for efficient photocatalytic-degradation of methylene blue dye and volatile organic compounds under UV/Visible irradiation

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Abstract: The maximum pollutants discharge by the industrial and domestic waste water effluents from any sources include pathogens and organic chemicals and are removed before discharging into the water bodies. One of the major water contaminated pollutants has been measured as methylene blue. Such pollutant results in leaching into the ground water and surface water as well. It will cause serious hazards to both human and aquatic lives. Nanotechnology plays an important role in degrading such type of pollutant. In our present, a single step synthesis of mesoporous SnO_2 mesoporous nanostructures with high specific surface area (104 m^2g^{-1}) have been synthesized via mixed surfactant-templating method. It is further used as a catalyst in photocatalytic degradation of methylene blue dye and reduction of few volatile organic compounds. The physico-chemical characterization techniques such as XRD, FESEM, HRTEM, EDX, BET surface area and UV–vis spectroscopy indicate the successful preparation of mesoporous SnO_2 nanospheres. The results clearly demonstrate that the synthesized mesoporous SnO_2 nanospheres are spherical in shape with an average size of 2-5 nm. The photocatalytic degradation of methylene blue with first-order kinetics showed good activity on 0.075 M of mesoporous SnO_2 nanospheres due to its reduced crystallite size and high surface area. It is found that the mesoporous SnO_2 nanospheres exhibits high response, good selectivity, fast response and recovery rate for dye degradation. In summary, our studies, mesoporous SnO_2 nanospheres showed excellent photocatalytic efficiency making it a promising photocatalyst for degradation of dyes and volatile organic compounds.

Keywords: Mesoporous SnO_2, nanoparticles, photocatalyst, chlorobenzene, methylene blue dye

Medicinal Plants: A boon of Mother Nature

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Abstract: Medicinal plants are a boon for the human race on the earth. Healing with medicinal plants is as old as mankind itself. The connection between Indian civilization and its search for the drugs in nature dates from the long back, of which evidences as Ayurveda, Charak Samhita and Shushrut Samhita etc. General public, academic and government interest in traditional medicines is growing rapidly due to the increasing side effects of the adverse drug reactions and cost factor of the modern system of medication. Nowadays our generation is witnessing to introduction and outbreak of new diseases like Swine Flu, Dengue, Blue Baby Syndrome, Chikungunya, HIV, and various allergies and health problems such as obesity, respiratory problems, heart problems, diabetes and poor immune System.In this Context we also have another boon of the Mother Nature in the form of Aloe Vera. Aloe Vera is a popular medicinal plant that has been used for hundreds of years. Thick and fleshy leaves of Aloe Vera are enriched with antioxidants to neutralize free radicals.Mother Nature has given us a number of gifts in the form of fresh air, water, soil, plants, animals and so on, and human brain to utilize all these gifts for the betterment of our life. It is our moral duty to educate the young generation about the importance of use and conservation of all these gifts of the nature.

Key Words – Ayurveda, Charak Samhita, Shushrut Samhita, Swine Flu, Dengue, HIV, Aloe Vera, Antioxidant, Free redicals.

Effect of Climate Change on Biodiversity

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Abstract: Biodiversity on the total earth is facing many problems and are on way of decline. Global climate change and its consequences is one of the most important threats to biodiversity. The effects of climatic changes includes temperature increases, melting of snow and ice, rising sea level, shifts of climate zones, droughts, floods, and other extreme weather events are major challenge for the future of biodiversity on the earth. Natural systems are vulnerable to such changes due to their limited adaptive capacity. The different possible effects of climate change are effecting at level of individual, population, species, community, ecosystem and biome. Global warming is affecting all species and exacerbates the other environmental stresses. Climate change further accelerating both the ongoing impoverishment of global biodiversity, caused by unsustainable use of natural resources and the degradation of land, freshwater, and marine ecosystems. As a result many species of plants and animals are being vanished. Habitat loss is the biggest threat to life on land. Not only terrestrial but the species in the oceans and in fresh water are also at great risk from climate change, especially those that live in ecosystems like coral reefs that are highly sensitive to warming temperatures. Conservation of biodiversity has great role in maintenance of species richness and proper functioning of an ecosystem, so we need to make additional efforts to minimize the negative influence of climate changes. Gases producing green house effect, industrial pollutants, and nuclear pollution etc are mainly responsible for increasing temperature on earth, should be controlled. This way we can ensure that ecosystems are less vulnerable and more resilient to the increasing threat posed by climate change.
Keywords: Biodiversity, climate change, pollution, species

Seasonal Phytoplanktonic Diversity of Rani Sagar in the Ranthambhore Fort, District Sawai Madhopur, Rajasthan

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Abstract: Pollution of the aquatic environment occurs from many sources which create turbidity, hardness and alkalinity, bad taste of the water, and also affects the growth of aquatic life-forms. Most of the fresh water bodies all over the world are getting polluted, thus decreasing the suitability of the fresh water. Water is most abundant and important resource of the earth's surface, so there is a need of investigation and bio monitoring of the important water bodies. The present investigation deals with the assessment of water quality and phytoplankton diversity of Rani Sagar situated in Ranthambhore Fort at district Sawai madhopur.The pond was monitored for a period of Two years (Oct 2014-Nov 2016) The value of all physico chemical parameters higher in summer except the DO content. Total 23 genera and 38 spp.belongig to 4 classes have been accounted from the study site. During study period 16 spp belong to Chlorophyceae, 14 spp belong to Cyanophyceae, 4spp Euglenophyceae, and 4 spp Bacillariophyceae accounted from Rani Sagar. The phytoplankton were found to be abundant during summer and again increased during winter. The most pollution tolerant species were *Scendesmus sp, Pediastrum sp, Hydrodictyon sp, Dactylococcopsis sp, Merismopedia sp, Oscillatoria sancta, Euglena acus and Naviculla accomoda.*
Key Words- Rani Sagar, Phytoplankton, Water pollution.

Fungicidal activity analysis of *Butea monosperma*(Lamk) kuntz *in vitro* and *in vivo*

Divya fageria and Dr. Ramavtar sharma

Abstract: Highest zone of inhibition was shown against *Fusarium oxysporium* (IZ=18mm) in leaves extract of chloroform whereas minimum zone of inhibition were observed in chloroform extract of roots against *Aspergillus niger* (IZ=4mm).Chloroform extract of flower was shown zone of inhibition against *Fusarium oxysporium* (IZ=10mm*)*. Ethanolic extraction of flower part have recorded maximum same zone of inhibition against both fungal strain *Trichoderma reesei(IZ=11mm)* and *Fusarium oxysporium* (IZ=12mm).
Key words: Extract, fungal strain, minimum zone

अभिज्ञानशाकुन्तलम् में पर्यावरण संचेतना

डॉ० सरोज
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महाकवि कालिदास की रचनाओं में पर्यावरण के प्रत्येक पक्ष का सूक्ष्म व हृदयग्राही निरूपण उपलब्ध होता है। कालिदास प्रकृति व पर्यावरण के अनन्य प्रेमी व उपासक हैं। उनकी रचनाओं में सर्वश्रेष्ठ ''अभिज्ञानशाकुन्तलम्'' नाटक में अन्तः और बाह्य प्रकृति दोनों का मनोहारी चित्रण प्राप्त होता है। उनका यह चित्रण आत्मानुभूति एवं सूक्ष्म निरीक्षण पर आधारित है। 'अभिज्ञानशाकुन्तलम्' के प्रारम्भ में प्रथम अंक के प्रथम मंगलाचरण पद्य से ही उनकी पर्यावरण के प्रति सूक्ष्म दृष्टि और चेतना दृष्टिगोचर होती है। इस पद्य में पर्यावरण के प्राकृतिक तत्त्वों जल, अग्नि, यजमान, सूर्य, चन्द्रमा, आकाश, पृथिवी एवं वायु इन अष्टमूर्ति को एक स्वरूप ''शिव'' मानकर उनसे समस्त प्राणियों की रक्षा व कल्याण के लिये आह्वान किया गया है। जिससे स्पष्ट होता है कि पर्यावरण का प्रत्येक तत्व मानव जीवन के लिये महत्त्वपूर्ण है। इसलिये पर्यावरण का प्रत्येक तत्व और उसका संरक्षण परमावश्यक है। नाटक के तृतीय अंक में नित्य कर्म विधान में यज्ञीय अनुष्ठान को सम्मिलित करने का विधान है। यज्ञ अथवा अग्निहोत्र केवल एक धार्मिक कर्मकाण्ड नहीं है बल्कि वातावरण को शुद्ध करने के लिये अनिवार्य बन गया है। वृष्टि, जल एवं वायु की शुद्धि, पर्यावरण संतुलन एवं रोगों के निवारण में यज्ञ अहम भूमिका निभाता है। नाटक के पाँचवे अंक के आठवें श्लोक में नायक दुश्यन्त पर्यावरण के प्रति चिन्तित दृष्टिगोचर हो रहे हैं। दुष्यन्त तपोवन के वृक्ष, वनस्पतियों, प्राणियों के प्रति चिन्ता व्यक्त करते हुये कहते हैं कि कोई तपोवन के प्राणियों को सता तो नहीं रहा है या मेरे पापों के कारण वनस्पतियों, लताओं व वृक्षों का पुष्पित–पल्लवित होना बंद तो नहीं हो गया है। यहां दुश्यन्त के माध्यम से सामान्य लोगों को स्वयं पर्यावरण के प्रति सचेत व जागरूक होने के लिये प्रेरित किया गया है। जब प्रत्येक मनुष्य स्वतः पर्यावरण को शुद्ध रखने का प्रयास करेगा तभी पर्यावरण संरक्षण व संतुलन संभव है। मानव और पर्यावरण का परस्पर घनिष्ठ सम्बन्ध है। दोनों एक–दूसरे पर निर्भर हैं। मानव जीवन पर्यावरण पर निर्भर है और पर्यावरण संरक्षण मानव पर निर्भर है। इसलिये पर्यावरण संतुलन के लिये मनुष्यों को सजग होना आवश्यक है। यही अनुपम शिक्षा हमें ''अभिज्ञान शाकुन्तलम्'' में पग–पग पर प्राप्त होती है। जिसका विस्तृत विवेचन शोधपत्र में किया जायेगा।

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Land Use Change in Jaipur District: A Case Study

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चूरू जिले में जलवायु परिर्वतन की दशाएँ

लक्ष्मण राम मेहरा
प्रवक्ता, भूगोल श्री भगवानदास तोदी स्नातकोत्तर महाविद्यालय, लक्ष्मणगढ़ (सीकर)

चूरू राजस्थान राज्य में उष्ण कंटिबंधिय जलवायु वाला एक जिला है। जो सात तहसीलो में विभाजित है। यह जिला राजस्थान की उत्तर पूर्वी दिशा में स्थित है। वर्तमान में यहाँ जलवायु परिर्वतन की कई घटनाएँ दिखाई देती है जैसे सुखा, बंजर भूमी, पेयजल संकट, गर्म एवम् शुष्क हवाएँ आदि। इन सभी भौतिक तत्वों का प्रभाव जैविक समुदाय पर प्रत्यक्ष रूप से पड़ रहा है। यहाँ का मानव समुदाय अति न्यून संसाधनों के साथ अपना जीवन यापन कर रहा है। इस दृष्टिकोण से देखा जाए तो यह जिला विभिन्न पर्यावरणीय समस्याओं से ग्रसित है। मरूस्थलीकरण चूरू जिले की सबसे बड़ी समस्या है। जिस पर समय रहते अंकुश न लगाया गया तो आने वाले समय में जैव विविधता एवम् पारिस्थितिकी तंत्र पर दुष्परिणाम देखने को मिल सकते है। इन दुष्परिणामों को देखते हुए आवश्यकता इस बात की है कि हमें पर्यावरण संरक्षण की और कदम बढ़ाने होंगे। इस कार्य में मानव समुदाय की भूमिका अत्यंत महत्वपूर्ण है। प्रस्तुत अध्ययन का मुख्य उद्देश्य चूरू जिले में जलवायु परिर्वतन का सामाजिक पर्यावरण पर पड़ने वाले प्रभावो का आकलन करना है ताकि इन प्रभावो का अध्ययन कर जलवायु परिर्वतन संबंधी समस्याओं का समाधान किया जा सके।

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ekuo dh izkFkfed vkfFkd fØ;kvks e —f"k dk lokf/kd egRo gA vkt Hkh yxHkx 2@3 ls vf/kd vkcknh —f"k o —f"k ls lEcfU/kr vkfFkd fØ;kvks e layXu gA gekjs ns'k e dqy Hkfe d 47-48 izfr'kr Hkk&Hkkx ij —f"k dk;Z fd;k tkrk gA ns'k —f"kxr Hkk&Hkkx dk {ks=Qy 14-5 djksM gsDV;j g] tks fo'o dh dqy —f"kxr Hkfe dk yxHkx 12-1 izfr'kr gA vr% df'k fodkl 'kks/k dk;Z dh nf"V ls ,d egRoi.kZ {ks= gA Qly izfr:i fdlh df'k ins'k d df'k &Hkkn'; dk izrhd g] tks ogk dh df'k vkxrks] izks|kfxdh fodkl] lLFkkxr <kpk] Qly&ofo/;djk.k vkj df'k iznfŸk;ks dk |krd gA iLrqr v/;;u dk iea[k mÌs'; ftys e df'k izofŸk;ks dk v/;;u djrs gq;s Qly izfr:i Kkr djuk g] ftlls fd ftys d d"kd Qlyks dk p;u vklkuh ls dj lds rkfd vf/kd mRiknu ls lkekftd&vkfFkd thou Lrj dks Åpk c<k lds A vU; dkjdks e LFkkuh; Hkkfrd] vkfFkd] lkekftd o lLFkkxr dkjd egRoi.kZ g] tks feydj df'k &Hkkn'; dk fuek.k djrs gA fofHkUu izdkj d Qly izfr:i df'k fodkl dks izHkkfor djrs g vkj Qly izfr:i dks izHkkfor djus oky fofHkUu dkjdks e ls lcls egRoi.kZ flpkbZ dkjd gA iLrqr 'kks/k&i= t;iqj ftys d lnHkZ e Qly izfr:i e gkus oky ifjorZu dk rqyukRed ,o fo'ys"k.kkRed v/;;u iLrqr djrk gA ;g 'kks/k dk;Z miyC/k lkexh] fjiksVZ lfgr rFkk fofHkUu lkf[;dh; vkdMk dh lgk;rk ls i.kZ fd;k x;k gA vkfFkdh ,o lkf[;dh; :ij[kk] t;iqj] df'k vuql/kku foHkkx] nqxkZiqjk vkfn lLFkkvks ,o fofHkUu fjiksVZl dks ls lkf[;dh; rF;k ,o vkdMk dks lxfgr fd;k x;k ,o f}rh;d vkdMk dks lkj.kh; i:i e oxhZd`r ,o fo'yf"kr fd;k x;kA 1971 e t;iqj ftys e lokf/kd df'k {ks= ij ckt jk ¼2-49 yk[k gsDV;j½ rFkk mlds ckn Øe'k% [kjhQ nky ¼1-42 yk[k gsDV;j½] puk ¼1-22 yk[k gsDV;j½ rFkk xgw ¼1-02 yk[k gsDV;j½ ck;k x;kA flpkbZ lk/kuks d fodkl] dhVuk'kdks] mUur chtks] u;h rduhdks] o ljdkjh uhfr;ks o iz;kl d QyLo:i xgw d v/khu {ks=Qy c<dj 2015 e 1-58 yk[k gsDV;j gks x;k] tks fd ckt jk ¼2-97 yk[k gsDV;j½ d ckn lokf/kd gA iLrqr v/;;u e fofHkUu Qlyks d i:i e ifjorZuks dk ,o bu ij flpkbZ d izHkkoks dk fo'ys"k.k djus d fy, miyC/k vkdMk dk rqyukRed v/;;u Hkh fd;k x;k gA

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पर्यावरण शिक्षा एवं उसके प्रति जागरुकता

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पर्यावरण की कल्पना भारतीय संस्कृति में सदैव प्रकृति से ही की गई है जहाँ समस्त जीवधारी, प्राणियों और निर्जीव पदार्थो में सदा—एक दूसरे पर निर्भरता व समन्वयक की स्थति रही है। जीव एवं निर्जीव को उत्पन्न करने वाले पदार्थ एक ही है। जिन्हें पृथ्वी जल, अग्नि, आकाश और पवन कहा जाता है। जैसे कि जीवन की उत्पति के विषय में तुलसी दास दी कहते है—

''छिति जल पावक गगन समीरा।
पंच रचित अति अधम समीरा।।''

पर्यावरण में सभी भौतिक तत्व एवं जीव सम्मिलित होते हैं। जो प्रत्यक्ष या परीक्ष रुप से उसकी जीवन क्रियाओं को प्रभावित करते हैं। वातावरण वायुमण्डल से सम्बन्धित से सम्बन्धित तत्वों का समूह होने के कारण पर्यावरण का ही अंग है। पर्यावरण में अनेक जैविक व अजैविक कारक पाए जाते है। जिनका परस्पर गहरा संबंध होता है। प्रत्येक जीव को जीवन के लिए अजीवों जैसे—वायु, जल, ऊर्जा आदी की एक उचित मात्रा की आवश्यकता होती है। जब—तक जैविक एवं अजैविक घटकों की उचित मात्रा प्रकृति में विद्यमान है तब तक प्राकृतिक संतुलन बना रहता है। प्राचीन काल में मानव बहुत सीधा—साधा जीवन व्यतित करता था। उस समय पर्यावरण के बारे में उतना नहीं समझता था लेकिन मानव ने जब से उत्पादन क्षमता बढ़ाई है विश्व में पर्यावरण की एक नहीं समस्या उभरकर हमारे सामने आयी है। जब तक मानव ने पर्यावरण का सहभागी बनकर लाभ लिया उसका भला हुआ परन्तु जबसे मानव ने छोटे—छोटे लाभों के लिए पर्यावरण के संसाधनों का असीमित व अनुचित दोहन किया है। उसको प्रत्यक्ष या अप्रत्यक्ष रुप से पर्यावरणीय हानी जरुर हुई है।

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?kM+lkuk jktLFkku dh xxkuxj ftys dh ,d rglhy g tks ftys dh nf{k.k Hkkx esa fLFkr gSA ?kM+lkuk rglhy dk dqy {ks=Qy 1387-32 oxZ fd-eh- g tks xxkuxj ftys dk 12-69 izfr'kr Hkkx gSA ;gka dqy tula[;k 1]75]987 O;fDr g tks xxkuxj ftys dh dqy tula[;k dk 9-83 izfr'kr Hkkx gSA HkkSxksfyd nf'V ls ?kM+lkuk {ks= e:m'.k&'kq'd tyok;q] U;wu o'kkZ] e:LFkyh; ifjfLFkfr;kW] ckyqvk enk dk foLrkj vkfn n'kk,sa feyrh gSA ouLifr dh nf"V dVhyh >kfM+;k] iM+] ?kkl vkfn feyrs gSA ;gka ty ókr dk iez[k lk/ku bafnjk xka/kh ugj dh vuqix< iez[k "kk[kk gSA tks ouLifr;k] ikf.k;k] i; ty] flapkbZ vkfn lHkh dk fy, iez[k Hkwfedk fuHkkrh gSA ?kM+lkuk dh vkfFkZd fLFkfr iez[kr% df'k vk/kkfjr gSA bl {ks= esa xsgw] Tokj] Xokj] ljlks vkfn iez[k Qlys ckbZ tkrh gSA df'k dks vyko ;gka dks ykx ftlle [kuu {ks= ,oa QfDV;ka esa Hkh etnqjh djrs gSA ?kM+lkuk rglhy dh lEiw.kZ ifjfLFkfr;ka bafnjk xka/kh ugj dh iez[k vuqix< "kk[kk esa ty dh ek=k ij fuHkZj djrh gSA ;fn bl "kk[kk esa ikuh dh ek=k de dj nh tk;s rks ;gka dk tfod lenk; i.kZ i; ty vHkko esa dky dk xkl cu ldrk gSA orZeku ?kM+lkuk esa py jgs ty fookn dk mnHko vpkud gkus okyh ?kVuk ugha gSA bl ty fookn dh vkx ;gka ds okfllnks ds fnyks esa lu~ 1990&91 ds ckn ls gh yxh gqbZ gSA tks 16 twu 2004 dks i/tkc ljdkj }kjk jktLFkku dks ty ugha nus ds Qlys ds mijkUr iLQfVr gqbZ gSA ;g ty fookn ijtkc ls jktLFkku viuk fgLlk dk ijk ty yus dh ekx ds dkj.k mRiUu gqvk gSA

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lk;koj.k dh ppruk dbZ i;kZoj.kh; eqÌks dks lcfs/kr djrh g tSls ok;q] Hkwfe vkj ty iznw"k.k] enk vo{kh.ku] vk|kxhdj.k] 'kgjhdj.k] ikdfrd lalk/kuks dk vi{k; bR;kfnA i;kZoj.k lEcU/kh dkuwu i;kZoj.k ds lja{k.k o ikdfrd lalk/kuks ds mi;ksx dks fu;f=r djus esa ,d cgqr gh egRoiw.kZ Hkwfedk fuHkkrs gSA lk;koj.k&lc/kh dkuwuks dh lQyrk e[; :Ik ls bl ckr ij fuHkZj djrh g fd mudk ljdkj o lekt fdl izdkj ls ykxw djrs g rFkk mudk ikyu djrs gSA dkuwu o LoLFk i;koj.k dk dk;e j[kus ds fy;s vke turk dks f'kf{kr o tkx:d djuk vfr&vko';d ,oa ,d vuekSy ;= gSA jk"Vªh; o vUrjk"Vªh; Lrjks ij vufxur dkuwu igys gh cu pqds gSA Hkkjrh; dkuwuks dk vxj th esa *,DV lq* dgk tkrk g] tcfd vUrjk"Vªh; dkuwu o fu;e] le>kSrk] foKfIr o lf/k ds ukeks ls tkus tkrs gSA i;kZoj.k lja{k.k ,oa lo)Zu gsrq vke ukxfjdks dk viuh ufrd ftEeokfj;ks o dÙkO;ksa dk l;erkiwoZd fuoZgu djuk iM+xk rHkh i;kZoj.k lja{k.k vkj iznw"k.k dks fu;f=r djus dh 'kkldh; rFkk Lo;Ioh laLFkkvksa dh egRrk o dk;Z ,d cgqr cM+s ldkjkRed ifj.kkeks dks fufer dj ik;xA

पर्यावरण संरक्षण एवं अन्तर्राष्ट्रीय प्रयास

विजयसिंह
शोद्यार्थी, राजनीति विज्ञान विभाग, कोटा विश्वविधालय कोटा

पर्यावरण समस्त जीवन का आधार है मानव जीवन हो या अन्य जीव जन्तु सभी पर्यावरण से सम्बन्ध है । पर्यावरण पर होने वाले प्रभाव का सापेक्ष परिवर्तन समस्त जीवों पर देखा जा सकता है । सभ्यता के प्रारम्भ से ही मानव जाति पर्यावरण से ही अपनी समस्त आवश्यकताओं की पूर्ति करती आ रही है । मानव जो कि स्वभावतः स्वार्थी प्रकृति का होता है अपनी इसी प्रकृति के कारण पर्यावरण को अनुचित दोहन करने में लगा हुआ है जिसके परिणामस्वरुप प्राकृतिक असन्तुलन में निरन्तर वृद्धि होने लगी है । वर्तमान प्रौधोगिकी युग में मानव जाति के द्वारा तकनीकि प्रविधियों पर आवश्यकता से अधिक बल दिया जा रहा है जिससे पर्यावरण को विविध स्तर पर नुकसान पहुंचाया जा रहा है । यदि पर्यावरण ही सुरक्षित नही रहेगा तो इस पृथ्वी पर मानव जीवन के सुरक्षित रहने की कल्पना भी नही की जा सकती है। आधुनिक दौर में जल थल नभ निरन्तर प्रदुषित हो रहा है जिससे हरितग्रह प्रभाव और भूमण्डलीय तापन में वृद्धि निरन्त हो रही है जो कि मानव सभ्यता के विनाश का संकेत है । समय रहते यदि पर्यावरण संरक्षण हेतु आवश्यक कदम नही उठाये गये तो विनाश सुनिश्चित है। पर्यावरणीय समस्याओं की विभत्सता को देखते हुए समूचा अन्तर्राष्ट्रीय समुदाय चिन्तित है और ये चिन्ता भी जायज है । सम्पूर्ण मानव जाति ही नही समस्त जीवन संकट में है । अतः अन्तर्राष्ट्रीय समुदाय द्वारा इस चिन्ता के सन्दर्भ में जागरुकता दर्शाने का प्रयास किया है व विभिन्न स्तर पर प्रयास किये जा रहे है । विशेशतः संयुक्त राष्ट्र संघ के माध्यम से 15 दिसम्बर 1972 स्टॉक होम सम्मेलन के अन्तर्गत स.रा.पर्यावरण कार्यक्रम पर बल दिया गया है । इस प्रकार पर्यावरण कार्यक्रम श्शाशी परिषद जून 1972 जेनेवा, विश्व वन्य जीव कोश 1983 इनके अतिरिक्त अन्य अन्तर्राष्ट्रीय संस्थाओं की भी महत्तवपूर्ण भूमिका रही है ।

पर्यावरण शिक्षा का महत्त्व और जागरुकता

सुभाष कुमार
शोद्यार्थी, इतिहास विभाग, सिघानियां विश्वविधालय, पचेरी बड़ी

मानव सभ्यता का विकास विभिन्न काल चक्र में अनवरत रुप से गतिशील रहा है , सभ्यता एवं संस्कृति इस अनवरत प्रकिया में विभिन्न कारको एवं अवस्थाओं का विशेष योगदान रहा है । मानव जो कि एक सामाजिक प्राणी है समाज से गहरा सम्बन्ध होने के नाते यह समझना आवश्यक है कि समाज प्राकृतिक संरचना से ही सम्बन्धित है । विशेष रुप से समाज पर पर्यावरण का प्रभाव देखा जा सकता है । परिस्थितीकी की संकल्पना की दृष्टि से पर्यावरण व जीव जन्तुओं में घनिष्ट सम्बन्ध पाया जाता है । ब्रिटेनिका विश्वकोष के अनुसार :– पारिस्थितिकी वो विज्ञान है जो जीवों के एक दुसरे के सम्बन्धों तथा उनके तत्वों पर प्रकाश डालता है । जो प्राकृतिक पर्यावरण के घटक है स्पष्ट रुप से यह कहा जा सकता है कि पर्यावरण व समाज में घनिष्ट है । जो कि प्राचीन काल से चल रही है। मानव सभ्यता का विकास विभिन्न पर्यावरणीय दशा में हुआ है । यधपि प्राचीन काल से वर्तमान की तुलना की जाये तो पर्यावरण की दृष्टि से मानव सभ्यता व संस्कृति में व्यापक अन्तर देखने को मिलता है । वास्तविक रुप से वर्तमान आधुनिकता की दौड़ ने मानव को मशीनीकरण की ओर उन्मुख कर दिया है । फलस्वरुप प्रकृति के साथ छेड़छाड़ निरन्तर बढने लगी है जिससे प्रकृति संतुलन को गहरी चोट पहुंची हैं । पर्यावरण की दृष्टि से आधुनिकता की दौड़ से वर्तमान समय में पर्यावरण को निरन्तर क्षति पहुंचाई जा रही है जो बहुत ही चिन्ता का विषय है । वर्तमान दौर में समुचा विश्व पर्यावरणीय समस्या से जुझ रहा है । मानव सभ्यता व प्रकृति को बचाने के लिए पर्यावरण शिक्षा व जागरुकता अति महत्तवपूर्ण ही नही है बल्कि अनिवार्य है।

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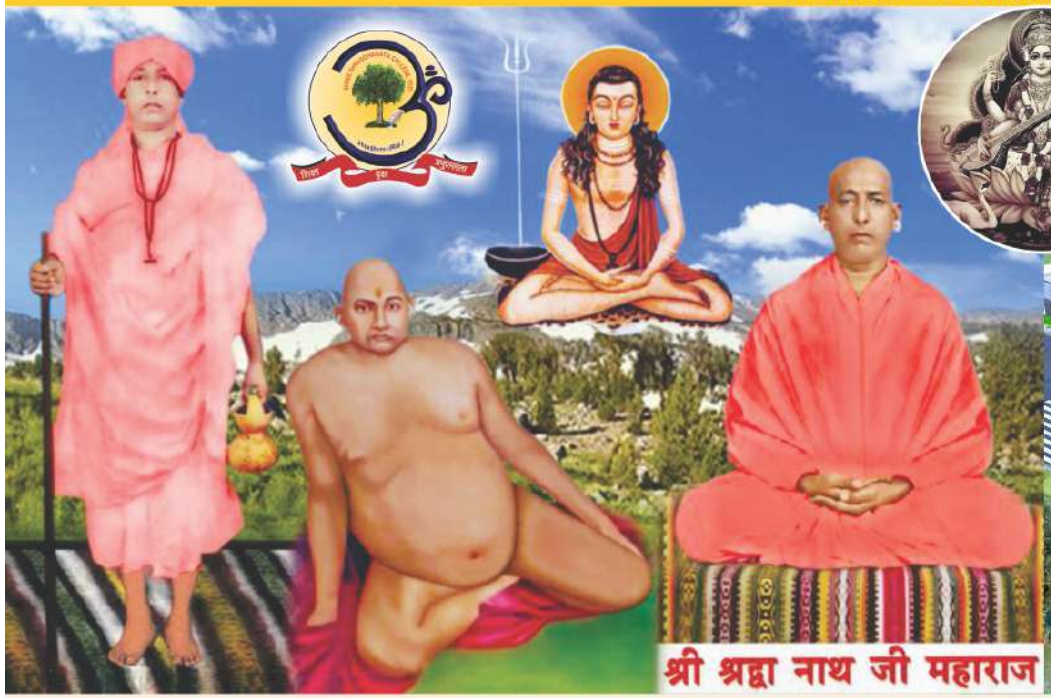

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•विज्ञान वर्ग- रसायन विज्ञान, गणित, भौतिक विज्ञान, जीव विज्ञान, सामान्य विज्ञान

•वाणिज्य वर्ग- वाणिज्य शिक्षण, बही खाता।

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❖ पीजीडीवाइसी (एक वर्षीय डिप्लोमा कोर्स)

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