About the Host City

Bhopal, the capital city of Madhya Pradesh is known for its natural beauty and royal look of an erstwhile Nizam State. The capital has captivating hilly backdrop surrounding the enchanting lakes. The greenery of the well planned city makes it look very impressive and beautiful. There is a blend of ancient Muslim culture depicted by famous mosques of the city and modern ethos seen in major part of the new Bhopal city. The city is known for a very cordial and harmonious relationship over the years between the Hindu & Muslim community. The city celebrates Diwali and Eid with same fervor. Bhopal is famous for its rich zari work and Gutka.

It is heartening to see that the city is coming up as a big educational hub with a large number of diversified institutions that have taken shape in the recent past, both in school and university education sector. Establishment of large number of national level institutions such as National Judicial Academy, National Law Institute University, School of Architecture and Planning and many others, have added a glorious chapter in the educational history of the city. The day is not far off when Madhya Pradesh can get rid of the Bimaru tag and it will be known as a progressive state like many others.

About the Host Institution

Role of private sector as provider of higher education in the country is recognized by one and all. Though the concept is not very new and there have been private institutions of higher education in the past also but in last two decades there is a boom of such institutions in the country and privatization of higher education has become a buzz word of the commercial market. Earlier, while philanthropy was the basis for such endeavors, now it has become a commercial activity for many and this is the reason for sudden quantitative explosion in the number of self financing private higher education institutions. However, it is needless to say that it is not at all possible for the public sector to bear the burden of imparting higher education to large mass of the students had it not been shared by the private sector. It is necessary that the country admits and admires the efforts made by private institutions. Though there is an apprehension of dilution of standards of education due to unabated proliferation of private self financing institution, still it is heartening to see that there is no dearth of good benevolent philanthropic institutions of higher education in the country and they can be taken as dependable partners playing crucial role of imparting quality education to students. One such institution situated at Sant Hirdaram Girls College, Bhopal has the honour of organizing this National Seminar under the aegis of Indian Science Congress Association, Bhopal Chapter.

Sant Hirdaram Nagar, erstwhile called as Bairagarh, is a sub-urban part of the city of Bhopal known mainly for its market & other commercial activities. Situated very close to Raja Bhoj Airport, the main populated area is on the Bhopal-Indore highway.

Sant Hirdaram Nagar is blessed with the pious presence of a great soul Paramhans Bramhaleen Sant Hirdaram Sahibji who is adored by thousands of his followers for his benevolent activities especially in the field of Education and Health. He never believed in construction of temples or maths but created institutions which are temples of learning. He strongly propagated the theory of developing healthy educated manpower through his benevolent philanthropic activities so that the society at large is benefited. His staunch disciple and now his successor Rev. Sidh Bhauji is keeping the spirit of Santji alive and has committed himself to the cause of positive social change through education.

Santji established Shaheed Hemu Kalani Educational Society, Bhopal in the year 1996 to create educational institutions of high quality and unmatched determination. The society in its short existence of 13 years has established

five schools and one college. All these institutions have world class infrastructure and very competent honest management

Sant Hirdaram Girls College, Bhopal is the latest addition to the list of educational institutions under the purview of Shaheed Hemu Kalani Educational Society. Established in 2006 as a private unaided college, the college has earned good reputation and social recognition in such short spell of time. It is being considered as the youngest but one of the best colleges of Bhopal. Imparting higher education at under graduate level in faculty of Science, Commerce & Education, the college has high ambition and appropriate vision to expand its wings to become a post graduate college by next year and also to diversify in other job oriented market driven academic areas such as MBA, MCA and Hospital Management. The valuable guidance of Rev. Sidh Bhauji, the strong philanthropic support and dedication of all the members of Shaheed Hemu Kalani Educational Society, are the driving force taking the college to greater heights.

The college is situated on 3.57 Acre land and has a sprawling campus with building complexes exhibiting world class architecture and high quality infrastructure. The Laboratories are well equipped with branded instruments and equipments. Two Computer Labs with 60 computers, Biotechnology Lab with sophisticated instruments and properly equipped Botany, Zoology, Chemistry, Physics and Clinical Nutrition Labs are the academic assets of the college. The college is proud to have a rich automated Library and a functional Language Lab with 24 terminals. Students are provided with Internet facility on the campus and there is e-library with connectivity to 48 journals. There are two furnished Seminar Halls each with a capacity of 120 fitted with audio visual aids including Public Address System.

Serious and consistent efforts are put in to create a perfect teaching- learning ambience. The well-ventilated, well-furnished airy class rooms provide very soothing learning environment. Besides the regular teaching faculty, lectures of eminent experts in various fields are organized on a regular basis. The college teachers are encouraged to participate in workshops and seminars. College also organizes such activities as a part of its academic calendar.

The college has developed linkages with various organizations for giving on the job training to the students for vocation courses such as Department of Sports & Youth Welfare, Bhopal Memorial Hospital and Research Centre, CEDMAP, CRISP, EDI and many others. The college is identified as the study centre of IGNOU for B.Ed. Course and as a partner institution of IGNOU under their convergence scheme.

Besides having excellent teaching learning facilities, college is proud to have a 100 bedded girls hostel on the campus. The hostel is furnished providing very special amenities to the students such as washing machine, computer with internet facility, television and facilities for indoor games. There is a well managed mess in the hostel to give quality food to the hostellers. A one thousand capacity centrally air conditioned auditorium is under construction and will be ready for use by July, 2009.

The quality of human resource employed in the college is our real strength. The college is being managed by senior academicians and team of excellent teachers. The support of the Foundation Society is unabated and perennial. A coherent motivated and inspired team puts in the best of efforts to reach the targets. This provides a strong base to achieve excellence.

The vision of the college is very clear and we are planning with great caution to adopt the right strategies at the right time. The welfare of students is of prime importance for us and all our efforts are directed towards this goal. Besides class room teaching, the college is imparting special skills to the students so that we are able to produce a finished product in the form of a talented employable young woman. Our students are our real assets and bringing excellence in them is our ultimate motto.

Invited Talk

PNA: A Future Template for Artificial Life

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ABSTRACT

In 1987, it was demonstrated that the triple helix structure could indeed be exploited to design oligonucleotides i.e. DNA strands about 15 nucleotides long that read the sequence in double-stranded DNA and bind their Hoogsteen complementary target. Recently, with the help of well-established techniques using amide or peptide bonds it could be possible to conveniently synthesis of highly stable, neutral molecules, the peptide nucleic acid (PNA) which is a molecule with a peptidelike backbone made of a much simpler repeating unit than the sugar and phosphate of DNA and RNA. Each unit may have a standard nucleic acid base (T, A, C or G) linked to it or bases that have been modified for special purposes. Drugs based on PNA are likely to achieve therapeutic effects by binding to specific base sequences of DNA or RNA, repressing or promoting the corresponding gene. Some researchers are working to construct artificial life-forms out of mixtures of chemicals. It is being thought that PNA may be as useful ingredient for the designs of artificial life. Furthermore, PNA-like molecules are likely to have served as primordial genetic material at the origin of life. PNA's unique properties like its more versatility in binding to DNA as well as RNA, stronger binding to its target and greater chemical stability in the enzyme-laden cellular environment give it several advantages over antisense DNAs and RNAs. Many studies have demonstrated PNA's suitability for modifying gene expression, mostly in molecular test-tube experiments and in cell cultures. Studies in animals have begun, as has research on ways to transform PNA into drugs that can readily enter a person's cells from the bloodstream. The presentation will introduce young audience about a likely to be most sought after molecule which is likely to give rise the template for an artificial life.

Invited Talk

"Increased Burden of Heart Disease, Hypertension, Diabetes Mellitus and simplistic approach towards management"

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ABSTRACT

The Judicious use of science as tool for development of Health Care System and prevention of non-communicable diseases should be the thrust area on which the scientific community and medical fraternity work hand in hand for

better quality of life. The role of science education begins with primordial prevention and primary prevention which is further consolidated by secondary and tertiary prevention of diseases. The precise aetiology and mechanism(s) leading to the development of CAD remain incompletely understood although a number of conventional risk factors have been identified over the past several decades. Increasing recognition that many patients (as many as 30-50%) with established CAD lack these conventional risk factors has led to a search for additional new risk factors that may predispose individuals to CAD. Over the past several years, observational and epidemiological studies have identified a host of new and potential risk factors for athero-thrombotic vascular disease. Of this growing list of new and emerging risk factors, elevated blood levels of homocysteine, fibrinogen, inflammation and infection, atherogenic lipoprotein phenotype associated with small low-density lipoprotein. (LDL) cholesterol particles and elevated triglycerides, elevated levels of lipoprotein (a) (Lpa), insulin resistance syndrome (syndrome X or Reaven's syndrome or deadly quartet), psychosocial factors and a number of genetic polymorphisms are of particular interest. The risk of Cardiovascular disease (CVD) among diabetic subjects is remarkably higher compared to non diabetic subjects. The life expectancy of a diabetic patients is reduced by 30% compared to non diabetic subjects which translates to 8 years loss of life years in diabetic subjects. Further the protective female gender effect in pre-menopausal women is abolished in diabetic females.

Invited Talk

FRONTIERS IN GREEN CHEMISTRY

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ABSTRACT

Chemistry is an enabling science that will allow economic progress and environmental progress to proceed in harmony. Being green has always been a battle cry of environmental activists and an important marketing tool for businesses. It is becoming increasingly important for chemists to be green by applying the principles of green chemistry to all facets of the chemical sciences: basic and applied research, production, and education. Green chemistry, also known as sustainable chemistry, is an umbrella concept that has grown substantially since it fully emerged a decade ago. Green chemistry is the design, development, and implementation of chemical products and processes to reduce or eliminate the use and generation of substances hazardous to human health and the environment. The reason green chemistry is being adopted so rapidly around the world is because it is a pathway to ensuring economic and environmental prosperity. Green chemistry is powerful because it starts at the molecular level and ultimately delivers more environmentally benign products and processes. Green chemistry requires nothing less than the highest quality science with the broadest possible resources. Many technologies that meet green chemistry objectives already exist and offer immediate opportunities to reduce environmental burdens and enhance economic performance. The processes can be made greener by using natural resources to replace starting chemicals: fallen leaves can produce glucose, corn starch is used to produce puffed packaging materials, bio-diesel can be obtained by non-edible seed oil, coloring shades can be developed with turmeric, cutch and henna. A modified green method by which adipic acid can be produced by using biocatalysts with sugar glucose can substitute benzene, ibuprofen was a six step process with 40% yield and it has been reduced to three step process with 77% yield and green pesticides can be prepared using plant products.

Invited Talk

SOIL INSECT AND CARBON SEQUESTRATION

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ABSTRACT

Varity of arthropods especially insects living in soil and plays an important role as pedosphere engineers. Majority of them spend their life and part of their life cycle in the soil and form part of the natural network system (NNWS) responsible for maintenance of life in the pedosphere and ultimately on the earth. A study of over burden dumps (OBD) of coalmine area and forest floor was carried out from year 2005-2008. It was observed that two natural phenomena are under play - homeostatic and successional - in both the study area. Homeostatic process is the intrinsic force that is maintaining status quo in both the systems, and succession is driving the systems towards ecesis. OBDs - an ecosystem, which under stress and due to reclamation process has forced succession. Anthropogenic activities for the restoration of the degraded and derelict ecosystems, synergistically with natural process accelerate the process of restoration of NNWS and create a situation for prisere.

The diversity index of the natural forest - two sites taken for the study have the Sannon- Weaver function 3.0641- 3.1609 where as diversity index of four sites taken for the study in the OBDs, at different ages of afforestation, ranged from 1.832-2.538.

There are resilient forces in the OBDs due the arrival of the varied soil insect population which are r-select. And the diversity index is poor. But gradually these populations facilitate the growth of the plants and the above ground system is established facilitating the r-select species to convert to K-select species.

Soil arthropods in general and soil insects in particular form many guilds to create a complex soil food web which forms the part of the Carbon cycle and supports floral diversity above the ground and promote the carbon sequestration.

Invited Talk

FUTURE STATUS OF UNITED NATION'S BALI CONFERENCE, 2007 ON GLOBAL WARMING, THE SUCCESS OR FAILURE

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ABSTRACT

Bali conference was held in December 2007, under the aegis of UNO. It has unanimously resolved that deep reduction of global emission of Green House Gases is the only solution to prevent climate change before further reaching dangerous level. The principal aim of the conference was to protect or to modify Kyoto Protocol expiring

in 2012. The significance of this conference became increased because of award of Nobel Peace Prize, 2007 for Climate Change/Global Warming. During the conference a bitter battle broke out between developed countries, European Union and US backed by Canada, Japan, Australia, New Zealand & Russia on the point of 55% reduction of CO2 at 1990 level as proposed in the Kyoto Protocal, 1997. United States of America did not agree on the cut of 55% and insisted that the figure of the GHG emission of USA be left at his will. This is the violation of the existing protocol of which USA was signatory. U.N. Secretary General interference on the last day of the conference helped in breaking the Kyoto Protocol. Apart of this episode, conference took important decisions on issues such as deforestation; fund to for developing countries to adapted the protocol and also transfer of technology to developing countries. European and NGOs resolved that 25-40% emission cuts of GHS by 2020 from 1990 levels. The success in cut of emission of GHG could be possible, if Alternative Fuel is obtained in place of the fossil fuel. However, Hydrogen power Technology is in the market. In this technology, cars are converted to burn water with gasoline (petrol), the car is known as Water Hybrid Car. The hydrogen could be obtained by natural gas or coal or from water. The cheapest source of extraction of hydrogen is from water through the process of electrolysis. The hydrogen in water is in highly compressed form. The technology of storage of hydrogen, its distribution at high pressure at the fuel station as well as in the machine should be perfect and save. There are two models of car; one is hydrogen fuel cell car another car is hydrogen supplied on demand. The different problems need to be further investigated in keeping boosting the mileage, boosting the performance and reducing the emission of CO2 keeping in view that it is cheap, efficient, easily available and plentiful Unless and until the alternative technology is not available, any protocol to cut the emission of GHG at International is not being successful. No country will agree to reduce its development and to curtail the habits of use of fossil fuel. The provision of carbon credit will also not be a long-term solution. Fund to Scientific community be provided to develop technology.

Invited Talk

FIRST WINTER PHASE INDIAN ARCTIC EXPEDITION 2008 : INDIAN STRATEGY FOR RESEARCH

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ABSTRACT

This popular talk will highlight the Indian Strategies of Research in Arctic Region through Norway Himadri, an Indian Arctic Station has already been established in 2008 to cater researches in the following areas:

- Space Weather Studies
- Glaciological Studies
- Atmospheric Studies
- Marine Biology Studies

These researches will instigate the researchers to work in the related areas with the help of Arctic Expedition Programme augmented by National Centre for Antarctica and Ocean Research (NCAOR) through Ministry of Earth Sciences, New Delhi.

Key Words : Space weather studies, Arctic Region, Glaciological studies.

Invited Talk

Attraction of Talent for excellence in Research on Bioterrorism Threat

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ABSTRACT

Bioterrorism is terrorism by intentional release or dissemination of biological agents such as bacteria, viruses or toxins; these may be in a naturally-occurring or in a human-modified form. . Biological agents can be spread through the air, through water, or in food. Terrorists may use biological agents because they can be extremely difficult to detect and do not cause illness for several hours to several days. Some bioterrorism agents, like the smallpox virus, can be spread from person to person and some, like anthrax, can not. A bioterrorism attack is the deliberate release or dissemination of biological agents.The threat of bioterrorism, long ignored and denied, has heightened over the past few years. The agents such as for anthrax, botulism, plague, smallpox, and viral hemorrhagic fever can easily be transmitted from person to person and that can result in high mortality rates while causing public panic and social disruption. Food and water safety threats, melioidosis, psittacosis, staphylococcal enterotoxin B, and typhus are moderately disseminated and can result in low mortality rates. The pathogens that might be engineered for mass dissemination in the future because of the availability or ease of production and dissemination, and that have potential for high mortality rates. Recent outbreaks of Salmonella, Anthrax, Botulism, XDR Tuberculosis, Acanthamoeba and Avian flu are health emergency topics in recent years.The bioterrorists may strike at food and water supplies that could be perceived as unintentional food poisoning, which might delay recognition of the outbreak, and complicate identification of the contaminated food. .The use of agents that do not cause harm to humans but disrupt the economy such as foot and mouth disease have been witnessed in the 2001 and 2007 in the U. K..'Agroterrorism' which is socioeconomic threat which may attack agriculture crops and livestock's along with human population.On account of agriculture-based economy, the situation may become even more critical for countries like India.

The problem lies in the planning and reacting to a bioterrorist attack; it may involve the development of biological identification systems. Collective measures to check bioterrorism such as National or International Bio-Surveillance, Bioterrorism watch, and comprehensive Biosecurity Action plan etc may provide biosecurity in times to come. Biosurveillance strategies have to be adopted as it is emerging science of real-time disease outbreak detection. Surveillance for specific types of emergencies, illness recognition and detection, surveillance planning and surveillance systems will have to be developed as resources. Other actions such as coping with disaster or traumatic event, helping children and teens, information to responders, information for health professionals, information to states and planners and educational materials for public awareness will also have to be developed to combat such events. .For longer-term solutions, the medical community must educate both the public and policy makers about bioterrorism and build a global consensus condemning its use.The modern day sciences like proteomics, Nanotechnology and genetic engineering technology can play a substantial role in counteracting such attacks

Invited Talk

SCIENCE, TECHNOLOGY AND ETHICS: AN ISSUE FOR AWARENESS

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ABSTRACT

Technology now poses a serious challenge to human reflection. Critics of technology sometimes point out that new or prospective technologies raise difficult moral questions, and they insinuate that this is a reason not to develop or introduce such technologies in the first place. Biotechnology, or medical technologies like genetic engineering or network technology, and now Environmental Engineering, often receive criticism of this sort. At the moment the critics' argument can not be claimed incomplete and scientist and policymakers need to introspect and explain why difficult moral issues should be warded off. The logics based upon the adolescent brain and age-related behavioural manifestations may be the proposed strategic and premeditated theory on ethical education on the use of technology. The proposed strategy in the presentation will emphasize on educational policy from light learning activities in the classroom to a short term and long-lasting impact for the young children through certain planned lessons which could make a mind-etching luminous part of their curriculum. The principle of 7 Es i.e. how exposure to experiences, education, enrichment of knowledge, elimination of fear and engravings in mind lead to ethics of technology giving us enlightened citizens, policy-makers and leaders. The presentation will also discuss issues like-do we not have a moral obligation to prevent morally problematic situations? If so, what should be the regulatory mechanism and who should shoulder it? And if the reasons for rejecting morally troublesome technologies are not moral reasons, then what kind of reasons are they and why are they important? Should there be new ways in which technologies might be defended on moral grounds? There may be more issues, which may come up for the discussion. The point is we should tap this occasion to go into the matter.

Invited Talk

FOOD AND HEALTH IN ANCIENT SANSKRIT TEXT

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ABSTRACT

In the present era of 21st century where development is taking place at a tremendous speed, changes in our lifestyle specially eating habits, have created many problems for our environment and also for us. We are conscious for our health and follow the theories of medical science. We generally consume nutritious food, but we are reducing resistance power and are more dependent on medicines. At this moment when we are in a search for a solution to this problem, the concepts regarding food and health in Sanskrit literature can play vital a role. Following

points have been emphasized in this paper -

a. There are many references, which tell us about the various features and nature of food and its impact on our mind.

b. Medical science gives importance to food rich in calories and to a balanced diet according to the age, sex, physique and working conditions of the person. But Ayurveda also emphasises on the digestive power (Agnibal).

c. We generally emphasis on physical health rather than mental health.

The Chandogya Upanishad 6/5/1-4 states "Aharashuddhau sattvashuddhi". Gita and Kalki purana says that the food is of three types-Sattvika,Rajasika and Tamasika. The Chandogya Upanishad states that the food when eaten becomes three fold, its grossest portion becomes faeces, its middle portion becomes flesh and its subtlest portion becomes mind. As the mind contains subtlest essence of the food the mind is known as annamaya i.e.Annamayam hi somya manaha, Chandogya Upanishada 6-6-5. There are many references, which tell us about the various features and nature of food and its impact on our mind. People usually give importance to the food rich in calories and to a balance diet according to the age, sex, physique and working conditions of the person. But concepts regarding food and health in Ayurveda also emphasis on the digestive power (Agnibal) and tendency of the person -Vata Pitta and Caff.

For example -a person suffering from Vata Vikar should not consume milk, an important element of the balanced diet. In Sushrut Samhita health is described as the Samyavastha of body, mind and soul. Therefore health means not only physical but mental health also. Influenced by these lines world health organization defined health as-

Health is the physical, mental, social well being of man and not merely the absence of disease or infirmity. Upanishads, Gita, Ayurveda, Yoga philosophy etc. provides us various ways for attaining mental health, which leads to spirituality. The various characteristics of "Isthitpragya" in Gita help us to determine a good mental health. Role and contribution of Sanskrit literature in solving mental problems and getting good mental health is undoubtedly established.

I feel that we have fully ignored the concepts of Sanskrit literature regarding food and health. Our food should be Sattvik and we should practice Yam and niyam-"the sarvabhomavrat"for mental health and Asana Pranayam for good physical health .

Key Words : Yoga, Ayurveda, Sanskrit literature, Sattvik, Upanishad.

Invited Talk

SCIENCE & TECHNOLOGY -- AT THE DOORSTEP OF THE FARMER

(SUCCESS STORY OF GUJARAT COOPERATIVE MILK MARKETING FEDERATION, ANAND)

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ABSTRACT

Recent development in the science & Technology has brought the revolution in the agriculture, which resulted into high yield of grains, milk and fish production. There are several aspects to be taken into consideration viz. Vast gamut and state of research in Science, benefits of scientific research for key sectors, Indian agriculture - dimensions and importance, white Revolution launched at ANAND in Gujarat.

Invited Talk

BIOLOGICAL ACTIVITY OF ESSENTIAL OILS : AROMA THERAPY FOR CHOLESTERIC HEALING

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ABSTRACT

Aroma therapy is the use of essential oils for therapeutic purpose. Essential oils are volatile, secondary plant metabolites which mainly consist of terpenoids and Benzenoids. Research in the later half of 20th century have revealed that many curative properties are seen in plants which are of great use in indigenous medicine . . These oils have number of general effects from the pharmacological view point. Aroma therapy by essential oils and their isolates is being studied as an emerging trend of treatment for some physiological disorders when applied locally. The essential oils mixed readily with skin oils allowing to attack the infective agents healq uickly and advisedly.

Drugs of some essential oils based on folklore, experiences and claims of aroma therapist and scientific studies have been summarized in this review. (In vitro studies) were under conduct by the author on antimicrobial and anthelminthic properties of some essential oils which have also been discussed.

Invited Talk

ESTIMATION OF D-GLUCOSE BY KINETIC METHOD : A CHEMISTRY EDUCATION STUDENT'S PROJECT

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ABSTRACT

Kinetic estimations are now well established and rated high amongst the most important modern trace analytical procedures for different types of samples. These methods are simple in approach and highlights many important under graduate concepts of chemical kinetics. Student's project has become an integral part of the present day under graduate curriculum. There are various under graduate laboratory experiments of colorimetric estimation of organic bio- molecules including carbohydrates. An attempt has been made to use this experience of students to develop into present day research area of kinetic estimations.

The student's project includes the following learning stages

* Theoretical knowledge of concepts involved in kinetics and analytical chemistry
* Practical details of kinetic data procurement and its treatment
* Statistical evaluation of results to check their reproducibility
* The development of preliminary observations of the project into full fledged research prgramme.
* Extension of the results obtained for the simulated samples into the estimation of real samples.

In the present case electron transfer reaction of D-glucose with cerium (IV) in acid medium has been selected as indicator reaction The results of estimation of D-glucose in simulated and real samples have been obtained to illustrate that how a simple routine under graduate experiments can be adapted into modern time research method.

Invited Talk

CURRENT PERSPECTIVES IN ENVIRONMENTAL PSYCHOLOGY: SOCIAL IMPLICATIONS

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ABSRACT

Environmental concerns should be a priority in modern science education as a duty to the society. One has to socialize the child to understand the problems of day-to day living relevant to the following environmental issues, namely

* Water conservation… minimum consumption of water
* Pollution.. reducing the individual contribution in vehicles
* Keeping public and neighbourhood premises unlittered

* Respecting personal space.. spatial management among crowded places
* Creating user friendly environments for conveneience to the consumers.
* Managing disasters through environmental interventions
* Providing for maximum task efficiency through congenial work surroundings
* Thoughtful utilization of recreational resorts
* Creating gardens, planting trees, supporting green ventures
* Providing psychologically helpful educational, health and industrial environments

The paper addresses the issues with an emphasis on the scientific understanding that should accompany these concerns. This requires the attitude of comfort & convenience of executing tasks, the comprehension of scientific bases of the activities related to plantation, water conservation, disasters, and work environments, and the actual planning of the environment- friendly action plans. It is important that the orientation not only generates awareness of the dangers of environmental neglect but also educates towards finding remedies and prevention of subsequent problems.

Section of Physical Sciences

CHIRAL ANALYSIS OF DRUGS AND PHARMACEUTICALS IN WATER BY HPLC

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ABSTRACT

Several organic compounds are present in our water resources which exist in dynamic equilibrium with sediments. Among them are drugs, pharmaceuticals, xenobiotics and pollutants residues. Many of these residues are chiral and their metabolites or degradation products are also chiral in nature. Therefore, the determination of chiral ratio of these species is required to predict the exact toxicities of the drug.

The present article describes the chiral analyses of drugs and pharmaceuticals residues and their chiral degradation products using HPLC technique in the environmental i.e. water samples.

Key Words : Chiral Analyses, Drugs, Pharmaceuticals, Water, HPLC

Section of Physical Sciences

PROTECTIVE ROLE OF - LIPOIC ACID AND VITAMIN C AGAINST ARSENIC INDUCED OXIDATIVE STRESS IN MICE

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ABSTRACT

Arsenic, one of the most hazardous substances in the environment and is known to cause toxicity in multiple organs via generation of oxidative stress. The molecular basis for arsenic toxicity involves direct or indirect damage to protein, lipid and DNA. Several studied have focused on possible toxic effects on membrane components and have identified a correlation between these effects of arsenic induced oxidative damage.

The study was aimed to evaluate arsenic induced oxidative stress and apoptosis in brain following chronic exposure in mouse and also the protective efficacy of co-administrating with two naturally occurring antioxidants (-Lipoic acid and vitamin C) either individually or in combination. Thirty male mice were exposed to arsenic alone as well as with (-Lipoic acid (10mg/kg) and vitamin C either alone or in combination. We observed a significant increase in lipid peroxidation, intracellular calcium, ROS and caspase activity while significant decrease in antioxidant enzymes and ATPase activity on arsenic exposure in mice.

These alterations were marginally restored by co-administration of vitamin C and -Lipoic acid individually while significant recovery was observed in the animals supplemented with both the antioxidants together with arsenic in mice.

The results indicate that arsenic induced oxidative stress can be significantly protected by co-administration of -Lipoic acid and vitamin C individually but the best effects could be observed with combined administration of two antioxidants during arsenic exposure in animals.

Key Words : Arsenic toxicity, -Lipoic acid, vitamin C, oxidative stress, antioxidants

Section of Physical Sciences

EFFECTS OF OCCUPATIONAL EXPOSURE ON HEALTH IN CRICKET BAT MANUFACTURING WORKERS OF KASHMIR.

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ABSTRACT

The Cricket Bat industry in Kashmir is already employing over 10,000 people and collectively exports nearly a million bats per year at a price ranging from Rs 100 - 700 per bat. Safe and healthy working conditions healthy are the interest of workers, although it seems simple yet, this idea has not gained meaningful recognition in Kashmir.

The study has been conducted in ten Cricket Bat industries of Kashmir valley. Altogether 150 questionnaires were circulated to assess the health risk factors of these workers. Noise level, temperature and dust concentration in air was measured with the help of Sound level meter, Thermo- hygrometer and Handy air sampler respectively.

The responses of 150 workers of these industries indicate that majority of these workers (87%) are illiterate. The majority of workers are experiencing health problemss like eye irritation (78%), injuries (76%), difficulty in hearing (76%), back pain (74%), respiratory problems (66%) and general Weakness (64%),

The health and working conditions of workers in Cricket Bat industries in Kashmir have been found to be unsatisfactory. Every worker on an average suffers from 3-4 health risk factors.

Key Words : Cricket Bat industry, employment, health risk factors, Kashmir.

Section of Physical Sciences

HETEROBIMETALLIC COMPLEXES OF DTPA : EQUILIBRIUM STUDIES

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ABSTRACT

Equilibrium studies of some heterobimetallic ternary complexes of diethylene triamine penta acetic acid (DTPA) has been carried out potentiometrically in the biologically relevant condition . In the present paper the result of Pb-Ni-DTPA system are discussed. Pb and Ni are chosen for the reason that they have adverse /toxic effect on human body and the intake of these metals from enviorment is quite likely . DTPA complexes have been utilized in decarporating some of the toxic metal ions from the body of exposed animals . Hence a thorough knowledge of such equilibria can serve as a tool to decide the specific condition for the formation of such complexes in vivo.

Key world : Heterobimetallic, Diethylene triamine penta acetic acid

Section of Physical Sciences

LINEAR ALKYL BENZENE SULPHONATE BEHAVIOR IN VERTISOLS IN RELATION TO DETERGENT POLLUTION

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ABSTRACT

Eight (8) detergent powder's purchased in Indian markets were tested for Linear Alkyl Benzene Sulphonate concentrations. An experiment was setup for analyzing the Linear Alkyl Benzene Sulphonate in short term LAS treated vertisols in pots & it was found that after 30 days period greater than 90% of LAS was removed.

The Biodegradability of anionic surfactant LAS was determined in soil samples collected from (1) Detergent treated plots. (Having plantation of lady finger & soybean) (2) and also in long term sewage treated plots at two depths i.e. 0-15 cm and 15-30 cm. The rates of biodegradation were determined by Methylene-Blue active substance method.

Key words : Linear Alkyl Benzene Sulphonate, Vertisols, Biodegradation, sewage, Detergent, Methylene Blue-Active substance method.

Section of Biosciences

PREDICTION OF MHC CLASS BINDING NONAMERS FROM MUNGBEAN YELLOW MOSAIC VIRUS-VIGNA

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ABSTRACT

The geminiviridae coat protein (CP) causes systemic infections in vigna plants leading to important growth reductions and yield losses. Peptide fragments of coat protein can be used to select nonamers for use in rational vaccine design and to increase the understanding of roles of the immune system in infectious diseases. Analysis shows MHC class II binding peptides of coat protein from Mungbean yellow mosaic virus-Vigna (MYMV) are important determinant for protection of many plants form viral infection. In this assay we predicted the binding affinity of MYMV coat protein having 257 amino acids, which shows 250 nonamers.

These peptides are from a set of aligned peptides known to bind to a given MHC molecule as the predictor of MHC-peptide binding. MHCII molecules bind peptides in similar yet different modes and alignments of MHCII-ligands were obtained to be consistent with the binding mode of the peptides to their MHC class, this means the increase in affinity of MHC binding peptides may result in enhancement of immunogenicity of coat protein nonamers. Binding ability prediction of antigen peptides to major histocompatibility complex (MHC) class I & II molecules is important in vaccine development from MYMV.

Key words : Antigen, Epitope, PSSM, SVM, MHC, Peptide vaccine

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Section of Biosciences

EFFECT OF INCREASING BMI ON LIVER FUNCTION

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ABSTRACT

WHO: Expert Committee Recommended that obesity is emerging as world wide epidemic. Present study describes the effect of increasing Body Mass Index (BMI) on liver function. This study is based on 50 healthy and 190 obese subjects of age group 20-50 years. Obese subjects were selected on the basis of BMI and were divided into three categories according to BMI viz overweight, obese and morbid obese. These were further divided on the basis of gender. Serum Alanine aminotransferase (ALT) and Aspartate aminotransferase (AST) level were estimated. It was observed that serum ALT level of control male was 26.67+6.5IU/L and of control female was 22.73+7.5 IU/L. Serum ALT level in overweight, obese and morbid obese males were 32.73+13.2(p value>0.10), 1.45+13.5(p value>0.0005) and 72.19+14.05 IU/L (p value>0.0005) respectively and in overweight, obese and morbid obese

females were 43.47+18.33(p value>0.005), 44.59+12.31p value>0.0005) and 72.96+11.2 IU/L(p value>0.0005). Serum AST level in control, overweight, obese and morbid obese males were 12.27+8.17, 15.97+7.46(p value>0.10), 17.1+8.19(p value>0.10) and 27.51+7.58IU/L (p value>0.0005) and in females were 18.93+8.65, 20.56+9.52(p value>0.10), 25.57+12.57(p value>0.10) and 45.45+7.11IU/L(p value>0.0005) respectively.

Thus in females, with increase in BMI the level of ALT also increase eventually. Similarly males also show increased ALT level with increase in BMI.However in overweight males rise in ALT level is not significant. While comparing the AST level it was found that significant variation occur only in morbid obese males and females, which may be due to liver dysfunction.

Key Words : Obesity, Overweight, Morbid Obese, Alanine Aminotransferase, Aspartate Aminotransferase.

Section of Biosciences

MAPPING OF MHC CLASS BINDING NONAMERS FOR FRAGMENT BASED VIRAL PEPTIDE VACCINES FROM TOMATO MOSAIC VIRUS

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ABSTRACT

Prediction of the binding ability of antigen peptides to major histocompatibility complex (MHC) class molecules is important in vaccine development. The variable length of each binding peptide complicates this prediction. Such predictions can be used to select epitopes for use in rational vaccine design and to increase the understanding of roles of the immune system in infectious diseases. Antigenic epitopes of coat protein form Tomato mosaic virus are important determinant for protection of many plants form viral infection.

This study shows active part in host immune reactions and involvement of MHC class-I and MHC II in response to almost all antigens. We also found the SVM based MHCII-IAb peptide regions 103-PTTAETLDA, 52-VWKPFPQST, 57-PQSTVRFPG, 64-PGDVYKVYR, (optimal score is 1.234); MHCII-IAd peptide regions 81-ITALLGAFD, 125-AINNLVNEL, 80-LITALLGAF, 143-NTFESMSGL, (optimal score is 0.779); MHCII-IAg7 peptide regions 72-RYNAVLDPL, 65-GDVYKVYRY, 16-SVWADPIEL, 117-DATVAIRSA, (optimal score is 1.534); and MHCII- RT1.B peptide regions 104-TTAETLDAT, 43-TTVQQQFSE, 36-FQTQQARTT, 35-QFQTQQART, (optimal score is 1.863) which represented predicted binders from viral coat protein.

These peptide nonamers are from a set of aligned peptides known to bind to a given MHC molecule as the predictor of MHC-peptide binding. Analysis shows potential drug targets to identify active sites against diseases.

Key Words : Antigen, Epitope, MHC, Peptide vaccine.

Section of Bioscience

INVESTIGATION ON SUBCULTURE CYCLE ON IN VITRO SHOOT REGENERATION FROM NODAL EXPLANT OF *ALBIZIA PROCERA* (ROXB.) BENTH.

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ABSTRACT

An experiment was set to investigate the in vitro regeneration potential of collected nodal explants of Albizia procera (Roxb.) Benth, with the lapse of subculture cycles, in a simple randomized design. Nodal explants were collected from four mature trees (genotypes) and maintained on MS semisolid medium (0.8% agar and 3% sucrose) supplemented with 5 µM BA and 1 µM IAA for initial three subculture cycles and subsequently on 5µM BA only until the last sub culture cycle.

The in vitro regeneration of shoots was recorded at one month interval (i.e. duration of one sub culture cycle) for a period of 10 months (10 subculture cycles). For initial three subculture cycles, the in vitro shoot regeneration from collected nodal explants was recorded to be the highest but declined in subsequent subculture cycles.

Thus, the collected nodal explants of A. procera can be perpetually used for three subculture cycles for regeneration of shoots for various in vitro investigations.

Key Words : BA, Genotypes, IAA, Mature trees, Sub culture cycle

Section of Biosciences

OBESITY INDUCED CHANGES IN LEVEL OF ALP AND ACP

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ABSTRACT

Obesity is a common nutritional disorder of present era .It significantly requires constant emphasis because it is associated with increased mortality predisposed to the development of chronic disease.

Obesity is increased due to environmental factors such as more eating and less exercises and other factors such as stress.

There are many evidences that increased body fat content affects activity of many serum enzymes, here we have studied serum alkaline phosphatase and acid phosphatase activity in obese. In our study 50 healthy and 190 obese subjects were selected on the basis of Body Mass Index (BMI).

Serum alkaline phosphatase (ALP) and serum acid phosphatase (ACP) were estimated in all these groups. It was observed that ALP level of control males was 170 16.58 U/l and control females was 158.2 28.8 U/l. Serum ALP level in over weight, obese and morbid obese male is 249.6 25.9, 294.4 20.8 and307 5.05 U/l respectively.

Serum ALP level in over weight, obese and morbid obese female is 2.29 15.3, 248.57 26.11 and 293.4 71.5 U/l respectively. Serum ACP level in control males and females is 1.67 1.16 and 2.02 0.72 KA/dl respectively. Serum ACP level in over weight, obese and morbid obese in males is 2.6 1.75, 3.61 1.48 and 6.45 2.27 KA/dl respectively and in females 2.29 1.22, 3.5 1.38 and 7.74 0.82 KA/dl respectively.

Our present study demonstrates that serum ALP level significantly increases with increase in BMI that it shows the obesity-induced changes in the liver.

Key Words : BMI, Obesity, Alkaline Phosphatase, Acid Phosphatase, Prostate Gland.

Section Biosciences

ALLELOPATHIC EFFECTS OF *Parthenium hysterophorus L. ON* CHLOROPHYLL CONTENT OF PIGEON PEA.

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ABSTRACT

An investigation was carried out to study the allelopathic effects of a common weed Parthenium hysterophorus L. on a crop plant - pigeon pea (Cajanus cajan L.). The effect was studied by determining the chlorophyll content of the crop plant as affected by the leachates of the weed.

The leachates were sprayed on the crop plant . The allelopathic effect was also studied by growing the crop plants in the vicinity of *Parthenium hysterophorus L.* plants. The effect was studied on chlorophyll content of the crop plants in both the cases.

The chlorophyll content was determined initially and then after every 15 days till the initiation of flowering (105 days). It was found that in the spray treated plants the chlorophyll content decreased considerably. The decrease in chlorophyll content was evident in the initial stages and this decrease continued till the end.

These results obtained through spraying of leachates are supported by the experiment carried out by growing the weed and crop plants in the vicinity of each other.

Key Words : Allelopathy, *Parthenium hysterophorus*, pigeon pea, chlorophyll, vicinity.

Section of Bioscience

AN IMPROVED PROTOCOL FOR RAPID, EFFICIENT AND HIGH FREQUENCY REGENERATION OF *GLYCYRRHIZA GLABRA L.*

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ABSTRACT

This paper presents procedures for rapid, efficient and high frequency regeneration of a *Glycyrrhiza glabra L.* using young leaf and shoot tips explants via callus mediated shoot regeneration. This was achieved on MS medium fortified with BAP and NAA within four weeks of inoculation. Normally, shoot tip explants gave rise to 3-4 shoots with organogenic callus, while leaf explant was found to be highly amenable to in vitro callus culture.

A high yield of shoots (18 and 24 shoots per explant) was achieved by sub culturing the in vitro raised shoots tip and leaf segment on the medium supplemented with BAP (5.0 mgl-1) and NAA (1.25 mgl-1). This medium proved to be more effective for callus mediated shoot regeneration. On an average, within a period of three subcultures, both, leaf and shoot tips explants generated 210, 84 shoots, respectively.

Elongation of shoots and subsequent root induction were achieved on MS (half basal) medium supplemented with NAA (1.0 mgl-1) or 2.0 mgl-1 IAA. Rooted plantlets were transplanted in potting mixture under controlled polyhouse conditions for hardening and acclimatization followed by their successful establishment in the field.

Key Words : *Glycyrrhiza glabra*, Mulethi, Liquorice, Tissue Culture, Micropropagation

Section of Bioscience

OPTIMISATION OF MEDIA AND FERMENTATION CONDITIONS FOR THE GROWTH OF *LACTOBACILLUS ACIDOPHILUS*

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ABSTRACT

The approach for obtaining microbial biomass with probiotic action has been examined. Firstly optimal conditions for cultivation of Lactobacillus acidophilus in a wheat bran based medium of different concentration (2%, 3%, 4%, and 5%) were presented & then cultivation at Lab-scale level for obtaining the viable biomass was established. The effectiveness of wheat bran to promote growth of Lactobacillus acidophilus cultures was evaluated by spectrophotometry. The lactobacilli biomass obtained under these conditions can be use for pharmaceuticals application.

Key Words : Probiotic, Biomass, Lactobacillus acidophilus, Wheat Bran.

Section of Physical Sciences

PREVALENCE OF THYROID DISEASE IN YOUNG GENERATION: A REVIEW OF BHOPAL RESEARCH

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ABSTRACT

The aim of this study is to know about thyroid problem, and to show its prevalence with clinical spectrum of thyroid disease in young generation of Bhopal district. Bhopal is known as city of lakes but unfortunately research evidence shows the contamination of soil, water, and ground water, vegetable and breast milk by a range of toxic chemicals present in alarming concentration, which affect, directly or indirectly health of men & women of Bhopal.

The function of the thyroid gland can be inhibited by a variety of chemical agents collectively referred to as goitrogens, because they suppress T3 & T4 hormone synthesis.Over a period of two year five month 600 cases were selected to make this study. They had a few symptoms of thyroid disease. All 600 cases were from different areas of Bhopal. They were selected by purposive sampling method to form this subject of study. Data was collected through interview and questionnaire technique. Signs &symptoms, Nutritional status, clinical investigation, and anthropometry measurement included in this questionnaire form. Statistical formulas are used for analysis of this research.

In this study, out of 600 cases 172 male cases and 428 female cases were selected. They were in the age group of 18 to 45 years. In this study, data shows that out of 600 cases 308 cases were detected with thyroid disease having strong symptoms, 180 with mild symptoms and 112 were found with undiagnosed thyroid having mild symptoms. This demographic result shows prevalence of this disease and the shocking report is that only 280 were aware and would like to treat this disease. : Thyroid disease is difficult to diagnose because symptoms are easily confused with other conditions. Untreated thyroid disease can lead to severe long term complications such as infertility, anemia, osteoporosis, diabetes and cardiac diseases. If thyroid is not treated properly long term major problem related to metabolism, absorption were seen in patients. Now- a- days thyroid disease is common in younger women which affect reproductive function. This probably only applies to severe cases of hyper- or hypothyroidism. Once adequately treated, neither of these disorders significantly impacts on fertility. Thyroid disease is a life long condition. With careful management of lifestyle, stress, dietary management and proper medication, people can live healthy normal lives.

Key Words : Thyroid, Osteoporosis, Goitrogens, Hypothyroid, Hyperthyroid.

Section of Bioscience

EVALUATION OF ANTICARCINOGENIC AND ANTIMUTAGENIC POTENTIAL OF *BAUHINIA VARIEGATA* BARK EXTRACT IN SWISS ALBINO MICE

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ABSTRACT

Bauhinia variegata Linn. (Kanchnar / Rakta kanchan), is a widely used medicinal plant by the tribals. In the present investigations, the anticarcinogenic activity of *Bauhinia variegata* bark extract was evaluated using two stage protocol in skin papillioma model in swiss albino mice. The antimutagencity of B. variegate bark extract was also evaluated using micronucleus and chromosomal aberrations test in swiss mice. In skin papilloma model, significant prevention, delayed in appearance and cumulative no. of of papillomas was observed in DMBA + B. variegate bark extract (500 & 1000 mg/kg body weight) + croton oil treated group as compared to DMBA + Croton Oil group. In antimutagenicity studies, single application of B. variegate bark ext at the dose of 125, 250 and 375 mg/kg dry weight, 24 hours prior the i.p. administration of cyclophosphamide (at the dose of 50 mg/kg) have significantly prevented the micronucleus formations and chromosomal aberrations in dose dependent manner in bone marrow cells of mice as compared to cyclophosphamide group. However, *B. variegata* bark ext alone has not induced significant micronucleus formations in bone marrow cells as compared to control group. The dose dependent protection was also observed in chromosomal aberrations in bone marrow cells of mice in *B. variegata* bark extract treated mice as compared to known mutagen, cyclophosphamide treated groups. Our results suggest the anticarcinogenic and antimutagenic activity of B. variegate bark extracts in skin papillioma model, micronucleus and chromosomal aberrations tests.

Key Words : *Bauhinia variegata* bark extract, chromosome, Mutagenicity. Micronucleus, skin carcinogenesis.

Section of Physical Sciences

LINEAR ALKYL BENZENE SULPHONATE BEHAVIOR IN VERTISOLS IN RELATION TO DETERGENT POLLUTION

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ABSTRACT

Eight (8) detergent powder's purchased in Indian markets were tested for Linear Alkyl Benzene Sulphonate concentrations. An experiment was setup for analyzing the Linear Alkyl Benzene Sulphonate in short term LAS treated vertisols in pots & it was found that after 30 days period greater than 90% of LAS was removed. The Biodegradability of anionic surfactant LAS was determined in soil samples collected from (1) Detergent treated plots. (Having plantation of lady finger & soybean) (2) and also in long term sewage treated plots at two depths i.e. 0-15 cm and 15-30 cm.

Key words : Linear Alkyl Benzene Sulphonate, Vertisols, Biodegradation, sewage, Detergent, Methylene Blue-Active substance method.

Section of Biosciences

UTILIZING BIOINFORMATIC AND GEOINFORMATIC CRITERIA IDENTIFIED BY AN EFFICIENT AERIAL IMAGE PROCESSING INVESTIGATION SOFTWARE FOR AN ECOSYSTEM PROTECTION ON ZAKYNTHOS ISLAND

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ABSTRACT

This paper presents the efficient utilization of bioinformatic and geoinformatic criteria in order to save careta-careta at Laganas bay by an old landfill emissions. Several criteria are investigated for an economic sitting of a sustainable solid waste landfill based on biomass biodegradation principles provided by associated bioinformatic computational modules. Moreover, geoinformatic tools are used so as to protect local inhabitants and anthropogenic resources. An economic proposal is made so as to move the old site and to locate a temporary new batch unit for treatment of old landfill waste quantities in short time period avoiding any long term chemical threats. Moreover, aerial photographs are utilized for the application of aerotriangulation in order to develop a digital terrain. Useful conclusions are made for the proper investigation and continuous improvement of a sustainable landfill site.

Key Words : sustainable landfill biotechnologies, regional development, bioinformatics, digital image processing, geoinformatics, risk assessment, eco-designs, efficient lining methods for sustainable works.

Section of Biosciences

BIOLOGY AND MORPHOLOGY OF POMACE FLY, *DROSOPHILA MELANOGASTER* (MEIGEN) AN EXPERIMENTAL INSECT.

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ABSTRACT

The Biology and Morphology of the wild *Drosophila melanogaster* was studied under laboratory conditions. The adults were collected from rotten fruits and were observed for progeny/young ones. The larvae produced were transferred on artificial diet rich of yeast into separate Pitridishes (10 cm diameter). Fifteen larvae were released individually and various morphological events were recorded till their death. They were examined at 12h interval and growth of larvae, moulting into next instar and the larvae hatched by the eggs laid by per female were also recorded. Form this the duration of incubation period, total larval period, pre- reproductive period, adult longevity, reproductive period and fecundity were noted. The average of total duration of first, second and third instar was 7.00 ±0.39 days. Total pupal period was completed in 4 ±0.45 days, Pre-reproductive, reproductive and post-

reproductive period was 8-12 hours. The average fecundity was 361±0.66 larvae. The entire life cycle was completed in 11 - 15 days.

Key Words : - Biology, Morphology and *Drosophila melanogaster.*

Section of Biosciences

A STUDY OF EFFECTIVENESS OF COMPUTER ANIMATIONS AND ILLUSTRATIONS IN STUDENTS' ACHIEVEMENT IN MOLECULAR BIOLOGY

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ABSTRACT

Molecular biology is one of the cornerstones of modern biology. The study of molecular biology exposes students to a discipline that has applications in medicines, agriculture, forensic science and the pharmaceutical industries. However, molecular biology is generally regarded as very difficult to teach and to learn. In molecular biology, students are exposed to many concepts and processes at both the macro and molecular levels of organization. Students' difficulties in understanding concepts and processes in molecular biology emerge mainly on the molecular level as a result of the emphasis on minute details and abstract concepts.

This study integrates two leading research areas in science education today: students understanding of molecular biology and the use of computers in science education. The main objective of this study was to explore whether the use of computer animations and illustrations at senior secondary level can contribute to student's understanding of concepts and processes in molecular biology. Biological science students of class XII were divided into three groups- one control and two experimental groups. The control group students were taught molecular biology in the traditional lecture format, students of one experimental group were taught by using illustrations and the students of other experimental group by using computer animations. The results of pre and post-tests showed that students understanding of molecular biology improved substantially in both experimental groups. However, the open ended questions revealed that the computer animation activity was significantly more effective than the illustration activity, especially while teaching dynamic processes like replication, gene expressions etc. The findings also suggest that computer animations can serve as a vehicle for students to generate mental images.

Key Words : Molecular biology, abstract concepts, replication, gene expression.

Section of Biosciences

BIOPESTICIDES AND BIOFERTILISERS FOR SUSTAINABLE AGRICULTURE

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ABSTRACTS

This paper investigates the potential and constraints in the use of biopesticides and biofertilisers. It explores the factors responsible for the limited use of these agents, based on detailed discussions with a large number of farmers, various agencies engaged in the promotion of biopesticides and biofertilisers, State Agricultural Department officials, and shopkeepers. The study found that for the use of biopesticides, a key problem was that departments promoting Integrated Pest Management (IPM) have very little knowledge and experience of biopesticides, and most state agricultural universities, on whose recommendations pest control methods are promoted, do not tend to recommend biopesticides. In the absence of active promotion by the agriculture department, the demand for these products has not developed, and most private shops and dealers do not stock and sell biopesticides. In the case of biofertilisers, poor quality and performance is a major factor in their limited uptake by farmers. This is primarily linked to inappropriate strains and inefficient production technology. As a result, it is recommended that research and development to identify more suitable strains, to develop better production technology and quality control methods should be increased, and that in the mean time the various grants and subsidies on biofertilisers, should be diverted to support these R&D programme.

Key Words : Biopesticides., Biofertilizers.

Section of Biosciences

SEASONAL VARIATION OF SOIL INSECT MESO-FAUNA OF TAIMARA FOREST OF JHARKHAND

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ABSTRACT

Taimara is a pristine, dry deciduous sal forest of Jharkhand. It is located at the latitude of 23o18' N and longitude of 85o15'E on the Ranchi -Tata highway. An experiment was carried out in the year 2005-2008. About 4809 arthropods were collected in three different seasons from the forest floor during the study period. During winter 1237 arthropods were collected, which were placed in 12 taxonomic orders belonging to 37 different families, in summer 1403 arthropods were collected which were placed to 12 taxonomic orders, belonging to 35 different families and during rainy season 1825 arthropods were collected and were placed under 12 taxonomic orders belonging to 39 different families. Shanon -Weaver functions of the forest floor were 3.0851, 3.1609 and 3.1974 and

Simpsons index varied from 0.0939, 0.9496 and 0.9467 during winter, summer and rainy season, respectively. Jaccard Index of similarity between two seasons - winter-summer appeared to be 3 per cent; winter-rainy 2.7 per cent; where as summer-rains the value is 6.0606.

Key Words : Soil insects, mesofauna, Shannon diversity Index, Simpson Index.

Section of Biosciences

EFFECT OF SULPHUR DIOXIDE ON GRAM WITH SPECIAL REFERENCE TO THE MORPHOLOGICAL AND BIO CHEMICAL ASPECTS

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ABSTRACT

The effect of SO2 on chlorophyll and total free amino acids and growth of gram *(Cicer arietinum L.)* were investigated by exposing to 1 ppm of SO2. The experiments were carried out at central institute of Agricultural Engineering, Nabibagh, Bhopal (M.P) 1999. 1ppm of SO2 was given to twenty days old plants for thirty days. Results were noted for 30, 45, 60, 75, 90 days old plants. Total free amino acids and chlorophyll were quantified. Exposure of plants, developed visible injury symptoms and suffered growth reductions. Amount of chlorophyll depressed in the leaves due to SO2 fumigation. There is an increase in total free amino acids in the leaves of fumigated plants over control, respectively

Key Words : SO2, Chlorophyll,.

HYPOGLYCEMIC EFFECTS OF BENINCASA HISPIDA (ASH GOURD) IN STREPTOZOTOCIN INDUCED DIABETIC RATS

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ABSTRACT

The treatment strategies of diabetes mellitus include nutritional therapy, insulin injection, treatments with the various classes of oral hypoglycemic agents which could be synthetic or of herbal origin. The present study was designed to investigate the antihyperglycaemic effect of ethanolic extract of Benincasa hispida (Cucurbitaceae) fruit on normal and streptozotocin (STZ) diabetic mellitus(Type-1) rats. Diabetes was induced into male albino

Wistar rats by intraperitonial administration of STZ. The Benincasa hispida fruit extract (BHE) was administered orally at dose of 200 mg/kg body weight to normal and STZ-diabetic rats for 60 days. The diabetic rats showed an increase in levels of blood glucose and a decrease in the levels of insulin.. Treatment with BHE significantly decreased plasma glucose and increased the levels of insulin. Thus, the results show that BHE possesses an antihyperglycaemic activity and provide evidence for its traditional usage in the control of diabetes mellitus (type-1).

Key Words : Benincasa hispida, Diabetes, streptozotocin.

Section of Biosciences

SICK BUILDING SYNDROME AND INDOOR AIR QUALITY ITS EFFECT ON HUMAN LIFE

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ABSTRACT

Sustaining purity of air is a basic human right. Recently a keen public interest is shown in the "sick building syndrome" this is where the chemicals in construction materials such as formaldehyde and volatile organic compounds (VOC) affect the human body and cause symptoms such as Multiple Chemical Sensitivities (MCS). This problem is largely observed in new as well as refurbished buildings. This phenomenon is crucial as far as air quality in living spaces is considered and it has become one of the most important issues in the field of building environment and which needs to be addressed urgently.

People living in an architectural space are stimulated directly by the surrounding environment. They respond physiologically, psychologically and behaviorally to this environment in their daily life. The state of this environment is the source of stimuli, governs their condition of health and comfort. The environment is shaped in buildings and fixtures used in them so that the quality of these structures and furnishings strongly influence our health comfort ability and air quality are of no exception. The proportion of synthetic materials used in constructing and furnishing modern buildings particularly in urban areas has increased tremendously in the last decade. In the wake of modernization we need alternative materials and technology for creation of living spaces that are not only nontoxic but must be in tune in all ways with the natural environment of which they are a part. In order to keep indoor air quality pure, considerations must be given to the choice of construction materials and methods to ensure that any harmful substance does not contaminate the air and that appropriate air flow is secured by ventilation facilities and architectural methods. Considering the importance of pollution free space to live in, present paper endeavors to highlight the issue of contamination of indoor environment with reference to current architectural development. It discusses the sick building syndrome phenomenon and presents an analysis of chemical pollutants used in the building interiors and their effect on interior environment. It is aimed to critically examine the various sources of air pollution inside buildings and their effect on human body. Considering the need the creation of healthy living environment in future buildings it is an endeavor to suggest various preventive measures and remedies as far as the burning issue of degradation of environment is concerned in the present context.

Key Words : Living environment, sick, and syndrome, toxic, volatile.

Section of Biosciences

BIOTECHNOLOGICAL APPROCHES TO CONSERVATION OF ANURANS BIODIVERSITY

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ABSTRACT

Conservation is the most efficient and most beneficial utilization of the natural resources. Conservation of biological diversity is one of the most important challenges of the present and immediate future. Biological diversity includes genetic, species and ecosystem diversity. Two convenient approaches for conservation of biological diversity are in situ (in natural habitat) and ex situ (in zoological parks). Biotechnology is a latest and multidisciplinary field of Life science. Biotechnological approaches may play an important role in conservation of Anuran diversity.

Many techniques are involved in conservation of biodiversity such as animal tissue culture, cloning, gene therapy, gene library, homology modeling etc. Cloning may be used for preservation of the genotype of the anurans. With the death of an organism, a particular genotype is lost. The gene pool of such vulnerable and endangered anurans can be conserved by latest biotechnological techniques such as gene transfer, frozen zoo technique and cryopreservation of embryonic stages. Similarly, in Gene libraries, genomic DNA may be stored for possible use in genetic engineering and breeding experiments where anuran species become extinct. Homology modeling of anuran proteins may be designed for human welfare as well as for conservation of anurans. In the present paper, possibilities of use of recent biotechnological techniques for the conservation of anurans are traced.

Key Words : Anuran, Biotechnology, Biodiversity, conservation techniques, cloning, gene library.

Section of Biosciences

ENVIRONMENTAL IMPACTS OF MINING ON BUNDELKHAND REGION OF UTTAR PRADESH, INDIA

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ABSTRACT

Surface mining creates more pollution with respect to under ground mining. This paper highlights the impact of mining on air, water and human health in and around the mining areas of Jhansi district of Bundelkhand region. The mining activity comprising drilling, blasting, loading of waste, transport of overburden and crushing of ore is having considerable impacts on the environment and well being of living organism. Mining either by opencast or by underground methods damages the water regime and thus causes a reduction in the overall availability of water in and around the

mining areas. This study showed that the ground water and surface water was alkaline in nature. Mineral handling, mineral preparation and associated activities mainly contribute RSPM and SPM to the surrounding environment. The minimum and maximum value of RSPM and SPM was 155 g m-3 to 234 g m-3 and 393 g m-3 to 541 g m-3. High levels of suspended particulate matter increase respiratory diseases such as chronic bronchitis and asthma causing health hazards to the exposed population. Metals like Cu, Fe,Mn, Ni, Pb etc. shows the above permissible limits in water.

Section of Biosciences

ASSESSMENT OF DAMAGE CAUSED BY RODENTS IN DIFFERENT SHOPS IN SPECIFIED AREAS OF JAIPUR

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ABSTRACT

A survey was conducted in various shops in the vicinity of Raja Park, Adarsh Nagar and Jawahar Nagar areas of Jaipur to study the rodent species found in these areas and damage caused by them. These areas are thickly populated with large number of shops, godowns and residential plots. For the study four types of shops (vegetables, grocery, fruits and bakery) were selected in these areas. The shops were visited twice a week for six months. It was found during the visit that amount of item damaged in these shops varied from shop to shop and also from item to item.

Results of the study revealed that in vegetable shops rodents cause maximum damage to tomato (70%) followed by pea (55%) and cauliflower (35%), Capsicum was least preferred while no damage was found in raddish, bitter guard and shaljam. In grocery shops, among flours maximum damage (80%) was caused to wheat flour, followed by maida. Least damage was found in besan. In grains order of damage caused was Rice > Wheat > Black gram. In pulses moong dal was damaged in maximum quantity followed by chana dal, while no damage was found in urad.

In fruit shops maximum damage (60%) was found in papaya followed by banana (50%). Least damage was found in chiku. However, no damage was found in citrus fruits. In bakery shops maximum damage was caused to sweet biscuit (65%) followed by bread (50%) minimum damage was observed in salty biscuits.

Key Words : cauliflower, Capsicum, Raddish, Bitter guord and Shaljam.

Section of Biosciences

USE OF HERBICIDE (SODIUM ARSENITE) AS GROWTH SUBSTANCE A CRITICAL REVIEW

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ABSTRACT

. Potentiality of pollen germinability was noted in 14, 10, 13, 10, 11 series out of 20 series in each of the 5 species of the Solanaceae, Apocynaceae, Petunia grandiflora, Solanum melongena and Petunia axillaries respectively. Sodium aresenite suppressed the germinability of pollen in 0, 3, 8, 5, 2 series of the Solanaceae, Apocynaceae, Petunia grandiflora, brinjal, Petunia axillaries respectively. The herbicide stimulated the germination of pollen in 10, 5, 0, 0, 9 series of the Solanaceae, Apocynaceae, Petunia grandiflora, brinjal, Petunia axillaries respectively. Sodium arsenite stimulated the pollen tube growth in 2, 3, 1, 0, 0 series of the Solanaceae, Apocynaceae, Petunia grandiflora, brinjal, Petunia axillaries respectively. Inhibition in the germination of pollen was caused by sodium arsenite in 14, 7, 5, 5, 9 series of the Solanaceae, Apocynaceae, Petunia grandiflora, brinjal, Petunia axillaries respectively. Herbicide inhibited he pollen tube growth in 14, 7, 5, 5, 9 series of the Solanaceae, Apocynaceae, Petunia grandiflora, brinjal, Petunia axillaries respectively.

Key Words : Palynology, Hernicides, Environmental Science, Toxicology, Growth Substances

Section of Biosciences

PRESENT SCENARIO OF HERPETOLOGICAL RESEARCH IN RAJASTHAN

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ABSTRACT

Rajasthan, having a predominating state of arid and semiarid climate, presents favourable habitat for reptiles which are predominately terrestrial creatures. In the Thar Desert, situated western to the Aravalli mountain ranges, many field surveys were conducted by Zoological survey of India. Similarly, some districts of Northern and North-western Rajasthan were also surveyed by Zoological survey of India. In this regards, South-eastern and North-eastern regions of Rajasthan and Aravalli foothills were comparatively less investigated. Present paper deals with the past and present status and account of available literature and future prospect of herpetological research in Rajasthan state. According to earlier studies, 29 species (2 testudines, 14 lizards and 13 snakes) distributed in 23

genera and 12 families belonging to reptiles from this area. Very little data, specifically from Rajasthan, were found in literature surveyed so far.

Key Words : Herpetological research, Rajasthan, Thar Desert, Zoological survey of India, Snakes and lizards.

Section of Biosciences

EVALUATION OF HERBICIDE (MH) AS MALE GAMETOCIDE ON MUNG AND SALGARE'S METHOD OF PLANT BREEDING - A CRITICAL REVIEW

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ABSTRACT

Potentiality of the germinability of pollen of Phaseolus aureus Roxb. (var. J-781, mung) was noted in all the 4 series i.e. F, F-24, F-48, F-72 series investigated. Pollen of F-24 and F-48 series produced higher percentage of the germination with the longer tubes than those of F series. Foliar applications of all the concentrations (5, 10, 25, 50, 100, 200-200-1000, 1000-1000-5000 mg/ml) of maleic hydrazide (1, 2-dihydropyridazine, 3-6-dione) failed to suppress the cent percent pollen fertility. However, all the concentrations of MH above 400 mg/ml prevented the germination of the pollen of all the 4 series investigated. When there is no germination of pollen the question of the transfer of male gametes to the female gametophyte doe not arises and when there is no transfer of male gametes to the female gametophyte the question of the fertilization and seed setting does not arises. Hence instead of suppressing the pollen fertility which is not possible even with such a high concentrations of MH we should suppress the germinability of pollen with such a low concentrations which give the birth to the new method of plant breeding - 'Salgare's Method of Plant Breeding.'

Thus it is confirmed that the pollen development and activity are more sensitive indicators of adverse factors in the botanical environment and the use of an entire vascular plant (Berg, 1973; Brandt, 1974; Vick and Bevan, 1976; Rasmussan, 1977; Navara, Horvath and Kaleta, 1978; Mhatre, 1980-Ph.D. Thesis; Mhatre, Chaphekar, Ramani Rao, Patil, Haldar, 1980; Shetye, 1982-Ph.D. Thesis and Giridhar, 1984-Ph.D. Thesis) as an indicator of pollution is a very crud method and rather a wrong choice. There is no evidence of any entire vascular plant exhibiting this much degree of sensitivity.

Key Words : Genetics and Plant Breeding, Palynology, Crop Physiology, Herbicides.

Section of Biosciences

CONSERVATION VALUES AND CONSERVATION MANAGEMENT OF SAMBHAR SALT LAKE, RAJASTHAN (INDIA): AN IGNORED RAMSAR SITE OF ASIA

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ABSTRACT

The present study is a major part of an ongoing research work and data collected in the years 2006-08 with inputs from direct sightings during extensive field studies pertaining to the faunal diversity, especially the avifauna and other relevant information collected from the available literature and through interviews with local people and employees of Sambhar Salts Limited. Sambhar Lake is a biodiversity rich wetland, of which avian species (both resident and migratory) form the major bulk. The study was carried out in the context of Lake's current conservation status and planning for its conservation. Researches over many years reveal that, Sambhar Lake and its surroundings have been in the process of rapid degradation particularly during the current decade. The lake water spread has actually significantly reduced amidst existing potential threats. Illegal over exploitation of lake water for salt extraction, deforestation and ensuing degradation of agricultural land, deteriorating ecology and loss of waterfowl habitat are the major concerns, which need to be tackled immediately. It is very well established that, salt making processes have a detrimental effect on the lake's ecosystem, therefore, the areas having such activities are to be given highest priority for conservation together with the salt affected land and the dry lake bad, which is essentially required for waterfowl conservation. This study suggests that, dividing the entire eco-sensitive area (the Lake and its catchment area) into three priority zones for carrying out conservation planning would be of great assistance in restoring this Ramsar site. The areas, which require immediate attention for conservation, fall into the first zone and includes waterfowl habitat too. The second category is an intermediate area and covers the water shade. The land covered by dry deciduous forests and other altered land use patterns in the catchment of the Lake constitute the third and the outermost zone which may be considered for prioritization after the first zone has been handled. It is also suggested that, proper and scientific monitoring and implementation of laws in their strictest sense are a must to check the increasing anthropogenic pressure. It is expected that, the result derived from this study will be very useful in chalking out management plans for conservation of the lake which is really under serious threats of a diverse nature. It is unfortunate that, the planning for eco-restoration of the lake and the catchments under its recently acquired status of conservation reserve is still under consideration at the end of the stakeholders.

Key Words : Sambhar Lake, catchment area, Ramsar site.

Section of Biosciences

FRAGMENT BASED PREDICTION SYNTHETIC VACCINE FROM SCORPION TOXIN

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ABSTRACT

Mesobuthus tamulus involved multiple antigenic components to direct and empower the immune system to protect the host from infection. MHC molecules are cell surface proteins, which take active part in host immune reactions and involvement of MHC class in response to almost all antigens and it give effects on specific sites. Predicted MHC binding regions acts like red flags for antigen specific and generate immune response against the parent antigen. So a small fragment of antigen can induce immune response against whole antigen. This theme is implemented in designing subunit and synthetic peptide vaccines. The sequence analysis method is allows potential drug targets to identify active sites, which form antibodies against or spider venom infection. The method integrates prediction of peptide MHC class binding; proteosomal C terminal cleavage and TAP transport efficiency. Antigenic epitopes of Neurotoxin protein are important antigenic determinants against the various toxic reactions and scorpion venom infections.

Key Words : neurotoxin, MHC, SVM, PSSM, Epitope, synthetic vaccine

Section of Biosciences

ENZYME PRODUCING BACTERIAL FLORA ISOLATED FROM DIGESTIVE TRACT OF FRESH WATER TELEOST *Catla catla*(HAMILTON)

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The ability of fish to use nutrients depends on the factors like the synthesis of appropriate enzymes, enzymes producing microbial flora and enzyme production in suitable amounts. An understanding of the digestive enzyme profile perhaps can be the clue to understand and explain the digestive processes operating in fishes, with different feeding conditions. Therefore, the present studies have been conducted to investigate the digestive enzyme activity, and enzyme producing microflora from the gastrointestinal tract of commercially important Indian major carp, *Catla catla* collected from wild and cultivated ponds. Gut content analysis of the fish was carried out to ensure the feeding habits of fish, which revealed that the fish is predominantly zooplanktophagous irrespective of the culture system in which it is cultured. The studies revealed the specific activities for amylase, cellulase and protease enzymes in the gut of *Catla catla.* Protease activity was significantly high ($P<0.05$) in the group of fishes collected from cultivated ponds, whereas cellulase activity was high in the group of fishes collected from wild ponds. No

significant (P>0.05) variations were there in case of amylase activity. Considerable population of specific proteolytic, amylolytic, cellulolytic and lipolytic bacteria were observed. Colony forming units g-1 of intestine revealed the highest population of bacteria grown on peptone gelatine agar media plates (proteolytic bacteria) followed by starch agar plates (amylolytic bacteria), carboxy methyl cellulose agar plates (cellulolytic bacteria) and tributryin agar plates (lipolytic bacteria). The studies further revealed the significant contribution of microbial organisms of the digestive tract of fish towards production of proteolytic, amylolytic, cellulolytic and lipolytic enzymes in addition to their endogenous source as revealed by the extracellular enzyme activity of selected eight isolates CG1- CG8. The presence of these bacteria even after 24h of starvation clearly revealed that there exists a persistent bacterial population in the fish gut. These enzymes producing microorganism isolated from the fish digestive tract in present studies can be beneficially used while formulating diet for fish which would result in improved digestibility and growth leading to sustainable aquaculture.

Key Words : *Catla catla*, Gut enzymes, Enzyme producing microflora,Extra cellular enzyme production, sustainable aquaculture.

Section of Biosciences

HYPOGLYCEMIC EFFECTS OF *Benincasa hispida* (ASH GOURD) IN STREPTOZOTOCIN INDUCED DIABETIC RATS

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ABSTRACT

The treatment strategies of diabetes mellitus include nutritional therapy, insulin injection, treatments with the various classes of oral hypoglycemic agents which could be synthetic or of herbal origin. The present study was designed to investigate the antihyperglycaemic effect of ethanolic extract of *Benincasa hispida* (Cucurbitaceae) fruit on normal and streptozotocin (STZ) diabetic mellitus(Type-1) rats. Diabetes was induced into male albino Wistar rats by intraperitonial administration of STZ. The *Benincasa hispida* fruit extract (BHE) was administered orally at dose of 200 mg/kg body weight to normal and STZ-diabetic rats for 60 days. The diabetic rats showed an increase in levels of blood glucose and a decrease in the levels of insulin.. Treatment with BHE significantly decreased plasma glucose and increased the levels of insulin. Thus, the results show that BHE possesses an antihyperglycaemic activity and provide evidence for its traditional usage in the control of diabetes mellitus (type-1).

Key Words : *Benincasa hispida,* Diabetes, streptozotocin

Section of Biosciences

CHLOROPHYLL, PROTEIN CONTENT OF SOME TERESTRIAL PLANTS OF MANDIDEEP INDUSTRIAL AREA AS INDICATOR OF AIR POLLUTION

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ABSTRACT

Mandideep industrial area is situated about 22 k.m. away from Bhopal city. In this industrial area 150 different types of industries are established, like cables and conductors fabric, electrodes, pharmaceuticals company, rolling mills, food industries etc. All these industries produce many types of particulate pollutants. These pollutants have caused damage to flora, fauna and environment. We have investigated the effect of particulate pollutants on the chlorophyll contents and have also estimated the weight of dust deposition on Cassla fistula (L.) and Eucalyptus citriodora (L.). The parameters observed monthly for comparison between polluted and control zones (Ahmadpur nursery). The chlorophyll contents of fresh leaves were estimated by spectrophotometer. In the present study, an attempt has been made to establish the relationship between air pollution and the protein contents in a few plants growing in the vicinity of industrial area Mandideep. The leaves of the plants passes various visible injury symptoms and were dusted with flyash particulates. The protein contents were also reduced significantly in the same locality. The reduction in total proteins can be used as indicator of air pollution.

Key Words : Protein Content, Air pollution, Bioindicators of Air Pollution, Phenology, Chlorophyll content.

Section of Biosciences

FUNCTIONAL ANALYSIS OF CATALYTICALLY ACTIVE VIRAL COAT PROTEIN OF PAPAYA LEAF CURL VIRUS (PALCV)

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ABSTRACT

Functional analysis of the binding ability of antigen peptides to major histocompatibility complex (MHC) class molecules is important in vaccine development, but variable length of each binding peptide complicates this prediction. This assay can be used to select epitopes for use in rational vaccine design and to increase the understanding of roles of the immune system in infectious diseases. Antigenic epitopes of coat protein form Papaya leaf curl virus (PaLCV) are important determinant for protection of many plants form viral infection. This study shows active part

in host immune reactions and involvement of MHC class-I and MHC II in response to almost all antigens. We also found the SVM based MHCII-IAb peptide regions 30- RAAAPIVRV, 13- PASKVRRRL, 126- IKTKDHTNS, 42- KAWANRPMN, (optimal score is 1.055); MHCII-IAd peptide regions 225- NALMLYMAC, 131- HTNSVMFFL, 235- HASNPVYAT, 181- KWHATVTGG, (optimal score is 0.580); MHCII-IAg7 peptide regions 27- YVSRAAAPI, 28- VSRAAAPIV, 37- RVTKAKAWA, 25- SPYVSRAAA, (optimal score is 1.833); and MHCII- RT1.B peptide regions 187- TGGQYASKE, 222- HSENALMLY, 131- SFESRHDIQ, 235- HASNPVYAT, (optimal score is 0.655) which represented predicted binders from viral coat protein. These peptide nonamers are from a set of aligned peptides known to bind to a given MHC molecule as the predictor of MHC-peptide binding. Analysis shows potential drug targets to identify active sites against diseases.

Key Words : Antigen, Epitope, MHC, Peptide vaccine

Section of Biosciences

ROLE OF COLLEMBOLA (INSECT-APTERYGOTA) IN SOIL POLLUTION

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ABSTRACT

The study is based on the role of *Collembola* in soil pollution. The soil has been polluted by mixture of various artificial chemical compounds even in distance area from industrial activity. The soil of the study area is red with patches of red and black mixed soil, with semi-rocky substratum at places. Its texture is sandy clay loam to sandy clay and its nutrient status low to medium. Collembolans are collected from the two different methods -1) The majority of Collembolans collecting use pitfall traps. 2) Collecting sample of soil use Berlese methods. The study of Collembolans are wingless, minute, elongated, globular and soft bodies arthropods with long and short antennae and 6 segmented abdomen, first segment with a forked springing organ, for which they are popularly known as springtails. Collembolans are very important in conditioning detritus for microbial break down as well as forming soil microstructure, and make the highest soil respiration.

Section of Biosciences

EFFECT OF DIFFERENT ECOLOGICAL CONDITION ON BIOCHEMICAL CONTENTS OF SEEDS OF *ADHATODA VASICA.*

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ABSTRACT

Very little work has been done in the field for *Adhatoda vasica*, although Dhuria (1990) has worked on macropropagation of *Adhatoda vasica* under mist conditions. It is therefore very imperative to understand the seed

biology and regeneration in *Adhatoda vasica* before planning of divising strategies for its sustainable use. In the present study along with alkaloid content, estimation of seed reserves such as proteins, fats, starch, sugars, DNA and amino acid content of embryo has been undertaken from the seed samples collected from the diverse experimental sites.

As for the seed reserves, the seeds of *Adhatoda vasica* were found to have protein (20.5 gm % to 21.7 gm %), Fat (24.05 gm % to 26.01 gm %), Starch (2.76 gm % - 3.04 gm %) and Sugar (39.78 gm % to 40.7 gm %) on dry weight basis. Embryos contain free amino acids (1.84 mg % - 2.55 mg %) and DNA content of 6.04 g /100 gm to 6.048 g/100 gm on dry weight basis. It was observed in the studies that the site which is having better nutritional status shows maximum percentage of seed reserves.

Section of Biosciences

SELECTIVE TOXICITY OF DICHLOROVES TO SEVERAL SPECIES OF FISH DURING AN ENVIRONMENTAL EXPOSURE: BIOCHEMICAL MECHANISMS

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ABSTRACT

The organophosphorus insecticide dichloroves is frequently used for insect control. A small pond near a construction site was contaminated with dichloroves via runoff resulting in the death of several species of fish including *Labeo, Claris* and *Catla*.. Inhibition of acetylcholinesterase (AChE) and aliesterases (AliE) was determined in the tissues of exposed fish and the presence of dichloroves was confirmed in fish livers by analytical chemistry. Brain AChE was inhibited 87 to 93% in *Catla & Clarias* but only 73% in *Labeo*. Skeletal muscle AChE was inhibited 91 to 97% in *Catla* and *Labeo* but only 77% in *Clarias*. Liver AChE and AliE were inhibited greater than 90% in *Catla* and *Labeo* but in *Clarias*, the activities were inhibited only 86% and 77%, respectively. After 60 d, brain AChE activity in exposed Labeo was fully recovered, and liver AliE activity was recovered to about 50% of control values, but there was little recovery of skeletal muscle and liver AChE activities. The sensitivity of these enzymes to inhibition by dichloroves was assessed by determination of 50% inhibitory concentrations (IC50s). *Clarias* brain and liver AChE and liver AliE were less sensitive to inhibition than the enzymes from the other species. In contrast, Catla skeletal muscle AChE was more sensitive to inhibition compared to the other species. The lower inhibition of brain AChE and the lower in vitro sensitivity of Clarias brain AChE to inhibition by dichloroves compared to the brain AChE of the other species suggest that the species difference in toxicity exhibited in this exposure resulted primarily from species differences in the sensitivity of brain AChE to inhibition by dichloroves.

Key Words : Dichloroves , Fish, Esterase inhibition, Esterase sensitivity

Section of Biosciences

ANTIMICROBIAL SMART TEXTILE

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ABSTRACT

The antimicrobial effect of the present study is derived having chitosan-nanosilver particles adhered thereto which have advantage over the conventional antibiotics, as it does not induce resistance in the microorganism. The antimicrobial fabric of the present study does not lose the antimicrobial strength over time and the antimicrobial effects are especially stronger in water. Reducing silver nitrate with a reducing agent, which is not ammonia or ammonia water, makes the silver of the nanosilver particles. The preferred reducing agent is glucose, vitamin C, or hydrazine hydrate. The fabric used in present study can contain natural or synthetic fibers; its color can be natural or dyed. The antimicrobial fabric of the present study is nontoxic, safe, and thus, suitable for use in healthcare related purposes..The present study provides an antimicrobial fabric, which contains chitosan-nanosilver particles in the diameter of about 1-100 nm. The total weight of silver in the fabric is about 0.2 to 1.5% by weight. The chitosan-nanosilver particles are adhered to the fibers of the fabric. The term antimicrobial are used in the context of antimicrobial fabric antimicrobial cloth and/or antimicrobial clothes or clothing in the present study means that the fabric, cloth, or clothes has demonstrated antibacterial, antifungal and anti-Chlamydia effects by killing and/or suppressing growth of broad spectrum of fungi, bacteria etc. Cotton, linen, silk, wool, blending fabric, or synthetic fiber or any combination therewith can be used as material for the fabric. The antimicrobial fabric can be used to make cloth (bandage, gauze, and surgical cloth) with antimicrobial activity, particularly to be used for treating patient with burn and scald-related skin infection, wound-related skin infection, dermal, or mucosal bacterial or fungal infection, surgery cut infection, vaginitis, and acne-related infection. Specially, the antimicrobial fabric of the present study is suitable for use as cloth or clothes in disinfectant and treating patient with burn and scald related skin infection, wound related skin infection, skin or mucosa bacterial or fungal infection, surgery cut infection, vaginitis, and acne related infection.

Key Words : Antimicrobial, Chitosan, Nano Silver Particles, Reducing Agent, Synthetic Fabric

Section of Biosciences

ANTHROPOGENIC ACTIVITIES AND LAKE CHEMISTRY WITH SPECIAL REFERENCE TO SHAHPURA LAKE

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ABSTRACT

The purpose of this study is to observe and compare the detrimental impact of anthropogenic activities on Lake Chemistry and ecology in special reference to Shahpura Lake, Bhopal and Pichhola Lake of Udaipur.

Shahpura Lake is one of the important lakes of Bhopal and is constructed in year 1974-75 under the Betwa irrigation Scheme. The water quality of the Lake is deteriorated due to untreated wastewater, siltation, encroachment, and excessive growth of aquatic weeds, grazing in the fringes areas, washing activities, unmanaged fisheries and outflow through spillway. In Last two decades, the water quality deterioration was too high along with odour problems and was a directly affects the aquatic system along with public health. After being taken some major steps the view as well as solid waste problems could be managed a little bit but untreated wastewater through sewerage and drainage is still a big problem for the Lake. A reconnaissance also revealed that the lack of awareness among the shopkeepers and public still causing the minimum effect of Government initiation for the Water quality and front improvement.

In the present study it was observed that water quality deteriorated a lot at the sampling station behind EPCO which is very near to the Panchsheel Nala. Different Physical parameters like pH, DO,hardness, chloride, B.O.D,C.O.D were assessed.

Key Words: Detrimental impact, Betwa irrigation Scheme, Wastewater

Section of Biosciences

IMPACT OF - TOCOPHEROL AS GROWTH PROMOTER AND IMMUNOMODULATOR IN *CATLA CATLA*

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ABSTRACT

Specimens of same age group of *Catla catla* were collected from Government Fish Farm, Bhopal. They were acclimatized under laboratory condition for a period of one week. Experiment was set in large aquaria of the size of 36" X 18" X 18". Three aquaria were kept for experimental purpose while the fourth one was kept as control. Fishes were fed with formulated feed composed of mustard oil cake, rice bran and fish meal. Proximate analysis of various ingredients of formulated feed, initial carcass composition, water stability test of feed were done during the course of experiment, while final carcass composition, certain hematological and serological parameters were carried out

after the experiment. 0.3%, 0.4%, 0.6% and 0% of vitamin E (- Tocopherol) was added in the feed for experimental purpose. After 60 days of experiment, it was observed that the Net weight gain and Specific growth rate (34g and 5.66%, respectively) were the highest in exp-2 followed by exp-3 (29g, 4.83%), exp-1 (24g, 4.00%) and control aquaria (18g, 3.00%) but feed conversion ratio was highest (4.35%)in control followed by exp-1 (3.48%), exp-3 (2.73%)and exp-2 (2.44%). Serological parameters exhibited that total serum protein (TSP) and globulin were the highest (4.12%/g and 3.77%/g, respectively) in exp-2 while the lowest (3.25%/g and 1.97%/g respectively) in control feed. On the other hand, albumin was the highest (1.28%/g) in control and the lowest (0.98%/g) in exp-3 aquaria. Hematological parameters were not significantly different between the test animals. Immunological parameters showed that, highest phagocytic ratio (9.5), phagocytic index (1.54) and nitroblue tetrazolium (NBT) positive cells (45) were in exp-2, while the lowest (7, 1.03 and 12, respectively) were in control aquarium. Experiment showed that 0.4% vitamin E added feed is better for proper growth, good health and increased immune response.

Key Words : tocopherol, phagocytic, serological, immunological, haematology.

Section of Biosciences

DISTRIBUTION OF ORGANOPHOSPHORUS ACID ANHYDRASES FOR ASSESSMENT OF ORGANOPHOSPHATE DETOXIFICATION

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ABSTRACT

Enzymes that are able to hydrolyze a wide variety of organophosphates are known from a large number of aquatic species, from fish to bacteria. These enzymes are currently called the organophosphorus acid anhydrases, although they have been referred to as A esterase, DFPase, phosphotriesterase, somanase, parathion hydrolase, and paraoxonase. The natural substrates for the OPA anhydrases is not known. However, these enzymes are capable of hydrolyzing a wide variety of organophosphorus acetylcholinesterase inhibitors. In aquatic organisms, these enzymes have been identified and partially characterized from fish. The importance of these enzymes in the detoxification of organophosphate waste and in the understanding of the risk of pesticides to nontarget organisms is discussed.

Key Words : Biodegradation; Pesticides; Aquatic organisms; Organophosphates.

Section of Biosciences

WATER QUALITY STATUS OF MACHNA RIVER IN THE CITY OF BETUL (M.P.)

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ABSTRACT

The river Machna rises from Sasawad village near Amla Distt. Betul.Its total length is 77.95 kms and it passes through Betul city And joins to Tawa river.The main causes of pollution in river Machna are the joining of domestic sewage of Betul City, industrial effluents coming from kosami industrial area and idol immersion. The water of river Machna is also being used for irrigation purposes. Rapid urbanization, industrialization and population growth have affected it a lot. Its water is mainly used for the drinking purpose of the city.

In India the rivers are worshipped like a Goddess and many fairs are organised every year on the famous rivers like Ganga, Kshipra, Godavari etc.

During the present study samples were collected for the assessment of water quality at a stretch of 5 kms in Betul city.The sampling stations were fixed so as to cover all the activities that are sewage inlet, washing and bathing activity, industrial effluents, idol immersion. Physico-chemical parameters like pH, Dissolved oxygen, Hardness, Chloride, Nitrate and Phosphate were analyzed and it was observed that there is an increase in nutrients like phosphate, nitrate at sampling station carrying surface runoff from agricultural fields. Similarly higher concentration of Chloride was recorded at Nala carrying sewage.

Section of Biosciences

ISOLATION OF FUNGI FROM FRUIT

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ABSTRACT

Despite the high water activity of most fruits gives fungi a competitive advantage over the majority of bacteria and mold spoilage. In general mold spoilage of fruits doee not lead to health hazard. Molds growing on papaya were isolated by direct method and taking different dilutions of its washings. Growths of these isolated fungi were observed at 28 °C. Different species of fungi like *Penicillium sp., Aspergillus sp Rhizopus, Fusarium* species and *Alterneria, Carvuleria* were isolated and identified.

Key Word : Papaya, Fungi, Isolate.

Section of Biosciences

A COMPARATIVE STUDY OF LIMNOLOGICAL STATUS OF HATHAIKHEDA AND GHODAPACHHAR DAM

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ABSTRACT

Water has undoubtedly an important feature of the earth's ecology since very early in its history and is an essential ingredient of animal and plant life.

The fundamental importance of water for life on the earth needs little justification. Indeed modern industrial developments would scarcely be possible without an adequate supply of water of the high degree purity. Water has been the mirror of civilization since the origin of life and also we know that "JAL HI JEEVAN HAI". All our civilizations grow near by the water resources. River system has a tendency for self-purification as the water is flowing. The inflow of large quantities of untreated sewage and runoff from agricultural field in the catchment has resulted in the build up of nutrient supply, particularly nitrogen and phosphorus to the reservoir resulting in the formation of algal blooms or alteration in species composition of flora and fauna.

The Hathaikheda and Ghorapachhar Reservoirs are two of the most magnificent reservoirs amongst all these lakes and reservoirs. The water is drawn from various parts of the Hathaikheda and Ghorapachhar controlled by different authorities. A number of activities such as religious (Idol and Tazia immersion), agricultural, colonization etc. are going on in their catchment areas as a result of which variety of materials, including residual fertilizers, pesticides, waste water, silt are finding their way into the lake. During the present study period different physio-chamical parameters were analyzed and it was assessed that North side of the Hathaikheda Dam is more polluted as compare to other sampling stations while water quality of Ghodapachhar dam is much more better than the Hathaikheda dam.

Section of Biosciences

CLASSIFICATION OF GPCR AND NON GPCR USING MACHINE LEARNING TECHNIQUES

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ABSTRACT

G-protein coupled receptors (GPCRs) constitute a broad class of cell-surface receptors in eukaryotes and they possess seven transmembrane ?-helical domains. GPCRs are usually classified into several functionally distinct families that play a key role in cellular signalling and regulation of basic physiological processes. They can transmit messages from a cell's exterior to its interior, changing that cell's behaviour. Related proteins with similar biological functions generally share common sequence features. We can develop statistical models based on these common

features that can be used to classify proteins, to predict new members, and to study the sequence-function relationship of this protein function group. This paper presents a model for classification of GPCRs and non GPCRs based on their functional characteristics.

Key Words: GPCR, transmembrane, machine learning ,cellular signalling, cell-surface receptors.

Section of Biosciences

ISOLATION, IDENTIFICATION AND CONTROL OF MEAT SPOILAGE MICROORGANISMS

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ABSTRACT

Food spoilage is a degradation of natural nutrients in food results in alteration in appearance, texture, color and flavor or by slime formation making it unsafe for its consumption. Generally the spoilage of meat is due to presence of microorganisms specially bacteria from internal organs and inactive pathogens present in their circulatory system. Meat Spoilage is primarily due to protein and fat degradation aiding with the help of various enzymes. The present study was undertaken to check the time, condition and intensity of contamination in meat. Fresh poultry meat and red meat were collected under sterilized conditions. Microorganisms were isolated and allowed to grow on specific medium. During the process of isolation, both the samples were allowed to spoil under aerobic conditions at room temperature. The spoilage and growth of bacterial colonies were too rapid that the symptoms were observed in a short period. The colonies obtained were purified and identified by Gram staining. Both samples were infected by Gram+ve rod shaped bacteria. No fungal species were found even after 2-3 day incubation. Further studies related to the home remedial preservations of meat is proposed.

Key Words : Isolation, Texture, Purification, Poultry meat, Red meat degradation, Pathogens, Preservation, spoilage.

Section of Biosciences

BIOLOGICAL QUALITY OF SOIL THROUGH DEHYDROGENASE ACTIVITY

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ABSTRACT

Soil health is an assessment of the ability of a soil to meet its range of ecosystem function as appropriate to its environment. In the present work the fertility / health of different soils like, agriculture soil, industrial soil, college campus soil in moist and dry condition are analyzed in terms of their dehydrogenase activity. Dehydrogenase

enzyme activity plays a significant role in the biological oxidation of soil organic matter by transferring protons and electrons from substrate to acceptor. Samples have collected from different areas by using coning and quartering method. Dehydrogenase activity was estimated in terms of Triphenyl Formazan (TPF), the values were evaluated from the standard value of the pure form of 2, 3, 5-triphenyle formazan (Himedia, 99.8%). The maximum activated was analysed maximum in the moist soil sample of college campus and least was measured in moist soil sample (40-45%) of industrial soil. The soil sample of college campus is considered to have better microbial loading as compared to the other soil samples.

Key Word : Soil, Dehydrogenase activity, 2,3.5-Triphenyle formazan

Section of Biosciences

ISOLATION OF CELLULOLYTIC FUNGI FROM AGRICULTURAL SOIL

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ABSTRACT

Cellulose is a linear polymer of D-glucose units linked by glycosidic bonds. Soil is the rich source of microorganism. Fungi, bacteria, actinomycetes etc., are responsible for the synthesis of celluloses by these microorganisms. In the present work various cellulolytic fungi were isolated from soil of industrial area.

The soil samples have collected from Jute industries by using coning and quartering method. From these soil sample different species of cellulolytic fungi like Penicillium sp. , Aspergillus niger, Aspergillus flavus, Aspergillus fumigatus, Aspergillus sulfurus, Fusarium sp., and Alterneria carvuleria were isolated.Further study related to the increased production of cellulose degrading enzymes is in progress.

Key Words : Agricultural Soil, Cellulolytic Fungi, Isolate

Section of Biosciences

INFLUENCE OF CHOCOLATE COCOA ON HUMAN LDL AND PROTEIN

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ABSTRACT

Eating chocolate is the easiest way to fulfill the calories required per day by the humans. Chocolate, is a confectionary product of Theobroma Tree, and many miss conceptions about chocolates restricts us from eating them. Most of us have heard that chocolates increases fat and it result in obesity. The present work is an attempt to analyze the effect of consuming chocolate on the LDL ratio and also the protein profile in the human blood

serum. Cocoa which is a source of variety of nutrients like Vitamin B1, C, E, Flavanoids etc. LDL and protein profile in the blood serum have been analyzed. Two test persons of age 18 and 21 years (designated as H1 and H2) are considered. Their LDL and proteins were tested before and after consuming chocolate. Initial test of protein of H1 and H2 samples were noted and the total protein in initial and final sample were 8.2 and 6.7, which were reduced to 7.9 and 6.4 respectively on consumption of chocolates. LDL was 53.2 and finally it was reduced to 51.16 in H1 samples while it was (LDL) was 112.6 and in the final test LDL was 78.72. Observed from result based on the mentioned experiment, it was noted that the LDL and protein content showed slight reduction in the mentioned parameters on consumption of chocolates.

Key Words : LDL, Protein profile, Cocoa, Chocolate, Albumin, Flavonoids, Theobroma tree.

Section of Biosciences

ISOLATION OF CELLULOLYTIC FUNGI FROM INDUSTRIAL SOIL

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ABSTRACT

Cellulose is a linear polymer of D-glucose units linked by glycosidic bonds. Soil is the rich source of microorganism. Fungi, bacteria, actinomycetes etc., are responsible for the synthesis of celluloses by these microorganisms. In the present work various cellulolytic fungi were isolated from soil of industrial area. The soil samples have collected from Jute industries by using coning and quartering method. From these soil sample different species of cellulolytic fungi like Penicillium sp. , Aspergillus niger, Aspergillus flavus, Aspergillus fumigatus, Aspergillus sulfurus, Fusarium sp., and Alterneria carvuleria were isolated. Further study related to the increased production of cellulose degrading enzymes is in progress

Key Words : Agricultural Soil, Cellulolytic Fungi, Isolate

Section of Biosciences

EFFECTIVE INHIBITION OF BACTERIA THROUGH ANTIMICROBIAL AGENTS

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ABSTRACT

Microorganisms are ubiquitous. To avoid contamination, infection and decay, it is necessary to remove or destroy them. In the present study of destruction of microorganisms by using different types of antimicrobial agents are

considered. Although most of the microorganisms are beneficial and necessary for human well-being, but microbial activities may have undesirable consequences such as food spoilage and diseases. Hence it is essential to kill a wide variety of microorganism or inhibit their growth to minimize their destructive effects.

Antimicrobial agent solutions were prepared and bacterial samples which were isolated from the soil were inoculated with the sterile cotton swab which has been dipped in solution of different antimicrobial agents. Cotton swab soaked the solution of antimicrobial agent and it was placed on prepared nutrients agar plate and these plates are then incubated. After incubation, measured the diameter of zone of inhibition and compare the effect on the growth of bacteria by different antimicrobial agents.

The antimicrobial agents used in this experiment were alcohol, spirit, rin soap, liquid soap, detergent and chromic acid. The inhibition zone made with liquid soap was found to be maximum comparatively. All antimicrobial agents do stop the growth of microorganism but their efficiency of killing the microbes was found to be different.

Key Word : Microorganisms, Antimicrobial agents, Alcohol, spirit

Section of Biosciences

MICROBIAL ANALYSIS OF RHIZOSPHERIC SOIL FROM TULSI AND ASHWAGANDHA

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ABSTRACT

Medicinal plant Tulsi *(Ocimum sactum)* and Aswagandha *(Withania somnifera)* are the plants of medicinal importance and have made a good contribution to the development of ancient Indian material media. To observed measure activity of the active constituents (Gallic acid and ? -sorbitol) in the rhizosphere soil microorganisms of these plant, isolations were done and tested for the presence of metabolite secretions.

Soil sample from the rhizosphere of both plant Tulsi and Ashwagandha were taken for isolation of microorganism and some secretions are observed in the bacterial samples.

The occurrence of the activity in the microorganisms growing in the vicinity of medicinal plants will ease the task of harvesting and extracting the plants of importance. This also may help in restoring our forest vegetation of medicinal plants.

Key Word : Medicinal plant, Tulsi, Isolate, Gallic acid and ?-sorbitol

Section of Biosciences

EFFECT OF *BACOPA MONNIERA* ON ACHE IN VARIOUS TISSUES OF CHICK

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ABSTRACT

Bacopa monnieri is a medicinal hearb that is a nervine tonic and anticholinesterase. Acetylcholine is a neurotransmitter Ach can activate more than one type of receptor. The enzyme that degrades Acetylcholine is Acetylcholinesterase.AChE works by hydrolyzing Ach into choline and acetic acid at cholinergic synapases. Ellman's method was used to measure in vivo acetylcholinesterase activity. .The aim of present study on the ethenolic extract of *Bacopa monnieri* on different tissues of chick viz. Liver, Heart, Kidney, Muscle and Intestine were done. The Chick was given oral doses of extract of Bacopa monnieri 100mg/kg body weight per day in double distilled water for one week. After conducting the studies it was observed that the maximum AChE inhibition was in kidney while the minimum in liver. The inhibitory effect in comparison to control in decreasing order was as follows Kidney > Intestine > Muscle > Heart > Liver. This indicated that the Kidney is the most sensitive organ for Bacopa monniera

Key Words: AChE, Chick, Liver, Kidney, Heart, Intestine, Muscle.

Section of Biosciences

CLIMATE CHANGE - FRESH WATER ECO SYSTEM MANAGEMENT & EXPLOITATION OF AQUATIC WEED POTENTIAL FOR LEAF PROTEIN PRODUCT

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ABSTRACT

Climate change and its biological consequences are under way global impact of green house gases emission has caused a major biotic response and changes in physiology, phenology and distribution of species are evidence of changes in biodiversity response to climate change. Fresh water eco systems are naturally sensitive to climate changes nutrien enrichment and pollution by human activities has increase the spread of a remarkable invasive species of aquatic leaf Ecchornia Crasspies a troublesome water weed now present in all major water reservoirs, lakes, dams and river systems it has destroyed the flora and fauna of water bodies. The paper discusses the removal of water weed and its bio conversion into a leaf protein concentrate which can be used as a potential protein source for humans and animals.

Section of Biosciences

FISH DIVERSITY Of GOVINDGARH RESERVOIR OF MADHYA PRADESH

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ABSTRACT

Govindgarh reservoir (Latitude-24o 3`N and Longitude-81o 3`E) is situated 19 km away from Rewa of Madhya Pradesh. Present study was carried out to know the fish fauna of the reservoir. For this purpose samplings were done fortnightly early in the morning period for six months (from July to December, 2008) with the help of local fishermen. Gill nets of different mesh sizes and cast net were used for sampling purposes. Fishes were preserved in 10% formaline on the spot and packed in poly bags and brought to the laboratory for proper identification. In the laboratory fishes were identified upto species level with the help of available keyes. Beside six culturable species viz. *Catla catla, Labeo rohita, Cirrhinus mrigala, Ctenopharingodon idella, Cyprinus carpio, Hypophthalmycthis molitrix*, twenty two other species were also identified. Among these twenty-two species, cat fishes dominated over all other species. Four fishes of ornamental importance namely *Chanda nama, Chanda ranga, Chela bacaila, Garra gotyla* were also identified.

Key Words: Ornamental, Catfish, Gill Net, Cast Net, Formaline.

Section of Biosciences

A COMPARATIVE STUDY OF WATER QUALITY OF DIFFERENT WATER BODIES IN AND AROUND BHOPAL

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ABSTRACT

Water is the "elixir of life "that is a wonderful gift that nature has bestowed on us .Out of various Sources of water, lakes are subjected to severe pollution due its stagnant water and numerous anthropogenic activity around it. Due to this quality and quantity of utilizable lake water decreases there by causing water pollution and crisis .

Bhopal is the capital of M.P is known as city of lake, owing to large number of water bodies in and around Bhopal. Upper lake and Kolar reservoir are the main source of potable water in Bhopal city while the lower lake ,Shahpura lake and Halali dam are mainly used for recreational purposes. But they are glossary polluted by domestic raw sewage from surrounding habitation ,agricultural waste ,industrial waste, floral offering and immersion of Ganesh, Durga idols and Tazia during Gansh utsav, Navratri and Muhrrum. This may lead to decrease in storage capacity of these water resources.

During the present study water samples were collected from Upper lake ,Kolar dam ,Lower lake, Shahpura lake

and Halali dam . The water samples were taken from the identified sampling stations of these water resources. It was observed that pollution indicator parameters like B.O.D, C.O.D, Nutrients were found to be higher in Shahpura and Lower lake as compared to Upper lake and Kolar reserviour.

Section of Biosciences

A STUDY OF FUNGAL DISEASES OF FISH IN NANAK SAGAR, NAINITAL, UTTARAKHAND

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ABSTRACT

A mysterious mortality of a large number of fish fauna was observed in Nanak Sagar-a huge man-made reservoir and a well known fish production centre of Government of Uttarakhand. The infected fishes exhibited whitish wooly growth on the body surface,descaling and haemorrhage. Various species of watermolds have been reported to cause diseases and death of some cold water fishes.A study was initiated to investigate possible involvement of the fungal species in fish mortality in Nanak Sagar reservoir.This paper reveals the results of that investigation.Eight zoosporic fungi viz. *Achlya debaryana,A. flagellate,A. klebsiana,Aphanomyces laevis,Saprolegnia diclinia,S.ferax,S. parasitica and Pythium sp.* were isolated from a large number of adult fishes of the species Mastacembelus armatus, *Mystus vitatus,Nandus nandus,Tor putitora and T. tor of Nanak* Sagar reservoir in Nainital district, Uttarakhand. Species of the parasites and the hosts were different in their pathogenicity and immunity, respectively. However, A. flagellate and S.parasitica appears to be the most virulent. The severity of mycosis was primarily correlated to moderate water temperature of 22-25 degree celcius. High temperature (> 28 degree celcius) retarded the disease process. The experimental inoculation with all the associated fungal species on Puntius conchonius in the laboratory produced clinical signs similar to the ones seen on infected fish in the reservoir. This is the first report on fish mycosis in the large reservoir located in the foot hill of Kumaon Himalaya.

Key Words : Fish mycosis, Fungal diseases, Mortality, Pathogenicity, Watermolds,

Section of Biosciences

ZOOPLANKTON DIVERSITY WITH SPECIAL REFERENCE TO PHYSICO-CHEMICAL PARAMETERS

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ABSTRACT

This paper focuses on the limnological characteristics of fresh water reservoir namely Ravishankar reservoir situated at Dist.Dhamtari (C.G.) which serve as drinking, irrigation and major fish culture sources. This reservoir is studied for physico- chemical parameters and zooplankton diversity. Water plays a predominant role in distribution

of organisms. Fresh water contains various micro-organisms. The quality of water through parameters (Physico-Chemical) affects the species composition, their abundance and productivity of water. Some organisms can survive in a wide range of conditions and some are more tolerant to pollution and while others are very sensitive to changes in conditions and intolerant to pollution.

The sample was collected from three different sites- Site I :- This site is surrounded by agricultural fields. Site II :- This site is an entry point of human & animals inhabitants. Site III:- In this site not any activity of animal & human being.

The highest zooplankton population density was 36.85 thousends/m^3 in the month of October. In the month of October range of pH 7.5-7.8, D.O.(mg/l) 3.7-3.9, Free Co2 (mg/l) 2.1-2.3, Alkalinity (mg/l) 120-123 etc. favors more growth of all zooplankton species. The zooplankton population was dominated by copepods (52%) & cladocera (46%) maximum population of zooplankton was observed in the month of October constituting $36.85\times 10^3/m^3$. The zooplankton number was decreased gradually to $4.27\times 10^3/m^3$ in the month of December & January.

The role of physico-chemical parameters in zooplankton diversity has been discussed in the paper.

Section of Biosciences

CONFLICTS AND CHOICES IN BIODIVERSITY CONSERVATION AND MANAGEMENT

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ABSTRACT

Biodiversity is a collective term meaning - the totality and variety of life, which include genetic diversity within species; the variety among species; and the range of ecosystems within which life exists and interacts. For its survival and continuity, an organisation has to be "in tune" with its internal as well as external environment, neither of which is ever static. Consequently, the organism and its constituents cells incessantly adjust their physiological millieu to remain in harmony with the dynamic environment. This paper presents a brief overview of researches in the field of biodiversity conservation. Apart from highlightening biodiversity related issues in the global context, the bioresource potentials of India is discussed. Then, the significance of forest management and measures for presenting biodiversity are expressed as well as the necessity of a new strategy and action plans for sustainable conservation and management of biodiversity through an integrated approach by taking into account ecological, social, economic and institutional aspects. The assessment of biodiversity including ecosystem and species oriented approaches and monitoring the dynamics of biodiversity covering studies on land use and land cover changes, ecosystem uses and forest products and forest dynamics the biodiversity related activities of the French Institute's Research Programme are also highlighted. Further, studies on final scale of forest and landscape changes linked to social and economic dimension of forest use and management would shed light on proximate and underlying causes of deforestation and loss of biodiversity.

Key Words : Biodiversity conservation, assessment of biodiversity, geographical information system.

Section of Biosciences

INDIA : A BIOLOGICAL GOLDMINE

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ABSTRACT

The purpose of this paper is to present a review on the data storage and tumor banking practices for biomedical research in India. Many aspects have been considered such as the requirement for data storage and tumor banking .In the public and private sector in India and the issues relating to tumor banking , in other words the need for banking and further use of DNA samples and their control and ownership .India is an untapped Gold mine of biological samples . With a huge network of public and private sector hospitals, clinics and dispensaries and a huge chunk of populations living below the poverty line ,in minimal health conditions ,diseases like tumor and cancer are wide spread .Here we present a detailed list of all the hospitals and other health providers in India as a store house of biological database .Keeping in tune with efforts made by other countries in centralizing biological database especially tumor ,cancer related database efforts have also been made in India to bring all the cancer hospitals ,Institutes and Clinics under one umbrella but , there is still a requirement for more centralization , International standardization and ethical requirements and policies with regard to DNA ,Tumor ,Cancer banking .Such standardization would facilitate milestone in biomedical research and disease eradication .

Key Words : Bio Banking ,Biological samples ,Hospitals ,centralization ,Databases

Section of Biosciences

ICHTHYOFAUNA AND ITS THREAT OF TAPTI RIVER IN MADHYA PRADESH

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ABSTRACT

The present study has been conducted to assess the ichthyofauna and its threats in the stretch of Tapti river in Madhya Pradesh. Study area is divided in two districts (Betul and Burhanpur). A total of 57 species belonging to 34 Genera, and 15 Families and seven orders were recorded. In the present study information has been gained by personal communication, secondary data and direct observations and the following causes of depletion of fish biodiversity has been noticed i.e. use of small meshed fishing gear, Dynamiting, Poisoning, Over fishing, Construction of dams, Deforestation and Exotic species. Threats in the form of diverse types of human interventions are the main reason for the alarming decline of fish population in most stretch of the river.

Key Words : Composition, fish diversity, Threat to diversity and Tapti river.

Section of Biosciences

ISOLATION OF CELLULOLYTIC FUNGI FROM AGRICULTURAL SOIL

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ABSTRACT

Cellulose is a linear polymer of D-glucose units linked by glycosidic bonds. Soil is the rich source of microorganism. Fungi, bacteria, actinomycetes etc., are responsible for the synthesis of celluloses by these microorganisms. In the present work various cellulolytic fungi were isolated from soil of industrial area.

The soil samples have collected from Jute industries by using coning and quartering method. From these soil sample different species of cellulolytic fungi like *Penicillium sp. , Aspergillus niger, Aspergillus flavus, Aspergillus fumigatus, Aspergillus sulfurus, Fusarium sp.*, and *Alterneria carvuleria* were isolated.

Further study related to the increased production of cellulose degrading enzymes is in progress

Key Words: Agricultural Soil, Cellulolytic Fungi, Isolate

Section of Biosciences

RESPONSES OF THE INNERVATED AND DENERVATED ISOLATED SCALE MELANOPHORES OF *Labeo rohita* TO SEROTONIN

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ABSTRACT

Melanophores are the black or brown colored pigment cells, within the melanosomes. They contain melanin and are responsible for pigment aggregation in the centre of the cell or dispersion throughout within the dendritic processes of the microtubules, thus, producing paling or darkening effect in the animal respectively. The elevation of cAMP levels induces dispersion and the inhibition of cAMP level initiates aggregation. The motor proteins kinesin and dynein are also responsible for dispersion and aggregation respectively. Serotonin or 5-HT (5-Hydroxytryptamine) is synthesized in serotonergic neurons in the central nervous system and enterochromaffin cells in the gastrointestinal tracts. It is a very important monoamine neurotransmitter substance and is commonly found in many living organisms from plants to higher animals. 5-HT (2.58 X 10-8 M) induced dose-dependent dispersion, indicating that the response is mediated through the activation of certain 5-HT receptors. Denervation of fish melanophores resulted in an inhibition in the sensitivity of the melanophores to 5-HT between the concentration of 2.58 X 10-9 M to 2.58 X 10-4 M. However, the aggregatory responses were potentiated after the denervation (2.58 X 10-16 M to 2.58 X 10-10 M). The concentration response curves of 5-HT on the innervated and denervated melanophores exhibits that the 5-HT in the lower dose range and in the higher dose range activates different kinds of receptors or all the effects of

5-HT are mediated through different mechanisms in the two different dose ranges. Moreover, the 5-HT induced effects may also be mediated through its indirect effect via the release of some neurotransmitter substances. However, the site of action on the denervated melanophores is different in both the dose ranges of 5-HT. Therefore, it may be concluded that different types of 5-HT receptors are involved in initiating the two different types of 5-HT responses in this fish melanophores to 5-HT.

Key Words : Melanophores, Serotonin, 5-HT, 5-HT Receptors, Innervation, Denervation.

Section of Biosciences

HISTOPATHOLOGICAL EFFECTS OF ALDERIN ON LIVER OF *CATLA CATLA*

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ABSTRACT

Fishes were exposed to sub lethal doses of Alderin in order to determine the histopathological alterations in the liver of *Catla catla*. After 30 days treatment; non-homogenous regions and congestion of central vein, dark stained hepatocytes, increasing the number of Kupffer cells, vascular degeneration and sinusoidal degenerations were observed.

Key Words : *Catla catla*, Alderin, Liver, Histopathology,Kupffer cells.

Section of Biosciences

MERCURY INDUCED ALTERATIONS IN PROTEIN LEVEL OF CERTAIN TISSUES OF *CATLA CATLA*

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ABSTRACT

Effect of sub lethal dose (0.5mg/l) of mercury was studied on the protein metabolism in certain tissues of *Catla catla*. Mercury (as Mercury chloride) was used to prepare stock solution. Specimens of *Catla catla* having mean weight and length 100g and 20cm respectively were used. It was observed that there was a gradual and significant reduction in the protein level in all the tissues studied. The intestine was the worst affected where the muscles were the least affected.

Key Words : Mercury, protein, Intestine, Muscles, *Catla catla.*

Section of Biosciences

ICHTHYOFAUNA OF WESTERN REGION OF NARMADA RIVER, MADHYA PRADESH

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ABSTRACT

Narmada river is the largest West flowing river of India. It is also referred as the life line of Madhya Pradesh. Present study generates information on the icthyofauna of the Narmada river in Western region of Madhya pradesh. During six months of study period, 62 fish species have been identified belonging to 42 genera, 18 families and 6 orders. On the basis of the present investigation, the fishes are divided into commercially important species like *Labeo rohita , Catla catla, Cirrhinus mrigala*; locally important species like *Tor sp., Channa sp., Mystus sp*. etc. and ornamental fishes like *Nandus nandus, Nemacheilus botia, Salmostoma bacaila, Colisa fasciatus* etc. Tor tor and Chitala chitala were once abundant species of the river but now found to be endangered. Varying distribution pattern of different species of fish has been observed at various segments of the river. Therefore, the present study indicates towards the necessity of the study of fish diversity for conservation and management of fish germplasm.

Key Words : Biodiversity, Germplasm, Icthyofauna, Conservation, Ornamental.

Section of Biosciences

COMPARATIVE CODON USAGE ANALYSIS OF METHICILLIN RESISTANT AND SENSITIVE STRAINS OF *STAPHYLOCOCCUS AUREUS*

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ABSTRACT

Staphylococcus aureus is a causative agent of wide range of diseases and in recent years *Staphylococcus aureus* has gained resistance against most of the effective antibiotics (Okuma et. al.2002 and Anonymous 2008). It is important to understand the pathogenicity and wide range of antibiotics resistance at genomics level in all ways of analysis.

The present study was aimed to find out the codon usage patterns in methicillin resistant strain *Staphylococcus aureus* MRSA252 and sensitive strain *Staphylococcus aureus*MSSA476 (Mekalonas et. al. 2004). Complete

gene sets were obtained from NCBI ftp site (ftp://ftp.ncbi.nih.gov/genome/bacteria/). Codon usage frequency, RSCU (Sharp et.al. 1986), GC & AT content, AT-Skewness, GC-Skewness were calculated using the inhouse developed software tool.

The GC & AT content, AT & GC skewness showed that both these strains are AT rich (67.05%). The RSCU value analysis of 59 codons in both these strains showed the maximally proffered to the codons ending with Adenine or Thymine as GCA(Ala), TGT(Cys), GAT(Asp), GAA(Glu), TTT(Phe), GGT(Gly), CAT(His), ATT(Ile), AAA(Lys), TTA(Leu), AAT(Asn), CCA(Pro), CAA(Gln), CGT(Arg), TCA(Ser), ACA(Thr), GTT(Val), TAT(Tyr). Both these strains have shown marginally similar value with negligible variations. This small variation may be due to the unequal number of genes in Staphylococcus aureus MRSA252 (2656 genes) and Staphylococcus aureus MSSA476 (2579 genes). Maximum preferences to A/T ending codons is due to the AT richness of the Protein coding genes. Therefore in both of these strains of *Staphylococcus aurerues*, compositional constraint is an important factor operational in shaping the codon usage variation among genes (Sharp et.al 1987, Gosh et.al 2004)

Key Words : *Staphylococcus auereus*, Codon Usage Bias, RSCU, Comparative Genomics, Genetic code

Section of Biosciences

IN-SILICO VACCINOLOGY AGAINST VIRUSES

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ABSTRACT

The first successful attempt at defense of human beings against disease causing microorganisms was made by Edward Jenner. He used cowpox virus to vaccinate against smallpox in 1796.Since then numerous efforts have been made by scientists all over the world to search for vaccines against all the diseases. All the techniques relied on growing microbes in the laboratory or under in-vitro conditions. Such pathogens have been used to develop killed, live attenuated, or subunit vaccines(vaccines containing whole killed microorganisms, live microorganisms without disease causing ability, or various purified components of microorganisms, respectively). But all the pathogens could not be grown in the laboratory conditions successfully eg.Hepatitis B and C virus. Hence a need was felt for finding out alternative ways for combating these disease causing organisms. With the availability of complete genome sequence of Haemophilus influenza in 1995 there started "genomic era" which brought into picture the concept of "reverse vaccinology" or "in-silico vaccinology". Vaccine against Group B meningococcus bacteria tells us the success story of "reverse vaccinology". Here, instead of growing the microbes in lab conditions and performing tedious experiments, analysis on the genome of organisms is done under dry lab or under in-silico conditions. From the genome entire proteome of the organism is deciphered and by using various softwares and algorithms the most probable vaccine candidate is sought. In this paper the same technique has been used on virus and the results tabulated. This paper highlights the power of growing modern technologies and the need for understanding them and using them in such a way so that they can prove to be a big boon for humanity.

Key Words : Vaccines, Reverse vaccinology, Genome,Softwares and algorithms

Section of Biosciences

DIVERSITY OF COOT AT SIRPUR LAKE, INDORE

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ABSTRACT

Present paper described the annual monthly variation in count of coot's species Fulica atra. This species was observed throughout the year except flood condition of the water body. The maximum count of this bird was observed in the month of March, while minimum count was observed in the month of July. Overall population of this bird was highest in the winter months. They spent most of the time in deep water. Two variety of coot was observed in the present water body. One variety was totally resident and other was migratory. Young ones of this species were also observed in the month of December which showed that this species favored the studied water body for breeding too.

Key Words : Fulica atra., Coot's species.

Section of Biosciences

CHANGES IN ACh CONTENT AND ACTIVITY OF AChE IN *Rattus norvegicus* SUBJECTED TO CARBARYL

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ABSTRACT

Rattus norvegicus were subjected to sub-acute doses of carbaryl (180, 275, 380 mg/Kg b.w.) for 96 hrs and 100 mg/Kg b. w. for 15 & 30 days. Its effect on ACh content and activity of AChE in various tissues is viz. brain, heart & liver of rat was investigated. The inhibition of enzyme increased with rise in pesticide doses as well as the duration of treatment. For acute experiment maximum inhibition was noticed in liver i.e. 47.52% whereas for chronic experiment maximum inhibition was noticed in heart i.e. 61.93%. Carbaryl an insecticide has produced toxic manifestation of hypercholinergic activity involving central as well as peripheral origin, inhibiting AChE at the synapse in the brain & the neuromuscular junction.

Key Words : Carbaryl, AChE, inhibition, ACh content, *Rattus norvegicus.*

Section of Biosciences

PURSUIT INDUCED HEPATOTOXICITY IN THE FINGERLINGS OF *OREOCHROMIS MOSSAMBICUS*

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ABSTRACT

The test compound pursuit (herbicide) falls in the category of carbamate and constitute a very important group of environmental pollutants because they exert toxic effect in the organisms at cellular and molecular level. The present study is confined to investigate the hepatotoxicity in liver of *Oreochromis mossambicus* fingerlings due to the exposure of 63.7 ppm pursuit for 4,15 & 30 days and their subsequent recovery following withdrawl of fish from exposure to the pursuit intoxication for further 30days. Results shows & marked increase in enzyme activity of alkaline and acid phosphatase (ALP & ACP) in liver. Microscopic study revealed congestion & swelling of liver cells, dilation of blood vessels, disintegration & necrosis in hepatic cells. While during recovery a declining trend of enzymatic activity was observed, similarly, in histology the hepatic cells were also shows some improvement. These enzymological and histological changes indicate that herbicide pursuit when given for long duration in lower concentration produce adverse toxic effects in fingerlings of *Oreochromis mossambicus.*

Key Words : ALP & ACP, histology, liver, toxicity, pursuit, fingerlings,

Section of Biosciences

EFFECT OF LIGHT ON GROWTH OF S. PLATENSIS

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ABSTRACT

Cyanobacteria or blue green algae occur under a wide range of environmental condition. They are found in almost all the ecosystems and their wide distribution reflects a large variety of species with diverse morphological and physiological properties. *Spirulina platensis* as single cell protein is one of the most concentrated natural source of nutrition. Physico-chemical profiles describing the relationship between growth and environmental factors especially irradiance flux, density and temperature are important in the evaluation of Spirulina for biomass production. Growth experiments of S. platensis were carried out in conical flask. The growth of S. platensis was found to be rigmodial one with a generation time of 24 days when growth was studies in different light qualities. Maximum growth rate was observed in blue light followed by red light. A marked stimulation in growth was observed under laboratory condition with blue light.

Key Words : Cyanobacteria, Spirulina platensis, physiological, protein, light

Section of Biosciences

INHIBITORY KINETICS OF ACHE ENZYME IN BRAIN OF FISH, *ARISTICHTHYS NOBILIS* EXPOSED TO DICHLORVOS

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ABSTRACT

Effect of acute and chronic exposure of dichlorvos on AChE enzyme in brain of *Aristichthys nobilis* was observed. The fishes were exposed to three sublethal concentrations of the dichlorvos. The sublethal concentrations were used on the basis of LC50 of dichlorvos to fish as 0.88 ppm for 48 hrs. The AChE enzyme activity was determined in the brain of fishes exposed to acute and chronic concentrations of dichlorvos. The results indicated the significant inhibition of AChE in brain. It is observed that the enzyme inhibition is directly proportional to the concentration of pesticide and duration of exposure. Lineweaver-Burk plot, Secondary replot and Dixon plot were also used to know the kinetic constants. These data indicated the inhibitory action of dichlorvos towards AChE in fishes. Thus, AChE enzyme kinetic constants may be used as an indicator for toxicity of aquatic animals.These results are alarming in view of aquatic toxicity. The most frequent causes of pollution are industrial pollution, wastes from sewage and pesticides thrown into the water bodies. An awareness should be made in farmers and common men for preventing the terrestrial and aquatic environment from being polluted.

Key Words : Acetylcholinesterase, brain, fish, inhibition.

Section of Biosciences

THE TOXICOLOGICAL EFFECT OF THIOUREA ON CORPUSCLE OF STANNIUS OF *CLARIUS BATRACHUS*

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ABSTRACT

Thiourea is a known antioxidant. Matured specimen of, *Clarius batrachus* were exposed to 0.03% thiourea solution for 8 weeks. During first two weeks the corpuscles of stannius were not significant but after 4weeks the deformation of septa and shrinkage of cells was apparent with reduced distinction between the calls, indicating the general effect of thiourea. After 8 weeks the responses corpuscles cells ere irregular, showing hyperplasia and sometime elongation of corpuscular cells with deformation of septal cord. An impaired thyroid accompanied by such corpuscles of stannous signifies the deleterious effects on general metabolism and also on the ionohydrosmotic regulation, which may lead the fish to various expected and unexpected complication

Key Word : Corpuscles of stannius, Thiourea, *Clarius batrachus*

Section of Biosciences

"EFFECT OF SELENIUM ON THE *CYANOBACTERIUM HAPALOSIPHON* Sp."

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ABSTRACT

Environmental pollution and contamination with toxic heavy metals is a quickly growing serious problem for our country and also a major threat to our planet. Selenium is widely distributed toxic element which can cause environmental pollution and it is a world wide phenomenon associated with a broad spectrum of human activities and has resulted in many problems for both human health and aquatic ecosystem. Cyanobacteria are ubiquitous in rice field, represent an ancient group of photosynthetic, prokaryotic, nitrogen fixing, cosmopolitan microorganism, which play significant roles in diverse ecosystems. In addition, cyanobacteria are highly effective biological metal sorbets, capable to accumulate, sequester, detoxify or metabolize such contaminant, to some extent. Inspired by such consideration present study is an attempt to investigate the effect of selenium on the activity of rice field cyanobacterium Hapalosiphon sp. with reference to the growth and nitrate reductase activity, when it reached through the contaminated water which forms the main source of irrigation of rice fields. The study revealed that the sublethal and lethal effect of selenium occurred at 200µg/ml and 250µg/ml respectively with decrease in Chl-a concentration and increase in nitrate reductase activity. We conclude that the presence of selenium at high concentration in any ecological niche with cyanobacteria will not effect the nitrogen economy of the ecosystem and can bioaccumulate to higher concentration in cyanobacteria.

Key Words : *Hapalosiphon sp.*, nitrate reductase, selenium.

Section of Biosciences

EFFECT OF BIOFERTILIZERS (Azotobacter & PSB) AND THEIR COMBINATIONS ON *LENS CULINARIS L.*

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ABSTRACT

The present investigations was carried out during two successive winter seasons, (2007-2008 & 2008-2009) at Saifia Science College, Bhopal. It studies the effect of biofertilizers [*Azotobacter chroococcum* & Phosphate solubilizing bacteria (PSB)] singly and in combined doses on germination and survival of Lens culinaris L. In varieties JL-3 and NDL-92 effect of Azotobacter 10 gm inoculation showed 100 percent germination in both varities with survival percentage of 100 percent and 83.3 percent respectively. In varities JL-3 and NDL-92 effect

of PSB 10 gm inoculation showed 100 percent and 84 percent germination respectively with survival of 100 percent and 84 percent respectively in both varieties. In varities JL-3 and NDL-92 effect of PSB+ Azotobacter 10 gm+10 gm inoculation showed 100 percent and 82 percent germination respectively with survival of 100 percent and 66 percent respectively. Uninoculated seeds showed 100 percent germination and survival in JL-3 and 100 percent germination with 81 percent survival in NDL-92. In varieties of JL-3 and NDL-92 effect of Azotobacter 20 gm inoculation showed 100 percent and 82 percent germination with survival of 100 percent and 50 percent respectively. Effect of 20 gm PSB showed 100 percent and 68 percent germination with survival of 100 percent and 67 percent respectively. Combination of both biofertilizers 20 gm+20 gm showed 100 percent and 84 percent germination with survival of 100 percent and 69 percent respectively on two varities.

Uninoculated seeds showed 100 percent germination and survival in JL-3 and 96 percent germination with 82 percent survival in NDL-92. In varieties of JL-3 and NDL-92 effect of Azotobacter 30 gm Inoculation showed 100 percent germination with 81 percent survival in both. In varieties JL-3 and NDL-92 effect of 30 gm PSB showed 100 percent and 89 percent germination with 69 percent survival respectiveiy in both. Combination of both biofertilizers 30 gm+30 gm showed effect on germination 85 percent and 100 percent respectively withsurvival of 85percent and 100 percent in both varieties. Uninoculated seeds showed 91 percent germination and survival in JL-3 and 100 percent germination with 86 percent survival in NDL-92.

Key Words : *Lens culinaris*, Azotobacter, PSB, NDL-92 and JL-3.

Section of Biosciences

"CARBON DI OXIDE FIXATION BY GREEN ALGA *CHLORELLA VULGARIS* UNDER STRESS CONDITION AND ITS UTILIZATION"

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ABSTRACT

A total of 589 colonies of microalgae were isolated from 110 water samples taken from lakes, ponds, rivers, landfills, wastewater, paddy fields, wetlands, hot springs and sediments water in Madhya Pradesh. Out of 589 isolates, only 36 were fundamentally identical and belonged to the genus Chlorella. Among potential isolates, one isolate, designated as Chlorella vulgaris NK-78 was selected for further studies. This isolates where growth rates of 0.4, 0.3, 0.2 and 0 g l-1 d-1 at 5, 20, 40 and 70% CO2, respectively. The isolate, C. vulgaris NK-78 where high thermostability at 39°C and was able to tolerate a high CO2 concentration (40%). Also, the linear growth rate of C. vulgaris NK-78 was 0.12 g l-1 d-1 at an initial pH of 3.5, increased gradually to 0.24 g l-1 d-1 at an initial pH of 6.0, and remained constant at an initial pH of 7.0. The cell growth of C. vulgaris NK-78 was inhibited at an initial pH below 3.0. Chlorella vulgaris NK-78 was able to grow at pH 3.5 to 7.0. This characteristic is very important and suitable for stack gases using the cultivation of Chlorella for biomass production. The effect of light intensity on the photosynthetic oxygen evolution of C. vulgaris NK-78 was also carried out. C. vulgaris NK-78 had a high growth rate at a light intensity of 599 to 906 µmol m-2 s-1. Furthermore, C. vulgaris NK-78 cells contained 0.57g protein and 0.18g lipids per g dry cells, which are comparable to the values of commercial Chlorella cells. Interestingly, the protein content of C. vulgaris NK-78 cells grown under CO2 enriched air condition was considerably higher than

that of cells grown under atmospheric air condition. To make the production of Chlorella cells feasible at commercial level, the cells of C. vulgaris NK-78 were grown in low nitrogen media. C. vulgaris NK-78 biomass had a calorific value of 18 kJ/g which when grown in low nitrogen medium increased to 23 kJ/g. The improvement in calorific value is linked to the increase in lipid content rather than any change in other components such as protein and carbohydrates.

Key Words: micro green algae, *chlorella vulgaris*, carbon di oxide, stress condition, growth rate

Section of Biosciences

A NOVEL APPROACH FOR CO2 SEQUESTRATION AND CONVERSION IN TO USEFUL MULTIPURPOSE FUEL

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ABSTRACT

Man's expanding need for energy has become almost synonymous to the growth and developments in the modern S&T propelled agro-industrial society. It is however quite clear that increased energy consumption has resulted into serious problems such as global warming and erratic climate changes currently being experienced around the world. The issue therefore is not whether energy production for the nation should be increased, it is rather how to ensure energy security without sacrificing the interest of nature and man. Given the projected growth in world population and energy demand; particularly in rapidly developing economies such as India and China; one of the most challenging issues facing the international community in the 21st century is how to simultaneously attain energy security, economic growth, poverty mitigation and environmental protection for all its citizens. Currently, fossil fuels (Coal, Oil and Natural Gas) supply over 85 % of the world's commercial energy, account for 65 percent of the world's electricity and 97 % of the energy for transportation. For countries like India and China where coal is the main stay of their power generation, the production and use of fossil fuels contribute to 64 percent of anthropogenic greenhouse gas (GHG) emissions. World wide and fossil fuel power generation currently accounts for over one third of global annual carbon dioxide (CO2) emissions. Now, it is therefore imperative to develop technology for low carbon based power generation together with the techniques to capture CO2 being released into atmosphere continuously and then compress it for storage. For this purpose CO2 need to be compressed, prior to storage & transportation. After separating and compressing CO2 from combustion stack gases, liquid CO2 can be transported and discharged into the bottom of the ocean, stored in geological formations, stored in the form of dry ice, or fixed by in situ lakes of algae or converted to benign solid materials or fuels through biological or chemical processes. However due to various ecological issues this not been supported by Indian Govt. Sequestration of CO2 could be modified or suitably altered to encompass production of multipurpose fuels like Hydrogen, Methane and Bi-diesel. This Project is under NPCS Govt. of India.

Key Words : International community , Piomass gasifier, Power generation

Section of Biosciences

EFFECT OF PLANT EXTRACT AGAINST FUNGI ASSOCIATED WITH DETERIORATING MONUMENT

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ABSTRACT

Heritage sites are damaged by various means. A number of magnificent palaces like Gwalior fort, Datia Fort in Madhya Pradesh have survived from medieval period. The composition & structure of artifact can be modified by Microorganisms and other deteriorating agent. Amongst microorganisms Fungi are of prime interest because of their simple ecological and nutritional requirement can develop easily on outdoor objects and monuments. Once established, fungi degrade stone chemically as well as mechanically. For conservation reasons and maintain the original status and integrity of the heritage site it is preferable to eliminate biological growth. Relatively little research has been conducted on antifungal treatments for stone so there is a need of finding antifungal treatments with sufficient persistence. Thus present study was taken to determine the efficacy of natural products against monument associated fungi so as to determine their antifungal potential to prevent colonization of these fungi.

Fungi were isolated from stone samples collected from Gwalior fort, Gwalior, India. During this study Antimicrobial activity of leaf extracts of 15 plants extracts were examined against Alternaria sp, A. nidulans, Curvularia sp, Penicillium sp, Fusarium sp. The plants extracts were prepared by soxhlet extraction. Amongst tested extract Azadirachta indica was effective only against Alternaria sp. While most of other plants were either showing very moderate/ least activity against test fungi or was resistant to it. However, Rosa centrifolia and Punica granatum plant extract were found to have very good activity against all tested organisms.

The data revealed that the highest activity in the Rosa centrifolia and Punica granatum plant extracts. It is evident from present study that the some of the examined plant possess good antifungal potential. These plants along with their antimicrobial property can be used as effective measure to control deteriogenic fungi. The active principle can be used in the development of effective and new formulations that can support conservator.

Key Words : *Azadirachta indica*, Rosa centrifolia and Punica granatum.

Section of Biosciences

GROUND WATER MANAGEMENT BY RECHARGING, PROGRAMMING AND ITS IMPLIMATATION FOR HUMAN WELFARE, WATER QUALITY INDEX ALSO CALCULATED, AT DHAR TOWN M.P.

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ABSTRACT

Due to lack of knowledge people used ground water without Physico-chemical testing which may be harmful and unsafe. It is observed where people drinking under ground water are suffering from acidity, constipation, early greying of hair, hair loss, kidney problems with formation of calcium-oxalates and calcium-urates in kidney and the gallbladder as a stone.

Observations show that under ground water contains has higher conductivity, turbidity and hardness with calcium carbonates and bicarbonates. Some samples show higher values of nitrate and sulphates also.

In this study, direction wise analysis of ground water samples covering whole town of Dhar done and its water quality index is also calculated. Informations about health status were collected from hospitals and questionnaire basis. People are warned regarding the bad effects of water, suggestions are also made for use of ground water quality and the ground water level maintenance through artificial recharging system is to be implemented.

Key Words : Physico-chemical testing, calcium-urates.

Section of Biosciences

IN SILICO DESIGNING AND HOMOLOGY MODELING OF PRADER-WILLI SYNDROME

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ABSTRACT

Prader-Willi syndrome is caused by the lack of the paternally-derived copies, or their expression, of multiple genes in a specific region on chromosome 15. There are at least three different chromosome's errors which include large deletions, maternal uniparental disomy or mutations involving the imprinting center, can keep these key genes from working normally, and all result in the child having Prader-willi syndrome. Some of the genes whose deletion or improper functioning results in PWS syndrome are GHRL, NDN, SNRPN, MKRN3, MAGEL2 and IPW. Among them SNRPN has been selected for further studies. Methylation of the SNPRN region by DNMT enzyme could inhibit its expression which results PWS. All the known DNA methyltransferase use S-adenosyl-methionine (SAM) as the methyl-donor. Tea polyphenol [EGCG (Epigallocatechin-3-o-Gallate)] and bioflavonoids [Myricetin] are effective inhibitors of DNMT- mediated DNA methylation in humans. Our main aim was to prevent the methylation

of SNRPN region, by inhibiting the function of DNMT enzyme with the help of polyphenol and bioflavonoids. For this first the homology modeling was done for predicting the structure of the enzyme by submitting the query protein sequence in Geno3D and then the selected inhibitors were docked against the best model generated by Geno3D. On the basis of least minimization and drug likeness EGCG-Cl was predicted to be the most effective inhibitor of the DNMT enzyme.

Key Words : Prader-Willi, DNA methyltranferase, polyphenol, bioflavonoids.

Section of Biosciences

ASSESSMENT OF WATER QUALITY INDEX OF KATNI RIVER AT KATNI (M.P.)

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ABSTRACT

Katni district is located in the northeastern part of Madhya Pradesh and forms the northern district of Jabalpur commissionerate division. Mudwara was the biggest tahsil of Jabalpur before katni came as district in 1998.The city is famous for its abundance lime and bauxite.

Present work deals with the assessment of physico-chemical parameter of Katni River. Five sampling station were selected and sample collected regularly at the interval of 15 days. The assessment of physico-chemical parameters such as pH, TDS, TSS, Total alkalinity, Calcium, Magnesium, Chloride, Fluoride, Sodium, Potassium, Dissolved Oxygen(DO), BOD, COD, Ammonia-N(AN) and Sulphate of water sample of katni river. The experimental values of water were compared with the standard value given by "World Health Organization" (WHO). Water Quality Index is calculated to know the over all quality of water sample. The Statistical analysis like mean Standard Deviation(SD), Analysis of variation(ANOVA), t-test, Correlation coefficient (r) analysis of obtained data were carried out. The result shows that the quality of water is good for drinking and irrigation purpose respectively

Key Words : Alkalinity, Calcium, Magnesium, Chloride, Fluoride, Sodium, Potassium.

Section of Biosciences

SOME INNOVATIVE AGROTECHNIQUES AND APPROACHES (METHODS) TO EXPLOIT ALLELOPATHY

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ABSTRACT

Phytoallelopathy is usually exhibited through resource competition or by allelochemicals in Agriculture and Forestry. With the advancing approach of mixed cropping instead of monoculture practices and with a view as regard the integrated weed management for sustainable agriculture these allelopathic interactions have drawn great attention of scientists because they have direct impact on crop productivity.

Indian parthenium is known to be allelopathic and capable of reducing growth of numerous crops. But recent studies closely indicated the new dimensions in stimulatory/beneficial effects of allelopathy in general and crop production in particular. Oudhia et.al (1998) oudhia & Tripathi (1997) reported stimulatory allelopathy of parthenium on kodo mustard and chick pea. For this purpose, allelopathic effect of parthenium was investigated on Til (Sesamum indicum L.) with special reference to morphological and biochemical aspect. The experiment was carried out in field at Z.A.R.S. Research Station, Powarkheda H'Bad in R.B.D. Design for two consecutive years. The treatment adopted were PSI and PLE of different concentration applied at 20, 40 and 60 DAS. The treatments applied and observations recorded were quite innovative for agriculture. Soil improvement by parthenium straw incorporation at pre plant stage is an important technique to exploit possible beneficial allelopathic interactions. For PSI preparation whole dried chopped dry plants of parthenium was applied and mixed in soil a week before sowing and it was incorporated in the soil immediately with the help of a bladed narrow (Bakhar), applied at the rate of 10 quintal/ hectare was found to be best treatment as it promoted the crop growth, quality of seed, yeild attributes and seed yield of sesame crop. Straw incorporated plots exhibits significant stimulatory allelopathic effect as compared to control. (Mehta, Sharma and Singh, 2002)

Similarly preparation of leaf extracts and their application at pre emergence and post emergence stages of crop development mainly seedling stage vegetative stage and flowering stage are main approaches as regard field study. PLE spray @ 500 litre/hactare sprayed partly at 20, 40 and 60 DAS of different concentration are 0.5%, 5.0%, 10%, 50%, 100% were found more promising extracts it was concluded that some of the extracts tested in the study could be used as stimulator for the crops. Moreover, these extracts may be used as pesticides to control pest disease incidence.

Key Words : PLE (*Parthenium* Leaf Extract), PSI (Parthenium Straw Incorporation, PPI (Pre Plant Incorporation), Allelopathy (Potential), DAS (Days After Sowing).

Key Words : Phytoallelopathy, Indian parthenium, Leaf extracts.

Section of Biosciences

ISOLATION, SCREENING OF LIPASE PRODUCING BACTERIA FROM NATURAL ENVIRONMENT AND THEIR RAPD ANALYSIS USING PCR

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ABSTRACT

Random Amplified Polymorphic DNA (RAPD) is a method of producing a biochemical fingerprint of a particular species. Relationships between species' may be determined by comparing their unique fingerprint information. The following research involved the isolation and screening of Lipase producing bacteria. The isolation of DNA was done from five identified bacterial species and PCR was accomplished using RAPD primers, Lip AR, Lip AF, AMB 3, AMB 4, and SP 6. Agarose gel electrophoresis was done producing favorable banding results for most samples. Bands were then analyzed using a Gel doc system. The bacteria producing maximum lipase producing gene was screened and the primer that can show maximum amplification for gene was seen.

Key Words : Lipase producing bacteria, RAPD, PCR, Primers.

Section of Biosciences

ACETYLCHOLINESTERASE ACTIVITY AND ENZYME KINETICS IN THE LIVER OF *TILAPIA MOSSAMBICA* (PETERS) SUBJECTED TO ACUTE AND CHRONIC EXPOSURE TO PROPOXUR

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ABSTRACT

Carbamate pesticides used for control of household pests inhibit Acetylcholinesterase and disrupt nerve impulse transmission. The influence of a carbamate pesticide propoxur on liver of *Tilapia mossambica* (Peters) was studied. It's toxicity levels were determined by recording the activity and kinetics of AChE.

LC50 of propoxur for *T. mossambica* was determined (Doudoroff et al. 1951). Studies on its acute and chronic toxicity were undertaken with sublethal concentrations. Biochemical and Kinetic studies of AChE were done by method suggested by Hestrin (1949) and Metcalf (1951) 'The Km and Vmax were determined by standard Lineweaver - Burk plots and Ki by using Dixon plot. (Dixon et al. 1953).

The gradual increased Km values and a constant Vmax with respect a propoxur concentrations in both acute and chronic exposure, proved it to be a competitive inhibitor of AChE. The Dixon plot also confirms the competitive nature of inhibition of propoxur. The specific activity of liver AChE decreased with the concentrations increased after acute and chronic exposure of propoxur. In retrospect to the decrease in specific activity, the ACh content

correspondingly increased. Organophosphate and carbamate pesticides act on the nervous system by inhibition of AChE at the synapse. They bind to the active site and prevent breakdown of ACh (Aldrige, 1971, Fuktuo, 1971). Michaelis and Menten (1913) gave conventional Kinetic constant like Km, Vmax and Ki for quantitative analysis of inhibitor and reaction mechanism of enzyme action. Kumar et al. (1993 b) described that Km, Vmax and Ki can be used for biomonitoring the toxic level of these compounds. It may be concluded that propoxur inhibited the AChE in liver of T. mossambica in both acute and chronic exposure and recorded the increasing Km without affecting the Vmax showing competitive nature of inhibition. The AChE kinetics is most helpful in determining the aquatic pollution due to pesticides.

Key Word : Acetylcholinesterase, Liver, Fish, Inhibition, Kinetics.

Section of Biosciences

SUB LETHAL HEMATOLOGICAL EFFECTS OF ZINC ON THE FRESHWATER FISH HETEROPNEUSTES FOSSILIS

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ABSTRACT

Laboratory study was undertaken to evaluate some hematological changes resulting from the exposure of a fresh water fish Heteropenistis fossilis to sub lethal concentrations (5.0 & 10.0mg/l)of zinc in water for a period of 15 days. Three groups of 10 fishes were subjected to serial dilutions of the stock solution of zinc of 0(control), 5.0 &10.0mg/l in three large plastic bowls of 60 ltr capacity by the semi static (renewal) method. At the end of 15 days exposure method, blood samples were taken from the control and experimental fish. Blood was assayed for selected hematological parameters (Haematocrit, hemoglobin, red blood counts, and white blood counts, differential white blood cell counts, erythrocyte sedimentation rate, total plasma protein and plasma glucose concentration). The derived hematological indices of mean corpuscular volume (mcv) mean corpuscular hemoglobin (mch) and mean corpuscular hemoglobin concentration (mchc) were calculated. Sub lethal concentration 5.0 & 10.0mg/lof zinc caused a dose dependent decrease in haemoglobin value, coupled with a decrease in haematocrit values and RBC counts are obvious indication of anemia of the north chronic type. The total WBC counts and the differential WBC counts were decreased except for the lymphocytes in which there was a slight increase. Plasma level of protein and glucose were also lower in the exposed fish, when compared to the control. The hematological indices MCHC ,MCH and MCV were also lowered .In conclusion, the changes observed indicate that hematological parameters can be used as an indicator of zinc related stress in fish on exposed to elevated zinc level.

Key Words : Zinc, Haematology,Anemia,Glucose,Protein,Heteropneustes fossils.

Section of Biosciences

IMMOBILIZATION OF ENZYME (INVERTASE & LYSOZYME) IN VARIOUS CONCENTRATIONS OF AGAROSE AND ALGINATE WITH CALCIUM CHLORIDE AS SUBSTRATE

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ABSTRACT

Enzymes are biological catalysts that proote the rate of reactions but are not themselves consumed in the reactions in which they participate; they may be used repeatedly for as long as they remain active. However, in most of the industrial, analytical, and clinical processes, enzymes are mixed in a solution with substrates and cannot be economically recovered after the exhaustion of the substrates. This single use is obviously quite wasteful when the cost of enzymes is considered. Thus, there is an incentive to use enzymes in an immobilized or insolubilized from so that they may be retained in a biochemical reactor to catalyze further the subsequent feed. The use of an immobilized enzyme makes it economically feasible to operate an enzymatic process in a continuous mode.

Numerous methods exist for enzyme immobilization, sometimes referred to as enzyme insolubilization. The overwhelming majority of the methods can be classified into four main categories: Matrix entrapment, micro encapsulation, adsorption, and covalent binding. Of these methods, matrix entrapment is the focus of this experiment

Formation of immobilized beads of Invertase and Lysozyme in different percents of Alginate, Agarose in CaCl2. To determine the effectiveness of immobilization with the effect of storage time and effect of temperature. Quality of the beads, decides their usage which depends up on their binding with the matrix. Flexibility of the bead and its strength to pressure tolerance. The characteristics of beads formed in various percentages of Agarose, Alginate with CaCl2 are:

Very soft : They cannot be used because they rapture easily.

Soft : They can be used for single uses or lab study

Hard : They can be used for large scale purpose for 6-8 times

Very hard : They can not be used for rigidly of matrix so enzyme substrate complex is not formed

Enzyme activity increases with the increase in temperature and also increases after a particular time interval. The above data provides useful information about the various combinations of matrix and substrate which can be implied for biodegradation of xenobiotic compounds with enzymes.

Key Words : Immobilization, Enzyme, Beads, Matrix entrapment., Micro encapsulation.

Section of Biosciences

ALGAL DIVERSITY IN LENTIC HABITAT OF NARSINGHAR [M.P.]

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ABSTRACT

Plankton forms the basic link of the food chain for all aquatic animals. The value of planktonic and other algae as direct or indirect food for fish which plays a key role in fisheries. So the algal usefulness could be indicator of water bodies have long been recognized. The pollution of surface water by discharge is from human activities is one of the major environmental problem. Effllluent discharge in large proportions resulting in eutrophication. This leads to excessive growth of algae. Algae are involved in pollution but some play an important role in purification. Different algal forms play an important role in ecological evolution .

Parshuram fish tank is situated in Narsinghgarh Distt. Rajgarh is affected by water pollution.several algal forms belonging to chlorophyceae,bacillariophyceae,englenophyceae, cynophyceae were collected from the different site of the pond over the period of two years.In the present study correlation between algal group were observed.

Key Words : algal, statistics, correlation, lentic habitat .

Section of Biosciences

THE IMPACTS OF CLIMATE CHANGE AND DISASTERS ON FOOD

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ABSTRACT

Sustainable development of the earth's limited water and land resources is of paramount importance, because of rising populations and often conflicting demands for these resources. Climate change and climate variability, typhoons, floods, droughts and other climate elements related to natural disasters have a direct influence on the quantity and quality of agricultural productions access, on new technology in agricultural and food production, such as modern irrigation schemes, soil un-conservation and management techniques and erosion control. These should in any case be accompanied by knowledge of information about weather and climate and other related environmental factors to make full of technological advanced.

Therefore environmental monitoring of climate and agro climate on the region of Monsoon Tropical Climate with many disasters of South Eat Asia in general, and particular in Vietnam, are important problem for National, Regional food security. Real situation of food security in Vietnam: It is shown that food assess on the poverty. Poverty is widespread in Vietnam but has been significantly reduced during the 1990s, largely as a result of the rapid economic growth; Stability of food supply and assess of rice and other food crops in Vietnam is seasonal. Food prices rise in the months leading up to Tet (New Year by Moon Calendar) and in the between- harvest period of March-May, and fall during the main rice harvest in September-November.

The impacts of climate change and disaster here Shows the impact of climate change and disasters (typhoon, flood and drought duration ENSO events , ...) on food crop yields such as rice in Winter- Spring and Summer crop season, maize, soy-bean... and then directly Influence on Agriculture and Food security in Vietnam; Decision-makers and practice for sustainable development on agriculture and food security in Vietnam and some other developing countries as well.

Key Words : Canned goods, Sustainable development, Agriculture and Food security.

Section of Biosciences

DIFFERENTIAL SENSITIVITY OF DISCRETE REGIONS OF CHICK BRAINS TO ORGANOPHOSPHATE PESTICIDES

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ABSTRACT

Environment has become highly contaminated with toxic elements due to the activities of human beings. Increasing use of pesticides to protect crops causes harm to the living beings. The measurement of AChE activity is a good parameter to evaluate the toxicity of organophosphate pesticides. The aim of the present study is to compare invitro toxicity of two organophosphate pesticides Acephate and Chlorpyriphos by determining their IC50 values in seven different regions of the brain of chick. Ellman's method was used to measure acetylcholinesterase activity. The magnitudes of toxicity of Acephate and Cholpyriphos to acetylcholinesterase in various brain regions were different. Straitum, Cerebral cortex, Hippocampus, Thalamus, Pons, Cerebellum and Medulla of chick. IC50 of Acephate decreased in various regions as Hippocampus> Straitum> Pons> Medulla> Cerebellum> Cerebral cortex> Thalamus, while its range comes in between 5-0.30 ?M and IC50 of Chlorpyriphos decreased in various regions as Cerebellum> Medulla> Straitum> Hippocampus >Cerebral cortex> Pons> Thalamus, range comes in between 11-1 ?M. Thus, the toxicity of Acephate is found to be more while its as compared to the toxicity of Chlorpyriphos.

Key Words : Acetylcholinesterase, Brain regions, Chick, Inhibition, IC50, rganophosphate.

Section of Biosciences

CHEMOPREVENTION: MEDICINAL PROPERTY OF DIETARY BIOACTIVE AGENTS

Shashi Anand & Mohammad Sikander

ABSTRACT

Cancer is the umbrella term for the class of disease or disorder characterized by uncontrolled cell division and ability of these cells to invade other tissues either by direct contact into adjacent tissues through invasion or by migration to distant sites through metastasis. Since carcinogenesis process involves three remarkable steps - initiation,

promotion and progression. Mutation that produces oncogenes with dominant gain of function and tumor suppressor gene with recessive loss of function often form the prerequisite condition that set the initiation step on, as a result of which cells keep on dividing without following the natural cell death program (programmed cell death). Enormous amount of scientific evidence indicate that diet is a significant environmental factor in the overall cancer process and can exacerbate or interfere with carcinogenesis. Elucidation of the critical events associated with carcinogenesis provides opportunity for dietary chemoprevention through induction of apoptosis, particularly by bioactive agents. In addition to diets effect on protein expression and function, evidence is also accumulating that a large number of dietary components can exert effects on human genome, either directly or indirectly, to modulate the gene expression. This review is written to enhance awareness and understanding of herbal medicine among member of biomedical research community and to document the need for rigorous scientific investigation of herbal preparation.

Key Words : chemoprevention, protein, gene expression, carcinogenesis, apoptosis, Progression and promotion

Section of Biosciences

BIODIVERSITY CONSERVATION

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ABSTRACT

Biodiversity is understood as totality of species (Plants, animals, microbes), ecosystem, habitat in a region and the amazing web of connection between them. Biodiversity is an irreplaceable resource .India is so rich in it. It has facing serious threat due to overexploitation and habitat destruction so it has become a major challenge to human being .The effects of deforestation observed as loss of biodiversity, a adverse effect on natural phenomenon like land slides, floods, rainfall, soil erosion scarcity of forest products like oils ,drugs, waxes fibers etc. The loss of biodiversity has resulted in extinction of many plant and Animal species all over the world s is estimated that over 45,000 of Plants and 75,000 species of animals in our country out of 1500 plant. Species and 79 species of mammals , 44 0f birds ,15 of reptiles, 3 of amphibians were found to be extinction. Today's conditions when threat is more pronounced than every species loss to said to be 27,000 every year .so species become more extinct and endangered . People should aware to save the biodiversity. It can be conserve when every one can stop to use, misuse and abuse of environment. Conservation of biodiversity means to conserve each part of ecosystem because each one is correlated .All over the world every countries have to take part to balancing the environment ecosystem foe conserving the biodiversity.

Key Words : Biodiversity, environment. Conservation, Deforestation.

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Section of Biosciences

COMPARATIVE STUDY ON TWO RICE FIELD CYANOBACTERIA *Scytonema* AND *Hapalosiphon* IN AMELIORATION OF LEAD TOXICITY

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ABSTRACT

With the rapid industrial development, various wastes containing different metal ions are directly or indirectly discharged into the environment, they creates serious environmental problems. Pollution due to heavy metal responsible for several environmental problems including the decrease of microbial activity, soil fertility and crop yield. Among the heavy metal, Lead may be the most sever pollutant sources due to their wide application in different industries. Lead is one of the oldest known major heavy metal of antiquity and has gained considerable importance as a potent environmental pollutant which is non-degradable and thus persistent. Cyanobacteria comprise a large and morphologically heterogeneous group of photoautotrophic, nitrogen fixing prokaryotic bacteria. In conformity with other stresses immobilized culture was found to survive the heavy metal stress better than the free cells but limited work has been reported on the toxicological studies using immobilized microbial system. Cell immobilization could protect the organism's growth against the toxicity of Pb at LC50 as compared to lethal concentrations. The nitrate reductase activity in free cells treated with the metals was substantially inhibited but immobilized cells treated with 20ppm Pb was not affected by the metal treatment in both Cyanobacteria. Control immobilized cells (without Pb) also had higher nitrate reductase activity than control free cells. Pb addition markedly decreased the enzyme activity in free cells but immobilized cells exposed to sublethal concentrations of metal could overcome this decrease. Between both Cyanobacteria Scytonema sp is more efficient to remove Pb toxicity compare to Hapalosiphon sp. The observations of the present study clearly demonstrate the protective effect of immobilization in Scytonema sp and Hapalosiphon sp against Lead toxicity.

With this aim the nitrate Reductase activity was compared in free and immobilized cells of two heterocystous filamentous free-living Cyanobacteria i.e. *Scytonema* sp and *Hapalosiphon* sp, isolated from paddy fields and amelioration of lead metal toxicity.

Key Words : *Cyanobacteria*,lead, Immobilization, Nitrate reductase, Amelioration.

Section of Biosciences

STANDARDIZATION AND OPTIMIZATION OF GROWTH CONDITIONS FOR THE EXPRESSION OF INTRACELLULAR PROTEIN β - Galactosidase IN *Pichia pastoris*

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ABSTRACT

Yeasts have become very important in the "biotechnological revolution" as they remain active agents for the expression of therapeutic proteins. *Pichia pastoris*, ascomycetous methylotropic yeast was selected to study the expression of intracellular protein β-galactosidase. A pure colony of *Pichia pastoris* strain GS115/Lac Z was inoculated in 100 ml of Buffered Minimal Glycerol Histidine medium and was incubated at 28^0C at 300 rpm till it reached $O.D_{600}$=2.6. For Methanol induced protein separation, cells were harvested by centrifugation and were re-suspended in Buffered Minimal Methanol Histidine medium. Methanol with a final concentration of 0.5% was added after every 24 hrs to maintain induction. The cells were collected at 0, 6, 12, 24,36,48,60 and 72 hrs. The content of intracellular protein β-galactosidase at different time intervals was analyzed by Sodium Do-decyl Sulphate - Polyacrylamide Gel Electrophoresis. It was observed that a protein band on SDS-PAGE was matching with the molecular weight of intracellular protein β-galactosidase 119kDa.The total intracellular proteins were estimated using Folin-Lowry's method at each time interval after the first induction by methanol. The aliquot of total cellular proteins was also separated on 12% Sodium Do-decyl Sulphate - Polyacrylamide Gel Electrophoresis and amount of β-galactosidase was estimated using software Image Master 1-D Elite. The β-galactosidase was found to be highest at 48 hrs after the first induction by methanol. Percent β-galactosidase content was highest at 60 hrs after the first induction. It was also observed that percent content of β-galactosidase increased upto 60 hrs time point and then started decreasing steadily. In order to determine the molecular weight of the protein band, a standard curve of the molecular weight marker was plotted. The molecular weight of the protein band as determined from the standard curve was found to be around 125kDa.

Key Words : *Pichia pastoris*, intracellular protein, β-galactosidase, SDS-PAGE, Folin-lowry.

Section of Biosciences

ASSESSMENT OF WATER QUALITY OF UPPER LAKE, BHOPAL (M.P.)

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ABSTRACT

The upper lake is one of the major source of drinking water supply to Eighteen lacs population of this capital city of Madhya Pradesh .The lake has a catchments area of 361sq kms and submergence area of 30.72 sq kms. Limn logical studies of upper lake were carried out from Jan08 to Dec08.The main objective of the study is to assess the

quality of water which is the main source of drinking water supply for Bhopal.

The parameters have been studied are water temperature, pH, dissolved oxygen, chloride, hardness, nitrate, phosphate, B.O.D and C.O.D In the present study seasonal variation in water temperature was recorded. Lake water is slightly alkaline throughout the study period. Chloride contents are comparatively high probably due to the pollution from human and animal origin. Presence of nitrate in water during the study period indicates the final stage of the mineralization of nitrogenous organic matter. Biochemical oxygen demand (B.O.D.) in lake water is due to the bacterial activity on organic matter and direct method for measuring the organic pollution. On the basis of present study it can be assumed that the system is under process of eutrophication.

Key Words : Water Quality, Upper lake, B.O.D., C.O.D

Section of Biosciences

PHYSICO CHEMICAL ANALYSIS OF GROUND WATER QUALITY OF SEHORE DISTRICT.

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ABSTRACT

Water is the most essential to life next to air. Safe drinking water is primary need of every human being. Water quality is a very sensitive issue today because water quality gradually decreases due to human activities, industrialization and urbanization. A systematic study has been carried out to explore the physico- chemical characteristics of ground water at Sehore, 40 water samples were collected from various locations and analyzed for pH, conductivity, DO, TDS, Total alkalinity, Total hardness, Chloride, Fluoride, Nitrate, Phosphate and Sulphate. Most of the physico- chemical parameters are within the permissible limits of WHO standards for drinking water except fluoride.However some samples also shows the little higher concentration of nitrate and phosphate content, but most of the samples show fluoride content higher than the permissible limit. Fluoride content of the ground water samples varied from 0.5 to 3.48 ppm. About 22 samples were found to contain fluoride concentration above the permissible limit of 1.5 ppm.This high fluoride is responsible for fluorosis. Fluorosis is an endemic disease occurring commonly in many part of Sehore. Many cases of fluorosis have been reported in Sehore. It is suggested to reduce the fluoride content from water by sedimentation,flocculation and filteration . The study also indicates the need for periodic monitoring of ground water for physico- chemical characteristics for the safety of drinking water.

Key Words : DO, Water Analysis, Physico Chemical Parameters, TDS

Section of Biosciences

GENETIC VARIATION AMONG INDIAN CULTIVARS OF L*athyrus sativus L.*

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ABSTRACT

The grass pea (*Lathyrus sativus L.*), a minor crop which remains neglected and underutilized has received increased interest over the last few decades as a plant that is adapted to arid conditions and contains high level of proteins. The hardiness of this species, together with ability to fix atmospheric nitrogen, makes the crop one that seems designed to grow under adverse conditions with considerable potential for improvement. In the improvement programmes special attention is given to characterization of the germplasm resource of *L. sativus*. In the present study, eleven Indian cultivars of *Lathyrus sativus L*. were analyzed using electrophoresis data from seed storage protein and quantitative data of 100 seeds weight and protein content to measure genetic variation. Intra-specific variability was noted for all the traits studied. Electrophoresis data were subjected to statistical analysis using hierarchical UPGMA grouping and phylogenetic tree was constructed. Frequency distribution of polypeptide bands in *Lathyrus sativus L*. has not shown clear correlation with seed characteristics (seed weight, seed protein content) of the studied accessions. Protein amount was found to be highest in *Lathyrus sativus L.* cv. Ratan (IGAU, Raipur, India) and lowest in *Lathyrus sativus L.* cv. IC-120505 (NBPGR, Akola, India).

Key Words : *Lathyrus sativus L*., genetic variation, electrophoresis, seed protein, crop improvement

Section of Biosciences

STUDY OF NITRATE AND PHOSPHATASE ACTIVITY OF CYANOBACTERIA *MASTIGOCLADUS*

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ABSTRACT

Mastigocladus is the most cosmopolitan organism of hot springs and thermal vents of Yellowstone National Park. Cyanobacteria are found in all ecological niches and it is primary important to study their nitrogen fixing capability and take an active part in maintaining and mobilizing nitrogen and phosphorus dynamics in the ecological niches they belong. In this paper an attempt has been made to make a current understanding of nitrate and phosphomonoesterase activity of *Mastigocladus* and physiological aspects related to nitrate and phosphatase activity at optimum conditions.

Key Words : *Mastigocladus*, Yellowstone National Park, nitrate reductase, phosphomonoesterase activity.

Section of Biosciences

PHYTOCHEMICAL AND PHARMACOLOGICAL INVESTIGATION OF ISOFLAVONOID COMPOUND FROM *Coccinia indica* FOR HYPOGLYCEMIC ACTIVITIES

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ABSTRACT

The aim of present experiment to evaluate efficacy of fruits extract of *Coccinia indica* an Ayurvedic medicinal plant of India based on streptozotocin induced diabetic rats. Isoflavonoid was isolated from *C. indica* investigations for hypoglycemic activities. Experimental animals were divided into six groups (I) Control, (II) Diabetic untreated (III), (IV) and (V) Diabetic treated with *C. indica* alcoholic extract three different doses viz. 100 , 250 and 500 mg./kg, (VI) standard drug treated. The alcoholic extract of *C. indica* fruits produced significant hypoglycemic activities at 500 mg/kg body weight. Experiment was conducted for a month period resulted in gradual but significant fall in blood glucose level, total cholesterol and protein lipid profile also. The result showing significant reduction of blood glucose level as observed in diabetic treated group up to 288.24 ± 7.48 to the level of 111.08 ± 12.18 at 500 mg/kg dose. The findings suggest that alcoholic extract of the fruits of *C. indica* of family Cucurbitaceae possess hypoglycemic activities. The detail phytochemistry obtained by spectral analysis of IR, UV, 13 C NMR , 1 H NMR and Mass spectrum revealed the molecular formulas as C20H41N7O5 (631 m/z) of m. p. 190-220 °C named 4-R1, 8-R2, 5-one Cumourious, Isoflavonoid. The detail structure is given in full text.

Key Words : *Coccinia indica*, Streptozotocin, Hypoglycemic, Isoflavonoid, Cumourious.

Section of Biosciences

ETHICS IN ZOOLOGICAL STUDY

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ABSTRACT

Animal ethics is a sensitive matter for all of us. Most of us are concerned with preventing cruelty to animals. Animals have been used for Zoological study and research. It is not possible to stop research and zoological study but we can minimize the sufferings and pains of animals during research and study work. It is not only necessary for our dignity but it is our basic duty as we (humans) are on the top of sensible and intelligence position in the world. Ethics involves the application of moral values and principles. Some simple efforts, care, attention and thoughtfulness may be very useful to eliminate sufferings of experimental animals. This paper presents some key points to reduce the sufferings, distress and torture death of animals in the laboratory during zoological study.

Key Words : Ethics, Research, Zoological study, Moral values, Cruelty to animals

Section of Biosciences

SPIRULINA CULTURE UNDER LABORATORY CONDITION

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ABSTRACT

Spirulina platensis is a member of cyanobacteria. Light and temperature are the major factors responsible for the growth of *Spirulina platensis*. It can be cultured by using media prepared by the combination of various salts and trace elements in different concentrations. In the present study, *Spirulina platensis* was cultured by using a medium composed of sodium bicarbonate - 8g, sodium chloride-5g, potassium sulphate - 0.16g, H3PO4 - 0.52g, ferrous sulphate - 0.05g (diluted with HCl) and urea - 0.22g. All these chemicals were mixed with distilled water and prepared in one liter volume. Pure *S. pletensis* were inoculated to the medium @ 5ml/l. The inoculated medium was kept at 320C under 2500 Lux light for 8 - 10 days for proper growth. During this period, care was taken to keep the temperature constant. Regular steering of the medium was also done twice a day. Abundant growth of *Spirulina* platensis was observed by tenth day, which was harvested with the help of screen-printing cloth.

Key Words : *Spirulina,* medium, inoculum, screen printing cloth.

Section of Biosciences

ANALYSIS OF CODON USAGE BIAS IN GENOME OF ANABEANA VARIABILIS ATCC29413

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ABSTRACT

Anabeana variabilis ATCC29413 is a filamentous heterocyst forming cynobacterium that fixes nitrogen and CO2 using the energy of sunlight via- oxygen - evolving plant - type photosynthesis.(Peterson, et.al 1978). This strain has been studied extensively for the production of hydrogen using solar energy (Happe, et al. 2000, Borodin et al.2000). The genome of *Anabeana variabilis* ATCC 29413 is consist of 6,365,727 nucleotides with 41% GC content, and 81% coding regions (Copeland , et al 2005). Total 5134 gene are present including 5043 protein coding gene , 29 pseudogenes , 62 structural gene and rest are uncharacterized . Sequences of total 5043 gene were retrieved from the NCBI ftp site (ftp.//ncbi.nlm.nih.gov./genome/bacterial) and using the inhouse developed software tools nucleotide composition, codon frequency, RSCU (Grantham, et.al 1980), frequency percentage and amino acid composition values were calculated. The AT and GC content of total 5043 gene are 57.81% and 42.19% respectively. The analysis of 5043 protein coding genes for the values of Codon frequency and RSCU showed that

the codon coding with either Adenine or Thymine are preferred maximally over the Guanine and Cytosine. It is found that codon GCT(Ala), TGT(Cys), GAT(Asp), TTT(Phe), GGT(Gly), CAT(His), ATT(Ile), AAA(Lys), TTT(Len), AAT(Asn), CCA(Pro), CAA(Gln), CGT(Arg), AGT(Ser), ACA(Thr), GTT(Val), TAT(Tyr) and TAA (Stop) preferred maximally to their respective synonymous codons. All these codon present either A or T at third position or even at second position. The organism is AT rich (Genome: 59% and protein coding genes: 57.81%). This AT richness increased the probability of occurrence of A or T at second & third position maximally, showing strong compositional bias in codon preferences.(Sharp, P.M. et.al 1987).

Key Words : *Anabeana variabilis* ATCC29413 - Cynobacteria - Codon usage - Codon frequency - Compositional bias.

Section of Biosciences

MACROPHITIC DIVERSITY AND STANDING BIOMASS OF UPPER LAKE BHOPAL.

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ABSTRACT

Aquatic macrophytes are macroscopic forms of aquatic vegetation and forms the important primary producers of any aquatic ecosystem. Standing macrophytes biomass is usually estimated by quantitative harvest of macrophytes contained in randomly placed samplers of known area Quantative and biomass investigation has been carried out on macrophitic diversity of Upper Lake of Bhopal. During the present study period a total of 11 species were recorded which belonged to 9 families, Najas graminea and Najas minor was the most dominant species, the biomass of Najas graminea species shows highest 134.96 g/m2

Key Words : macroscopic, biomass, harvest and macrophytes

Section of Biosciences

MOLLUSCAN DIVERSITY OF UPPER BASIN OF BHOJ WETLAND BHOPAL, A RAMSAR SITE.

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ABSTRACT

The present study was conducted on molluscan diversity of Upper basin of Bhoj wetland Bhopal a Ramsar site. Mollusca serve as main food for many waterfowls, fishes and human in many regions, during the eight month study period a total of 17 species were recorded belonging to 5 families, which represent only one class i.e. Gastropoda . Bellamya bengalensis typica of family Vivparidae was the most dominant species through out the study period. Most of the molluscan diversity were restricted upto 2 m depth only. Paper also presents the habitat preference of mollusca i.e. attached and burrowing in the mud and sand.

Key Words : Molluscs, Upper basin, wetland, diversity.

Section of Biosciences

EFFECT OF PHOTOPERIODISM ON MOULTING SYSTEM OF A FRESH WATER PRAWN *Marobrachium dayanum*

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ABSTRACT

The effect of photoperiodism on moulting of a fresh water prawn *Macrobrachium dayanum* (Henderson , 1893) was investigated in the laboratory.30 specimens of *M. dayanum*, looking apparently healthy were taken. Specimens with uniform ovarian and testes conditions (immature) only were selected for the experiment. The prawns were divided into three groups (1) Normal i.e. Control (2) continuous 24hrs. dark and (3) continuous 24hrs.. light conditions. Body size was 35-70 mm in total length of all the test animals. The survival rate of the prawns reared under 24hrs. Complete light was also higher as compared to continuous darkness and normal i.e. control.. The study indicates a positive effect of continuous light on moulting of a fresh water prawn *Macrobrachium dayanum.* The highest moulting occurring in complete light indicates longer photoperiodism and rise in temperature caused due to heat generated from the bulb used in the aquarium has a positive effect on the growth of M. dayanum.

Key Words : Photoperiod, Moulting, *Macrobrachium dayanum*, Immature, Temperature, Growth.

Section of Biosciences

COMPARATIVE EFFECT OF GROWTH REGULATORS AND CYANOBACTERIAL FILTRATE ON IN VITRO SHOOT REGENERATION OF S*tevia revaudianabertoni*

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ABSTRACT

Nodal segment with axillary bud of 0.5-1.0 cm long cultured on initiated MS medium supplemented with cytokinin. Highest frequencies of shoot initiation were obtained on MS medium supplemented with BA (1.5 mg/l) alone within one week of inoculation. For elongation and multiplication the combination of BA 1.5 mg/l + IBA 0.25 mg/l + GA3 1.5 mg/l and Adenine Sulphate (100mg/l) proved to be best. Excised shoots were rooted on half strength MS medium supplemented with IBA (1.5 mg/l) + Charcoal (500mg/l). Rooted propagules were acclimatized and successfully transferred to green house. The micro propagated plantlets survival rate was observed to be 95%.

Micropropagation by conventional techniques is typically a labour intensive time taking means of clonal propagation.

Several biochemical's have been added to conventional plant tissue culture media in order to promote plant regeneration. Use of cyanobacteria in this process might just be the alternate option. Maximum proliferation however was obtained on media containing cyanobacterial filterate(5ml/l and 10ml/l) for initiation and maturation medium respectively + Sucrose (3% w/v) + CaCl2 (0.44mg) + MS (without GR). All reports till date use cyanobacterial extracts, extracellular products/ filtrate. The present research communication gives a unique report on use of cyanobacteria in regenerating with field survival rate 99%. A comparative study was performed between MS with GR and cyanobacterial medium+ MS(without GR) were the results of observation showed that cyanobactrial medium+ MS (without GR) was more effective than MS with GR.

Key Words : In vitro propagation, *Stevia rebaudiana*, Growth regulators, Charcoal, acclimatization, cyanobacteria medium.

Section of Biosciences

GENOMIC DIVERSITY OF ROTAVIRUS WITH VP4 GENE

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ABSTRACT

Rotaviruses are the single most important etiologic agents of severe diarrhea in infant and young children world wide and are responsible for nearly 65-80 million deaths every year in children up to 5 year old in developing countries. Rotaviruses have been isolated from wide array of animal species including humans and have been shown to fall into seven antigenically distinct groups between which antigenetic cross- reactions are not observed.

The genome of the rotavirus consists of 11 segments of dsRNA. The nucleotide sequence of VP4 genes of most genotypes have been determined exhibiting highly diversified strains consisting of 312 bp to 2368 bp. VP4 is a minor component of the virion (1.5% of virion proteins). However, it constitutes an important outer capsid protein with various functions involving hemogglutanating activity, carries neutralization specific epitopes, post translationally cleaved by trypsin into product VP5 and VP8 which enhances the virion infectivity and influences pathogenecity attenuation in human. VP4 genes of the various rotavirus strains have been sequenced and sequence comparisons have allowed study of the common features and diversity in human and other animals. Present analysis has shown preferred codon usage in various strains of rotaviruses pathogenic in human and other selective animals.

The average GC and AT per cent values of VP4 gene of rotaviruses in the coding regions are 35.40% and 64.60% respectively. The CAI value has been plotted against the number or frequency of genes which reveals that most of the genes are positioned between the range of 0.54 to 0.78 having higher frequencies between 0.70 to 0.75 with an average of 0.672. Analysis has revealed that rotavirus is an AT rich organism. The detailed analysis of RSCU values of 456 genes indicated that A or T is preferred at the third position of the codons in rotaviruses. It is, thus, concluded on the basis of CAI values that compositional constraint remains a major operational factor in gene expression.

Key Words : Rotavirus, Diarrhea, Nucleotide sequence, VP4 gene, Codon usage,

Section of Biosciences

HISTOPATHOLOGICAL CHANGES IN GILL EPITHELIUM AND LIVER OF AFRICAN CATFISH, *Clarias gariepinus*, EXPOSED TO COPPERSULPHATE

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ASTRACT

Laboratory study was undertaken to evaluate some histopathological changes resulted from the exposure of a freshwater fish *Clarias gariepinus* to sub lethal concentrations (2.0 and 5.0 mg/l) of copper sulphate for a period of 60 days. Fish having mean weight and length 80-110g and 15-18cm respectively were kept in different concentrations of coppersulphate in different aquaria. The 96 hrs. LC50 value was calculated to be 16.5 mg/l of copper sulphate. Controls were also maintained simultaneously. The main histopathological changes observed in gills exposed to different copper sulphate concentrations were fusion of three to four secondary lamellae, edema, vascular congestions, lifting of lamellar epithelia and hyperplasia of gill epithelium. Although less frequent lamellar disorganization and lamellar aneurysms were also noted. The liver of control group exhibited a quite normal architecture, while the fish exposed to copper sulphate showed vacuolation, nuclear degeneration, hypertrophy of hepatocytes, pycnotic nuclei haemorrhage and haemolysis due to rupture of blood vessels. The toxic responses evaluated from gill and liver histology of C. gariepinus exposed to copper sulphate can serve as potential biomarkers for assessment of copper toxicity in environmental biomonitoring.

Key Words : Copper Sulphate, *Clarias gariepinus*, Histopathology, Gill and Liver.

Section of Biosciences

GENETIC ANALYSIS OF SOME QUANTITATIVE CHARACTERS IN SESAME

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ABSTRACT

Knowledge of the genetic architecture of yield and other characters help to formulate a meaningful breeding strategy for developing improved genotypes. Studies on the genetic analysis of some quantitative characters in Sesame. Mean differences for seed yield and other characters except capsules per plant between progenies and line were significant ($P<0.01$) The correlation of yield and other characters revealed that days to flowering displayed a negative and significant association with branches/plant, while days to maturity and plant height had a positive and significant correlation with yield the partial regression indicates that only days to maturity and plant height contributed significantly and positively towards yield which suggested that selection based on these characters could be exploited for the improvement of yield of Sesame crops.

Key Words : Genetic architecture, Significant correlation, Contributed significantly.

Section of Biosciences

ENVIRONMENTAL IMPACTS OF MINING ON BUNDELKHAND REGION OF UTTAR PRADESH, INDIA

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ABSTRACTS

Surface mining creates more pollution with respect to under ground mining. This paper highlights the impact of mining on air, water and human health in and around the mining areas of Jhansi district of Bundelkhand region. The mining activity comprising drilling, blasting, loading of waste, its transportation and crushing of ore has considerable impacts on the environment and well being of living organism. Mining either by opencast or by underground methods damages the water regime and thus causes a reduction in the overall availability of water in and around the mining areas. This study showed that the ground water and surface water was alkaline in nature. Mineral handling, mineral preparation and associated activities mainly contribute RSPM and SPM to the surrounding environment. The minimum and maximum value of RSPM and SPM was 155?g m-3 to 234?g m-3 and 393?g m-3 to 541?g m-3. High levels of suspended particulate matter increase respiratory diseases such as chronic bronchitis and asthma causing health hazards to the exposed population. Metals like Cu, Fe, Mn, Ni, Pb etc. show the above permissible limits in water.

Key Words : Surface mining, Pollution, Mine handling.

Section of Biosciences

SYNTHESIS OF ORGANIC COMPOUNDS USING MICROWAVE RADIATIONS ON SOLID SUPPORT

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ABSTRACT

Ethers and their thio-analogues are synthetically useful compounds used in the field of drugs and agrochemicals. Thioethers are the building blocks in the synthesis of various organosulfur compounds which are used in many biological processes. Esters and their thio-analogues are among the most used protecting groups in organic synthesis. They can protect and deprotect the organic functionalities under wide variety of conditions. Carboxyl protection via thioester formation gives derivatives which are stable to mild alkali and reducing conditions and very useful in peptide synthesis. Thioesters have also been used to protect phosphate groups in nucleotide synthesis. Several methods are known in the literature for the synthesis of esters, ethers and their thio-analogues, which make use of various bases such as Cs2CO3, NaHCO3, K2CO3 and NaH-Pyridine. Nevertheless, the methods reported involves tedious work up , use of expensive reagents and gives poor to moderate yield. Among the reported methods, only two deserve much as convenient laboratory methods for the synthesis of these compounds. The first one is palladium

mediated alkylation and second one makes use of tributylphosphine as a catalyst for acylation of alcohols. Recently, an improved method has also been reported for the synthesis of esters, ethers and their thio-analogues using CsF-Celite as a catalyst. No doubt, these methods are good in terms of reactivity; however reaction time is very long and takes up to 48 hrs in the presence of hazardous organic solvent. Organic reactions on solid supported reagents coupled with microwaves are currently of increasing interest due to their greater selectivity, enhanced reaction rates, cleaner reaction products and operational simplicity.

Key Words : Microwave radiations; Ethers; Organosulfur; Thioesters; Solid support.

Section of PhSysical Sciences

DETOXIFICATION OF WATER THROUGH ADSORPTION OF HAZARDOUS METAL IONS ON TO POLYMER MICROSPHERE

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ABSTRACT

The increase in industrial activity during recent years is greatly contributing to the increase of heavy metals in the environment, mainly in aquatic system. Water pollution due to heavy metals is an issue of great environmental concern. Heavy metals ions such as arsenic, cobalt, copper, mercury, nickel, chromium, zinc, lead are detected in the waste stream from mining operations, refining ores , sludge disposal , fly ash from incinerators , processing of radioactive materials, manufacture of electrical equipments, paints, alloys, batteries, pesticides, petrochemical industries as well as textiles mill products.

Key Words : Aquatic Systems, Heavy Metals, Radioactive Material

Section of Physical Sciences

SIGNIFICANCE OF ORGANIC FERTILIZERS

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ABSTRACT

Food security, nutritional security, sustainability and profitability are the main focal areas of the present Indian agricultural development. Organic fertilization is a method of farming system in such a way as to keep the soil alive and in good health by the use of organic wastes (crop, animal and farm waste, aquatic waste) and other biological materials along with biofertilizers. The soil organic matter content represents a huge reservoir of plant nutrients and an effective safe guard against pollution, besides it can sequestrate atmospheric CO2. Components of organic fertilization can be grouped into the green manures, crop rotation, organic manures, biopesticides and biofertilizers. It helps in maintaining environment as health by reducing the level of pollution. It reduces human & animal hazards by reducing the level of residue in the product. It also increases the agricultural products and makes it sustainable.

Organic fertilization improves the physical and chemical properties of soil. Excessive and imbalanced use of chemical fertilizers has adversely affected the soil causing decrease in organic carbon, reduction in microbial flora of soil, increasing acidity and alkalinity and hardening of soil. To overcome the adverse effects of chemical cultivation, complimentary use of biofertilizers, organic manures is suggested. Rapid deterioration of soil health due to adoption of high doses of chemicals has been the concern of the environmentalists. Present level of nitrogenous fertilizers usage in India has increased the ground water nitrate contamination due to leaching. Use of biofertilizers offers a strategy to protect environment besides food quality. Further, biofertilizers offer wide scope to reclaim waste lands

due to biological activities of polysaccharide and organic acids secretion, phosphate solubilization, nitrogen fixation, improvement of physicochemical characters of soil and increase of organic stock of soil.

Key Words : Organic fertilization, Organic waste, Soil fertility, Biological N2 fixation

Section of Physical Sciences

A COMPARATIVE STUDY OF WATER QUALITY OF DIFFERENT WATER BODIES IN AND AROUND BHOPAL

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ABSTRACT

Water is the "elixir of life "that is a wonderful gift that nature has bestowed on us .Out of various sources of water, lakes are subjected to severe pollution due its stagnant water and numerous anthropogenic activity around it. Due to this quality and quantity of utilizable lake water decreases there by causing water pollution and crisis.

Bhopal is the capital of M.P is known as city of lake, owing to large number of water bodies in and around Bhopal. Upper lake and Kolar reservoir are the main source of potable water in Bhopal city while the lower lake, Shahpura lake and Halali dam are mainly used for recreational purposes. But they are glossary polluted by domestic raw sewage from surrounding habitation, agricultural waste, industrial waste, floral offering and immersion of Ganesh, Durga idols and Tazia during Gansh utsav, Navratri and Muhrrum. This may lead to decrease in storage capacity of these water resources. During the present study water sample were collected from Upper lake, Kolar dam, Lower lake, Shahpura lake and Halali dam .The water sample were taken from the identified sampling stations of these water resources. It was observed that pollution indicator parameter like B.O.D, C.O.D; nutrients were found to be higher in Shahpura and Lower Lake as compare to Upper lake and Kolar reserviour.

Key Words : Anthropogenic activity, Water pollution.

Section of Physical Sciences

ANTHROPOGENIC ACTIVITIES AND LAKE CHEMISTRY WITH SPECIAL REFERENCE TO SHAHPURA LAKE

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ABSTRACT

The purpose of this study is to observe and compare the detrimental impact of anthropogenic activities on Lake Chemistry and ecology in special reference to Shahpura Lake, Bhopal and Pichhola Lake of Udaipur. Shahpura Lake is one of the important lakes of Bhopal and is constructed in year 1974-75 under the Betwa Irrigation Scheme. The water quality of the Lake is deteriorated due to untreated wastewater, siltation, encroachment, and excessive growth of aquatic weeds, grazing in the fringes areas, washing activities, unmanaged fisheries and outflow through spillway. In the last two decades, the water quality deterioration was too high along with odour problems and

directly affects the aquatic system along with public health. After having taken some major steps, the solid waste problems could be managed a little bit but untreated wastewater through sewerage and drainage is still a big problem for the Lake. A reconnaissance also revealed that the lack of awareness among the shopkeepers and public still causes the minimum effect of Government initiation for the water quality improvement. In the present study, it was observed that water quality deteriorated a lot at the sampling station behind EPCO which is very near to the Panchsheel Nala. Different Physical parameters like pH, DO, hardness, chloride, B.O.D,C.O.D were assessed.

Key Words : Ecology, Sewerage, Unmanaged fisheries.

Section of Physical Sciences

BIOLOGICAL HYDROGEN PRODUCTION
(A clean energy source for the future)

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ABSTRACTS

Hydrogen gas is seen as a future carrier by virtue of the fact that it is renewable, does not evolve the green house gas CO2 during combustion, liberates large amount of energy per unit weight during combustion and is easily converted to electricity by fuel cells. Photosynthesis bacteria undergo an oxygenic photosynthesis with organic compounds or reduced sulphur compounds as electron donors. Non-sulphur photosynthetic bacteria are potent H2 producers, utilizing organic acids such as lactic, succinic and butyric acids or alcohols as electron donors. Since light energy is not required for water oxidation, the efficiency of light energy conversion to H2 gas by photosynthetic bacteria is in principle much higher than that by cyanobacteria. H2 production by photosynthetic bacteria is mediated by nitrogenase activity although hydrogenases may be active for both H2 production and H2 uptake under same conditions. In laboratory experiments, a maximum energy conversion efficiency of 6-8% is observed using Rhodobacter species.

Key Words : Nitrogenase, Hydrogenate, Photosynthetic bacteria, Photosynthesis, Cyanobacteria.

Section of Physical Sciences

RELIGIOUS ACTIVITIES AND THEIR IMPACT ON WATER RESOURSES WITH SPECIAL REFERENCE TO TAPTI POND AT MULTAI DISTT. IN BETUL (M.P.)

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ABSTRACT

The Tapti River originates in the Betul distt. from a place called Multai. The river Tapti flows 752 Km from Betul (Distt of MP) to join Arabian Sea. As the Pond is supposed to be the origin of the river Tapti, which is considered a sacred river and in its honour, an Annual Tapti Fair is held for the last 15 days in November and is

attended by 10,000 to 15,000 people. The water of this pond is mainly used for irrigation as well as for drinking purpose. The main cause of pollution in this pond is religious activity in and around the pond as well as surface run off from the catchments area which is mainly occupied by Agriculture Land. This pond has a religious as well as medicinal importance. There is an old belief that by taking holy bath in this pond, skin diseases can be cured. Water pollution is increased due to pollution load through various anthropogenic activities like bathing, laundry, religious activities, idol immersion, dumping of wastes, sewage wastewater etc.

During the religious activity, Idols of various sizes during festival of Lord Ganesh and Durga Devi Puja are immersed. The floating material released though Idol decomposition releases nutrient and ultimately resulting in "Eutrophication" of the ponds. The other activities, sewage and agricultural run-off also add nutrients as well as other pollution load causing deterioration of water quality of the pond as well as river Tapti. Present study focused on the testing of water at surface & bottom layers. The samples were collected before idol immersion and after idol immersion and it was assessed that these religious activities cause pollution which is evident from higher values of nutrients, B.O.D, C.O.D in post immersion samples.

Key Words : Eutrophication, Religious Activities, Pollution.

Section of Physical Sciences

STUDY OF PHYSICO-CHEMICAL CHARACTERISTICS OF WATER OF BHARAT NAGAR & CHHATRASAL NAGAR OF BHOPAL CITY

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ABSTRACT

Water is essential for the survival of any form of life. It covers nearly 72% of the earth's surface. It is needed for the domestic, agricultural, power production and other industrial processes. But, owing to rapid industrialization and ever increasing population, great harm has been caused to physico-chemical parameters of water.

Due to the discharge of harmful industrial effluents and other man-made activities water gets polluted. Water samples from Bharat Nagar and Chhatrasal Nagar of BHEL, Bhopal were collected & analyzed for various parameters like hardness, pH, conductivity, temperature, BOD, COD, DO and ions like Nitrate, Bi-carbonate, Chloride, Sulphate, Zinc, Magnesium, Calcium and Sodium. It was found that water of these areas is not suitable for drinking. As a result of which, cases of amoebiasis and cryptosporidiosis (water borne diseases) have increased in these areas.

Key Words : Industrialization, Amoebiasis, Cryptosporidiosis, Industrial effluents, Physico-chemical parameters

Section of Physical Sciences

TOXIC SUBSTANCES AND THE ENVIRONMENT-AWARENESS PROGRAMME FOR CHEMISTS

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ABSTRACT

Increasingly, chemists are faced with legislation requiring assessment of hazard and risk associated with the production of, use and disposal of chemicals. In addition, the general public is concerned about the dangers that they hear may result from the widespread use of chemicals. They look to the chemist for explanations and assume that chemists understand such matters. When they discover that chemists are often ignorant of the potential of chemicals to cause harm, their confidence in the profession is lost and chemophobia may result. In 1993, IUPAC agreed a joint project between the Toxicology Commission and the Committee on Teaching of Chemistry to produce a multi-author book, 'Fundamental Toxicology for Chemists'. This book was published in 1996, with a second, expanded edition in 2005, and an ongoing related distance-learning programme available through the internet and on CD. The distance-learning programme currently consists of seven units, one of which deals specifically with environmental toxicology. The contents of each unit will be explained as each has some input into environmental matters. In addition the programme includes a case study of dichlorodiphenyltrichloroethane (DDT) and a paper on Toxicology and Ethics, both of which will be presented. Each unit includes assessment exercises, some of which will be demonstrated.

Key words : Legislation, Toxicology, Disposal, Distance Learning, DDT.

Section of Physical Sciences

SOME INNOVATIVE GREEN TECHNIQUES TO BE USED FOR THE CHEMISTRY PRACTICAL DEMONSTRATION

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ABSTRACT

Commercially available apparatus, cost of chemicals and glasswares are not within the reach of every laboratory of schools and colleges. Therefore, it is necessary to apply such innovative techniques which overcome the mentioned problems and are beneficial for students. Again it is the need of the day that we must apply green technologies to protect the nature and human race. In the present paper, use of some innovative green techniques for demonstrating various chemical experiments are discussed. Use of detergents instead of organic solvents for surface tension determination is a good green technique .Plastic reaction vessel covered by thermocole casing can be used as readily available calorimeter instead of thermos flask or classically used calorimeter. Low cost multi-meters can be modified into conductivity meters for comparing the conductivity of different solutions. Used sketch pen riffles for flame test, use of empty ophthalmic medicine bottle as gas delivery devices for qualitative analysis can be applied.

Alum, washing soda, blue vitriol, baking soda & common salt for inorganic analysis and house hold sugar, starch, oil, potatoes and pulses may be preferred for identification of carbohydrates, fats and proteins in food products. In this way, these and other such type of innovative green techniques used for practical demonstration will be a boon for teachers, students and our nature too.

Key words : Innovative, Green techniques, Calorimeter, Conductivity, Qualitative analysis

Section of Physical Sciences

WATER QUALITY STATUS OF MACHNA RIVER IN THE CITY OF BETUL (M.P.)

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ABSTRACT

The river Machna originates from Sasawad village near Amla Distt. Betul. Its total length is 77.95 kms and it passes through Betul city And joins to Tawa river.The main causes of pollution in river Machna are the joining of domestic sewage of Betul City, industrial effluents coming from Kosami industrial area and idol immersion. The water of river Machna is also being used for irrigation purposes. Rapid urbanization, industrialization and population growth have affected it a lot. Its water is mainly used for the drinking purpose of the city. In India the rivers are worshipped like a Goddess and many fairs are organised every year on the famous rivers like Ganga, Shipra, Godavari etc. During the present study, samples were collected for the assessment of water quality at a stretch of 5 kms in Betul city. The sampling stations were fixed so as to cover all the activities that are sewage inlet, washing and bathing activity, industrial effluents, idol immersion. Physico-chemical parameters like pH, Dissolved oxygen, Hardness, Chloride, Nitrate and Phosphate were analyzed and it was observed that there is an increase in nutrients like phosphate, nitrate at sampling station carrying surface runoff from agricultural fields. Similarly higher concentration of Chloride was recorded at Nala carrying sewage.

Key Words : Physico- chemical parameters, Dissolved oxygen.

Section of Physical Sciences

BEHAVIOUR OF HYDANTOIN TOWARDS SURFACTANT AGGREGATION

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ABSTRACT

Detergents are extremely important in studies of biological membranes because of their ability to solubilize membrane proteins. They are soluble amphiphiles and above a critical concentration known as the critical micelle concentration (CMC), self-associate to form thermodynamically stable, noncovalent aggregates called micelles. Chaotropes such as urea perturb the organization of molecular assemblies whose formation is driven by the hydrophobic effect. This is due to their ability to weaken hydrophobic forces by breaking down the water structure. On the other

hand hydantoin drugs which are basically the cyclic derivatives of urea are known to favour micellization (Chemical physics 291, 195, 2003). The present piece of research work compares the role of urea and its one of the derivative glycolylurea or hydantoin towards micellization of sodium dodecyl sulphate (SDS) and cetyltrimethylammonium bromide (CTAB). Like its higher derivatives, hydantoin is seen to aggregate with CMC values of 8 and 8.2 mM. determined by conductivity and spectrophotometric methods respectively. This molecule is seen to favour micellization of SDS and CTAB. The CMC of SDS in seen to decrease from 7.8 to 4.1 mM. by varying the concentration of hydantoin from 1 mM. to 10 mM. A similar trend has been found in case of CTAB. The CMC of CTAB decreases from 0.75 mM to 0.4 mM by increasing the concentration of hydantoin from 1 mM. to 10 mM. On the other hand, CMC of SDS increases by the addition of urea in the system. However, no regular trend in the increase in CMC of SDS has been found in presence of urea. The thermodynamic parameters in favour of aggregation of hydantoin have also been determined and discussed.

Key Words : Surfactant, Micelles, Chaotropes, Critical micelle concentration, Hydantoin.

Section of Physical Science

CRITERION FOR HAMILTONIAN CIRCUITS IN SPECIAL GRAPHS

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ABSTRACT

In this paper we get a criterion for a graph to be Hamiltonian . If G be a graph if there is a circuit visiting all the vertices of G exactly once we call it Hamiltonian circuit. The area of study of Hamiltonian graphs have been concerned with the possibility of traveling around a graph going along edges in such a way as to visit every vertex. A graphs which contains a dominant circuit of minimal length is called special graph. With the help of this we charactercize a special graph as Hamiltonian or non Hamiltonian. We give certain examples to corroborate our theory.

Key Words : Circuits, Simple graph, Hamiltonian graph, Non Hamiltonian, Dominant Circuit

Section of Physical Sciences

RISK ANALYSIS USING FUZZY LOGICS

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ABSTRACT

The paper gives the tool to assess the risk in the form of different levels. The Fuzzy set theory and possibility is used in the form of fuzzy logics. A fuzzy set operation is an operation on fuzzy sets. These operations are generalization of crisp set operations. There is more than one possible generalization. The most widely used operations are called

standard fuzzy set operations. There are three operations: fuzzy complements, fuzzy intersections and fuzzy unions. This can be used in different areas like finance, decision making, artificial intelligence, neural network and different management areas.

Key Words : Fuzzy set, Fuzzy logics, Possibility, Crisp set, Fuzzy operations.

Section of Physical Sciences

ASSESSMENT OF NEGATIVE IMPACT ON ENVIRONMENT

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ABSTRACT

The main pollutants released due to transport are sulphur-dioxide, carbon dioxide, oxides of nitrogen, lead, hydrocarbon, particulates, odour, etc. In general, pollution due to traffic contributes to 42% of the air pollution. In major metropolitan area this figure is about 60%. It means that traffic is one of the major sources of air pollution. The level of pollution not only affects human being but to the whole vegetation includes animals, birds. According to the present research not only human being but animals, birds are also suffering from pollution born diseases. Most of the birds either migrate or their breading period as well as fertility gets disturbed. Some of the species where in the condition of endangered secedes. The experimental evidence was obtained from animals or human being on the specific effect amongst which protection is sought mortality or some other effects. Such standard may very from place to place. Smoke, flush, dust, fumes, lead, carbon oxides, sulphuroxides, nitrogen oxides may causes lung diseases, effect heart, eye, skin even may causes death. Odour and irritating properties of diesel exhausts are related to the concentration of aldehydes. The threshold of odor occurs at 0.2-0.3 ppm by volume and eye irritation at 1ppm method to reduce pollution (i) Control crankcase emission (ii) A control device called positive crank case ventilation PCV prevents blow by from the crank case by returning gases to the cylinder to be burned inside the engine instead of being vented into the atmosphere.

Key Words : Environment, Threshold odor, Transportation, Control crankcase emission, Positive crank case ventilation (PCV).

Section of Physical Sciences

HETEROBIMETALLIC COMPLEXES OF DTPA: EQUILIBRIUM STUDIES

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ABSTRACT

Equilibrium studies of some heterobimetallic ternary complexes of diethylene triamine penta acetic acid (dtpa) have been carried out potentiometrically in the biologically relevant condition . In the present paper, the result of Pb-Ni-DTPA system are discussed. Pb and Ni are chosen for the reason that they have adverse /toxic effect on

human body and the intake of these metals from enviorment is quite likely. DTPA complexes have been utilized in decarporating some of the toxic metal ions from the body of exposed animals. Hence a thorough knowledge of such equilibria can be seen as a tool to decide the specific conditions for the formation of such complexes in vivo.

Key Words : Heterobimetallic ternary complex, Toxic metal ions.

Section of Physical Sciences

VALUE ADDED PRODUCTS FROM JATROPHA CURCUS LEAF OF M.P., CHATTISGARH

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ABSTRACT

Jatropha curcus belongs to the family Euphorbiacea, its other species are J. gossypifolia, J. tanjorensis, J. multifida, etc. It is a bushy, gregarious shrub of about 2-4m in height ,which excudes whitish coloured, watery latex when cut. It has green leaves, alternate to sub opposite,hree to five lobed with a spiral phyllotaxis .The leaves of Jatropha are used for intermittent fevers, carbuncles, eczema, itches, sores on the tongues of babies, swollen mammae, stomachache and veneral disease. The leaf decoction is used for bathing wounds [Morton,1968] .The leaf extract has been used as an anticoagulant for biochemical and haematological analysis [Odul et. al.2005].The bark contains the alkaloid jatrophine and a lignin [jatroiden] which is found in its stem [Robineau 1991 and Horstem et al 1996]. The stem latex has been shown to posses coagulant activity and its mechanism of action as haemostatic agent found to be by precipitation of coagulant factors [Odul et.al.2005].

There is much potential of Jatropha as medicinal plant. Oil of curcus possesses purgative properties and also as hair growth stimulant .Tender twigs of plants are used for cleaning teeth .The juice is reported to relieve toothache and strengthen gums .The juice of plant is used as purgative and haemostatic .The dye may be extracted from leaves and can be concentrated to a yellowish syrup or dried to blackish brown lumpy mass. This dye imparts cotton different shades of tan and brown ,which are fairly fast. Tender branches and leaves are also used as manure for coconut trees. Jatropha curcus leaves provide plentiful organic matter and increase the microbial activity including earthworm which is an indication of improvement of site.

Jatropha seeds may be the answer for future fuel introduction, its stem, leaves etc. are also having great importance in our lives.

KeyWords : Gregarious shrub, Haemostatic agent, Leaf decoction, Veneral diseases, Rubefacient

Section of Physical Sciences

SYNTHESIS, IDENTIFICATION OF SOME P-EPIMERIC ORGANIC PHOSPHORAMIDATES AND THEIR INHIBITORY ACTION TOWARDS ENZYMES

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ABSTRACT

Phosphoramidates (N-P) are biologically active organic compounds because they are capable of inhibiting enzyme action. A few members of this class were synthesized and checked for their anticholinesterase properties and they were found to be a good reactive phosphorylating agent to block AChE rather than BuChE in the poisoning process. The presence of chloro-substituent (either ortho- or para-) in the aryl moiety of these phosphoramidates does not show any significant contribution during toxicological study made in vitro. These phosphoramidates were characterized by FT-IR, 31P NMR and GC-MS spectral studies.

Key Words : Phosphorylation, Phosphoramidates, Anticholinesterase, 31P NMR, Toxicity

Section of Physical Sciences

PHYSICO-CHEMICAL ANALYSIS OF GROUND WATER QUALITY OF SEHORE DISTRICT

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ABSTRACT

Water is the most essential to life next to air. Safe drinking water is primary need of every human being. Water quality is a very sensitive issue today because water quality gradually decreases due to human activities, industrialization and urbanization. A systematic study has been carried out to explore the physico- chemical characteristics of ground water at Sehore, 40 water samples were collected from various locations and analyzed for pH, conductivity, DO, TDS, Total alkalinity, Total hardness, Chloride, Fluoride, Nitrate, Phosphate and Sulphate. Most of the physico- chemical parameters are within the permissible limits of WHO standards for drinking water except fluoride. However some samples also show the little higher concentration of nitrate and phosphate content, but most of the samples show fluoride content higher than the permissible limit. Fluoride content of the ground water samples varied from 0.5 to 3.48 ppm. About 22 samples were found to contain fluoride concentration above the permissible limit of 1.5ppm.This high fluoride is responsible for fluorosis. Fluorosis is an endemic disease occurring commonly in many part of Sehore. Many cases of fluorosis have been reported in Sehore. It is suggested to reduce the fluoride content from water by sedimentation, flocculation and filteration. The study also indicates the need for periodic monitoring of ground water for physico-chemical characteristics for the safety of drinking water.

Key Words : Safe drinking water, Flourosis, Physico-chemical properties

Section of Physical Sciences

CHARACTERIZATION AND BIOLOGICAL STUDIES OF HG(II) COMPLEX OF SCHIFF BASE DERIVED FORM 5-ACETAMIDO -1,3,4 - THIADIAZOLE - 2 - SULPHONAMIDE

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ABSTRACT

5-acetamido-1,3,4-thiadiazole-2-sulphonamide, trade name acetazolamide, is a diuretic drug (Diuretic drugs increase the output of urine through kidneys). Metal complex of Hg(II) with schiff base derived from salicylaldehyde and 5-acetamido- salicylaldehyde - 1,3,4 - thiadiazole - 2 - sulphonamide have been synthesized keeping in view that some metal complexes are found to be more potent than their parent drugs. The complex was characterized on the basis of elemental analysis, conductivity and spectral studies. The analytical data reflects the metal to ligand stoichiometry to be 1: 2. The ratio of complex formation with the above metal was further confirmed conductometrically using Job's method of continuous variation as modified by Turner and Anderson. The conductivity data of the complex also suggests their non-electrolytic nature. The stability constants and free energy change for the complexes have been calculated. The IR studies reveal the disappearance of phenolic-OH group in complexation. Absorption band at 3303 cm-1 shows the presence of water of coordination in complex. Frequency at 840.49 cm-1 indicates the S-N linkage.The antibacterial activity of different concentrations of pure drug, schiff base and their Hg(II) complex have been screened against bacteria E.coli by the filter paper disc method using nutrient agar as medium. The result indicates that Hg(II) complex shows greater antibacterial activity as compared to schiff base and pure drug. The diuretic activity of these complexes was checked on albino rats and the results have been found to be very encouraging.

Key Words : Diuretic, Acetazolamide, Schiff base, Stoichiometry, E.coli, Agar.

Section of Physical Sciences

COMPLEXATION STUDIES OF ZINC WITH LANSOPRAZOLE-AN ANTIULCERATIVE DRUG

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ABSTARCT

Lansoprazole (LAN) is a proton pump inhibitor (PPI). PPIs have enabled to improve the treatment of various acid-peptic disorders. LAN is a weak base and it can form several complexes with transition and non-transitions metal ions. In the present paper, we are describing the synthesis and characterization of metal complex of Zn(II)

with LAN. Analytical data and stoichiometry suggest ligand-metal ratio as 2:1 for Zn(II) complex. The complex has been synthesized, characterized and the structure assigned to the complex is supported by infrared spectral studies.

Key Words : Lansoprazole, Proton pump inhibitor (PPI), Metal-Complex, Stoichiometry, Infrared studies.

Section of Physical Sciences

FLY ASH - VISION OF THE NEW MILLENIUM

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ABSTRACT

With the boom in population and industrial growth, the need for power has increased manifold. Nearly 73% of India's total installed power generation capacity is thermal, of which 90% is coal-based generation, with diesel, wind, gas, and steam making up the rest. Thermal power generation through coal combustion produces minute particles of ash that causes serious environmental problems. Commonly known as fly ash, these ash particles consist of silica, alumina, oxides of iron, calcium, and magnesium and toxic heavy metals like lead, arsenic, cobalt, and copper.The 80-odd utility thermal power stations in India use bituminous coal and produce large quantities of fly ash. According to one estimate, up to 200 million tonnes of fly ash will be produced in India in the year 2012.Both in disposal and in utilization, utmost care has to be taken to safeguard the interest of human life, wild life, and such other considerations. The prevalent practice is to dump fly ash on wastelands, and this has lain to waste thousands of hectares all over the country. In India, these sites are not lined and it leads to seepage, contaminating groundwater and soil. When fly ash gets into the natural draining system, it results in siltation,clogs the system,also reduces the pH balance and portability of water. Fly ash interferes with the process of photosynthesis of aquatic plants,disturbs the food chain. Besides, fly ash corrodes exposed metallic structures in its vicinity. Fly ash management has taken considerable strides over the past few years. Researches have been attempting to convert this waste into wealth by exploring viable avenues for fly ash management. Fly ash is oxide-rich and can be used as the raw material for different industries.

Key Words : Thermal power generation, Environmental problem, Agricultural applications, Roads & embankments, Minefills

Section of Physical Sciences

SHEAR ELASTICITY OF ORIENTATIONALLY DISORDERED (NaCn)X(NaI)1-X

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ABSTRACT

An Extended Three Body Force Shell Model (ETSM), which incorporates the effects of translational- rotational (TR) coupling, three body interactions (TBI) and anharmonicity, has been applied to investigate the second order

elastic constants C11,C12 and static shear module C44 of orientationally disordered (NaCN)x(NaI)1-x mixed crystals. The SOECs are computed between the concentration ranges 0?x?1 as a function of temperature for the temperature range 50K?T?300K. We have also reported the cohesive and thermal properties.Cohesive energy ( )??, molecular force constant (f), compressibility () , Restrahlen frequency (?????, Debye temperature (D), Gruneisen parameter ( ), Moelwyn Hughes constants (F1) and ratio of volume thermal expansion coefficient (v) to volume specific heat (Cv), are obtained for the same temperature and composition range. The present model calculations are in good agreement with the available experimental results.

Key Words : Orientationally disordered materials, ETSM, TR coupling, Elastic constant, Cohesive energy

Section of Physical Sciences

NANOTECHNOLOGY AND PHARMACEUTICAL INDUSTRY

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Nano means small (10^-9 m) but of high potency, and emerging with large applications piercing through all the discipline of knowledge, leading to industrial and technological growth. In other words nano-sized structure needs to be magnified over 10 million times before we can easily appreciate its fine detail with the naked eye. Nanotechnology is already having its impact on products as diverse as novel foods, medical devices, chemical coatings, personal health testing kits, sensors for security systems, water purification units for manned space craft, displays for hand-held computer games, and high-resolution cinema screens. Nanotechnology is expected to have an impact on nearly every industry. The field of nanostructure science and technology is a broad and interdisciplinary area of worldwide research and development activity that has been growing explosively in the past few years. While an understanding of the range and nature of functionalities that can be accessed through nanostructuring is just beginning to unfold, its tremendous potential for revolutionizing the ways in which materials and products are created is already clear. Nanostructuring represents the beginning of a revolutionary new age in our ability to manipulate materials for the good of humanity. The synthesis and control of materials in nanometer dimensions can access new material properties and device characteristics in unprecedented ways.

During the last decades, pharmaceutical technology has taken the advantage of the advent of nanotechnology and, now days, new pharmaceutical dosage forms are under development to deliver many physicochemically different drug molecules. The present study is to investigate the role and their importance of nanotechnology in the pharmaceutical development.

Key Words : Nanotechnology, Nanoparticles, Nano, Nano materials, Nanostructures

Section of Physical Sciences

THERMAL AND ELASTIC PROPERTIES OF ORTHORHOMBIC RARE EARTH MANGANITES REMNO3 (RE = LA, PR, ND, SM, EU, GD, TB, DY)

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ABSTRACT

The thermal properties of orthorhombic perovskite manganites ReMnO3 in the low temperature spin ordered phase are probed with an atomistic approach using an interionic potential. It is well established that strong electron-phonon interactions are present in these compounds which are responsible for the variation of the lattice specific heat with varying cation size. So, the temperature dependence of lattice specific heat (Cv(lattice)) of ReMnO3 with trivalent rare earth cation (Re = La, Pr, Nd, Sm, Eu, Gd, Tb, Dy) at the A-site has been studied as a function of temperature (10K< T < 200K) by means of a Rigid Ion Model (RIM) after modifying its framework to incorporate the van der Waals interactions. It is clear from the present investigation that the evaluated thermal properties reproduce well the corresponding experimental data, implying that the modified RIM represents properly the predominantly ionic nature of these parent compounds of colossal magnetoresistance (CMR) materials. In addition, the results on the bulk modulus (B), cohesive energy ( ), molecular force constant ( ), Reststrahlen frequency (o) and Gruneisen parameter ( ) are also presented.

KeyWords : Specific Heat, Debye Temperature, Thermal Properties, Bulk modulus, Colossal Magnetoresistance material, manganites.

Section of Physical Sciences

PRESSURE INDUCED PHASE TRANSITION IN MGS UNDER HIGH PRESSURE

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ABSTRACT

In the present paper, we have investigated the high-pressure structural phase transition of magnesium sulfide (MgS) using the three-body potential (TBP). This TBP model includes Coulombic, three-body interaction, vander Waals forces, and overlap repulsive interaction operative up to second neighbor ions. Phase transition pressures are associated with a sudden collapse in volume. The phase transition pressures and associated volume collapses obtained from present potential model show a generally good agreement with available experimental data than others.

Key Words : Chalcogenides, high-pressure, Phase transition, volume collapse, Three body Potential.

Section of Physical Sciences

CARBON TRADING

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ABSTRACT

When we just started to realize and probably talk more about 'Global warming' we talk about carbon emissions into earth's atmosphere which have resulted in drastic climate change. The International agreement (Kyoto Protocol) linked to the United Nations Framework Convention on Climate Change (UNFCCC), sets binding target for reducing green house gas (GHG) emissions, a commodity was created in the form of emission reductions or removals. Since carbon dioxide is the principal green house gas, the term has become simply of trading in carbon. Carbon is now tracked and traded like any other commodity, is known as "Carbon Trading", and is one of the Kyoto mechanisms of "Carbon Market". Under Kyoto protocol all developed countries will have to cut down their emissions by 5.2% below the emissions in 1990 else they have to pay heavy fines. Now one way of measuring how much they are polluting the air, is by calculating the GHG emissions due to their production. They have various ways to aggregate these units called "CER" of "Certified Emission Reduction" or one tonne of CO2 equivalent. "Carbon" has become the single biggest commodity ever traded; another aspect of it which makes it important is the solution it offers to a common problem.

Section of physical sciences.

AN OLD SOURCE OF NEW DRUG :- MEDICINAL PLANTS

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ABSTRACT

The Indian region with a total area of 32 million hectares is very rich in biological diversity.It is estimated that about 45000 plant species occur in India. The population of India depend upon the traditional

System of medicine, for curing diseases since ancient time. Now a days most of the modern drugs are designed from the natural products, obtained from the medicinal plants. Although a large number of synthetic drugs are available in the market, still there exist enough scope for researchers to explore the medicinal flora to get new effective drugs.

For the photochemical investigation authenticated plant material is extracted with rectified spirit. After complete extraction filtrate is concentrated under reduced pressure. The crude mass obtained is subjected to column chromatography. Different fractions obtained are subjected to Paper Chromatography & TLC. The compounds obtained are characterized with the joint applications of Chemical as well as Spectroscopic methods. In this way the herbal drugs can be designed at cheaper costs.

Key Words : Medicinal plants, Extraction, Photochemical, Chromatography, Spectroscopic methods.

Section of Physical Science

EVALUATION OF FLUORIDE AFFECTED AREA IN RAISEN DISTRICT M. P. AND PREVENTIONARY STEP TO GET SAFE POTABLE WATER

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Water is an essential commodity of life. Low rainfall in Consecutive years results in scarcity of water. As the surface water source is limited, we have to depend on ground water for everyday Need. With the increasing need for the number of tubewells and Borewells are also increasing. Although the external pollution in Groundwater is less than surfacewater, but the chances of fluoride Concentration is more. Ground water usually contain fluoride ion Dissolved from geological formation. Fluoride in water has been the Subject of extended debate in recent years.Many cases of endemic Fluorosis have been reported in Haryana, Punjab, Andhra Pradesh & In some district of Madhya Pradesh. Fluoride is not absorbed in the blood stream It has an affinity for calcium and get accumulated in bones resulting In molting of teeth,skeletal fluorosis, outward bending of legs, Deformation of knee joints and other parts of body&even paralysis. Hence it is a matter of concern and there is continued search for how The concentration of fluoride increases and cross the limiting value. The work under investigation is of physicochemical and geochemical

In nature, as the work is related to detection of fluoride concentration

Key Words : Physico-chemical, Geo-chemical, Endemic, Fluorosis

Section of science and society

उच्चचतर माध्यमिक विद्याालयों में कक्षा 9वीं से पढ़ने वाले हिन्दी मातृभाषी और अहिन्दी मातृभाषी विद्यार्थियों में हिन्दी भाषा के वर्तनी संबंधी दोषों का अध्ययन

अर्चना गुप्ता

नवनिध हसोमल लखानी पब्लिक स्कूल, भोपाल

भोपाल म.प्र. के उपनगर संत हिरदाराम नगर के माध्यमिक स्तर के एक विद्यालय के 80 छात्र-छात्राओं को शोध अध्ययन के लिए चयनित किया गया। इन छात्रा-छात्राओं को 100 अंकों की सर्वनिमित प्रश्नोत्तरी दी गई। प्रत्येक के दो विकल्प (एक सही और एक गलत) दिए गए थे। सही विकल्प के लिए विद्यार्थी को 1 अंक प्रदान किया गया और गलत के लिए कोई अंक नही दिया गया।

प्रश्नोत्तरी को अलग-अलग उपखंडों में विभाजितकिया गया था जिसमें वर्तनी संबंधी दोष के साथ साथ लिंग वचन संबंधी अशुद्धियाँ संधि-समास अशुद्धियाँ, अनुस्वर-अनुनासिका संबंधी अशुद्धियाँ तथा वर्ण संबंधी अशुद्धियाँ दी गई थी। हिन्दी तथा अहिन्दी मातृभाषी छात्र-छात्राओं द्वारा भरी गई प्रश्नोत्तरी का तुलनात्मक अध्ययन किया गया। सांख्यिकीय परीक्षण ''टी टेस्ट'' के द्वारा मूल्यांकन के पश्चात यह पाया गया कि वर्तनी संबंधी दोष का मातृभाषा से कोई विशेष संबंध नही है। वास्तविकता यह है कि भाषा के उचित ज्ञान के लिए आवश्यक है कि छात्र-छात्राओं को व्याकरण का सही ज्ञान प्राथमिक कक्षाओं में ही कराया जाए। एक बार व्याकरण संबंधी नियमों का सही ज्ञान हो जाए, तो छात्र-छात्राएं वर्तनी संबंधी दोष कम करते हैं। वर्तनी संबंधी दोष उन छात्र-छात्राओं में भी कम पाया गया जिसमें हिन्दी भाषाा के पठन पाठन को रूचि पाई गई।

मुख्य बिन्दु : वर्तनी, भाषा, व्याकरण, हिन्दी एवं अहिन्दी मातृभाषी विद्यार्थी

Section of science and society

म.प्र. में कृषि का विकास एवं कृषि उत्पादकता

एच.बी. गुप्ता

उच्च शिक्षा उत्कृष्टता संस्थान, भोपाल

प्रदेश की कृषि को अर्थव्यवस्था के लिए रीढ़ की हड्डी माना जाता है। प्रदेश में कृषि दो तिहाई नागरिकों के जीवन का साधन है। प्रदेश के संदर्भ में यह कहा जाता है कि यदि मध्यप्रदेश की आत्मा गाँवों में निवास करती है, तो गाँवों की आत्मा कृषि में निवास करती है। कृषि एक तरह से संपूर्ण अर्थव्यवस्था को प्राणवायु देती है।

प्रदेश की 73% जनसंख्या ग्रामों में निवास करती है। अधिकांश जनसंख्या का ग्रामों में निवास करने के कारण उनका प्रमुख व्यवसाय कृषि है। प्रदेश का कृषि व्यवसाय मूलत: प्रकृति पर निर्भर है। कृषि के प्रकृति पर निर्भर होने के कारण यहाँ के निवासी

वर्ष में केवल दो फसल रबी एवं खरीफ ही ले पाते हैं, जिस वर्ष वर्षा समय से नहीं होती उस वर्ष उत्पादन बहुत कम हो जाता है। प्रदेश में मुख्यत: चावल, गेंहूँ, अरहर, चना, सोयाबीन आदि का उत्पादन किया जाता है। मध्यप्रदेश में सोयाबीन का उत्पादन सबसे ज्यादा होने के कारण इसे सोयाबीन राज्य के नाम से जाना जाता है। सोयाबीन के कुल उत्पादन का 67% उत्पादन मध्यप्रदेश में होता है।

प्रदेश में कृषि अभी तक मुख्यत: पुरानी विधि द्वारा ही की जाती है। क्योंकि समाज में जागरूकता नहीं है। जैसे जैसे किसानों में जागरूकता आती जा रही है किसान नये सिरे से खेती करने में ज्यादा रुचि लेने लगे हैं। प्रदेश में लगभग 20216 हजार हैक्टेयर क्षेत्रफल में विभिन्न कृषि फसलें उगाई जाती हैं जिसमें से मात्र सिंचित क्षेत्रफल 65431 हजार हेक्टेयर है। मध्यप्रदेश में अभी भी सिचाई 31% है जो अन्य प्रदेश की तुलना में काफी कम है। सिचाई की सुविधा कम होने के कारण ही कृषि मुख्यत: मानसून पर निर्भर रहती है। शासन के लगातार प्रयास के कारण सिचाई का क्षेत्रफल कुछ बड़ा है तथा अच्छे किस्म के बीज, उपकरण आधुनिक यंत्रों आदि की उपलब्धता के कारण उत्पादन भी बढ़ा है। प्रदेश की अर्थव्यवस्था में कृषि का विशेष योगदान है। प्रदेश की कुल आय में लगभग 24% कृषि से प्राप्त होती है। यद्यपि इसमें लगातार गिरावट आई है तो प्रदेश के लिए एक चिंता का विषय है। इसके पूर्व प्रदेश की आय में कृषि का योगदान लगभग 44% था।

म.प्र. में यदि कृषि का योगदान प्रदेश के आय में बढ़ना है तो यह बहुत आवश्यक है कि कृषि उत्पादकता में वृद्धि की जाए। म.प्र. जिन फसलों के उत्पादन में देश में अपना प्रथम स्थान रखता है उन फसलों की भी उत्पादकता अन्य राज्यों एवं देश की तुलना में काफी कम है। तो चिंता का विषय है। म.प्र. में सोयाबीन का उत्पादन सबसे अधिक होता है 67% सोयबीन प्रदेश में उत्पादित होता है इसके बावजूद भी प्रति हेक्टेयर सोयाबीन उत्पादकता देश की तुलना में कम है। यह खुशी की बात है कि उपरोक्त खदान के अतिरिक्त प्रदेश व्यवसायिक एवं औषधि फसलों तथा मसालों के उत्पादन में भी उल्लेखनीय प्रगति की है। इसका ही यह परिणाम रहा है कि प्रदेश सोयाबीन राज्य के साथ ही साथ औषधिय फसलों की खेती के लिए भी जाने जाना लगा है। इससे जहाँ एक ओर प्रदेश की आय में वृद्धि हुई है वहीं दूसरी ओर किसानों की आय में भी उल्लेखनीय वृद्धि हुई है।

कृषि की उत्पादकता यदि बढ़ानी है तो सिंचाई का प्रतिशत बढ़ाना हेगा। साथ ही साथ जैविक खाद अच्छे किस्म के बीच आदि की उपलब्धता भी सुनिश्चित करना होगा और उक्त कार्य तभी संभव हो पायेगा जब इन सबके संबंध में किसानों को समय समय पर बहुमूल्य जानकारी प्रदान की जाये। साथ ही उन्हें आवश्यक सामग्री भी उपलब्ध कराई जाए।

Section of science and society

''कोरकू जनजातीय समाज में विवाह की लमझेना प्रथा''

सुखदेव डोंगरें एवं साधना ठाकुर

जे.एच.पी.जी. कालेज, बैतूल

जनजातीय समाजों में भी अन्य समाजों की तरह विवाह संस्था पाई जाती है। वस्तु यह स्थानीयता के कारण अन्य से भिन्नता लिए होती है। जनजातीयों के वैवाहिक संस्कार भी कुछ अनोखी विशेषता लिए होती है। जो भारत की अन्य लोगों की वैवाहिक व्यवस्था से इन्हें अलग कर देते हैं।

जनजातीय समाजों में अन्य समाजों की अपेक्षाकृत स्त्रियों की स्थिति बेहतर रही है। इनमें दहेज प्रथा के विपरीत वधु मूल्य की प्रथा प्रचलन में है। यह प्रथा कन्या विक्रय से अलग है इसमें अनिवार्य रूप से वर पक्ष, वधु पक्ष को एक निश्चित रकम दी जाती है, जो वस्तु या नकद के रूप में हो सकती है। वधु मूल्य का निर्धारण पंचों द्वारा किया जाता है।

वधु मूल्य प्रथा की व्यापकता तथा अधिक वधु मूल्य के कारण गरीब जनजातीय व्यक्तियों के लिए कठिन हो जाता है इस समस्या के हल के लिए गरीब जनजातीय परिवारों के लड़कों द्वारा वधु व उसके माता पिता की सेवा करने का कार्य किया जाता है। सामान्यत: यह प्रथा उन्हीं लोगों के लिए है जो निर्धन होने के कारण वधू मूल्य नहीं चुका पाते। कोरकू जनजाती में इस प्रकार विवाह करने वाला ''लमझेना'' कहलाता है। वधू मूल्य और आदिम जाति सामान्य निर्धनता को ध्यान में रखते हुए लमझेना प्रथा को व्यापक रूप से पसंद किया जाता था। बहुधा कोरकू संयुक्त परिवार में विवाहित पूंजी या दामाद की उपस्थिति का कारण 'लमझेना' प्रथा है । कोरकू में इस प्रथा के अनुसार वर को 12 वर्ष की निश्चित अवधि तक ससुराल पक्ष की सेवा करनी पड़ती है। लमझेना को घर के कार्यों में नौकर जैसा समझा जाता है। कड़ी मेहनत करवायी जाती है। लमझेना परिवार द्वारा सौपें गये कार्यों को करना अनिवार्य रहता है। लमझेना को दिये गये कार्यों के अतिरिक्त अन्य सभी बातों में घर के सदस्य जैसा व्यवहार किया जाता है। निर्धारित अवधि के समाप्त होने के बाद लमझेना एवं उसकी पत्नी की सामाजिक मान्यता पंचों द्वारा वधु पक्ष से भोज लेकर प्रदान की जाती है। मुख्यत: वधु मूल्य की अधिकता अर्थात अधिकता ही लमझेना प्रथा का मुख्य कारण रही है। समय के साथ साथ तथा अन्य समाजों के संपर्क में आने से इसके स्वरूप में परिवर्तन दिखलाई पड़ता है। शहरी क्षेत्रों में रहने वाली कोरकू जनजातीय परिवारों में यह प्रथा समाप्त हो चुकी है जबकि ग्रामीण श्रेणी में यह प्रथा देखने को मिलती है।

Section of science and society

सूचना तकनीकी एवं परिवर्तित व्यवसायिक संरचना व स्तरीकरण

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वर्तमान यूग वैश्वीकृत सामाजिक व्यवस्था है जिसमें तकनीकी के विषय में ज्ञान एवं सूचना प्रमुख स्त्रोत है एलेन के अनुसार इस युग (उत्तर औद्योगिक समाज) की जीवन धारा सूचना तकनीकी है। सूचना की पहली विशेषता तकनीकी है इस परिपेक्ष्य में स्पष्ट रूप से कहा जा सकता है कि जब कोई नई तकनीकी आती है तो उसका उद्देश्य होता है कि वह काम में लाई जा सके और यदि पहले सही उपलब्ध है तो और अधिक उपयोगी ढ़ग से प्रयोग हो। समाज में व्यवसायिक संरचना के स्वरूप में सूचना एवं तकनीकी प्रभाव शीलता स्पष्ट है वर्तमान समाज ने रोजगार की संरचना को बदल दिया है एक ओर अभिजन कामगार है तो दूसरी ओर बेरोजगार लोग है। वर्तमान समाज में ज्ञान की अर्थ व्यवस्था की प्रभावशीलता है। ज्ञान की अर्थव्यवस्था को सूचना युग और नई अर्थ व्यवस्था का समाज भी कहते है इस नई अर्थ व्यवस्था में समाज की व्यवसायिक संरचना में बदलाव अनिवार्य लक्षण के रूप में शामिल है। आज समाज में जाति, परिवार, लिंग तथा वर्ग आधारित सामाजिक स्तरीकरण में अन्तर आ गया है। नगरीय क्षेत्र में वैश्वीकरण की प्रभावशीलता से निर्मित तथ्यों की प्रमुखता रही है। शिक्षण एवं प्रशिक्षण के बहुत एवं विविध क्षेत्रों में अवसरों की

उपलब्धता के साथ ही कार्य में विशेषीकण की बढ़ती आवश्यकता ने समाज में उद्योग व्यवस्था व सेवा के क्षेत्र में वृद्धि की है। वर्तमान सामाजिक संरचना में उपसंरचना ईकाइयों की अधिकतम एवं विविधताओं की स्थिति में निरन्तर परिवर्तन के कारको का प्रभाव एवं परिणाम का अध्ययन करने पर विशेलेषित रूप से यह बात स्पष्ट होती है कि आज समाज में विभाजन हो गया है जो जाति परिवार लिंग व वर्ग के स्तर पर विशेषीकृत रूप से स्पष्ट होता है।

Section of science and society

A COMPARATIVE STUDY ON THE INTAKE OF VARIOUS NUTRIENTS BY PREGNANT WOMEN OF THAR DESERT AND ARAVALLI PLAINS

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ABSTRACT

Abnormal cases of pregnancy are mostly the result of several factors, including environment and food habits. It is difficult to change the environment but it is relatively easy to change food habits. A number of factors influence food habits. These include, among others, educational and economic level of community, availability and cost of foods and social and cultural practices. Traditional beliefs influence profoundly the pattern of food eaten. It has generally been observed that many rural and urban pregnant women in Rajasthan consume different diets during and after pregnancy for a normal labour and parturition etc. Perhaps this nutritional practice may account for the negligible number of caesarean cases in rural areas in comparison to the urban ones.

Present paper will deal with a comparative study based on a survey, on the intake of various nutrients by pregnant women of Thar desert and Aravalli plains. The desert covers the entire districts of Jaisalmer and Jodhpur and parts of Barmer, Bikaner and Nagaur districts and mostly neglected from the education point of view and counseling is required for a better nutrition during pregnancy. Scorching heat, severe winter, very arid climate, scarcity of trees and availability of grasses for 2-3 months only are some of the characteristic features of the desert which make it different and difficult for several such purposes. The mobile sand dunes, the deep water table and uncertain rainfall provide no chance for stable agriculture and the people depend largely on the rearing of sheep, goats and camels. Bajra or Pearl millet and pulses are the main crops here. On the other hand the Aravalli plains receive sufficient rainfall and as a result there are scrub forests here. This zone includes the districts of Jaipur, Sikar, Alwar, Bharatpur, Dholpur, Karauli, Sawai Madhopur, Dausa and Tonk. The major produce here is of wheat, barley, gram, oilseeds and rice. Nutritional values of crops of the desert and the Aravalli Plains differ considerably and pregnant women of the two zones consume largely preparations of the produce specific to their respective zone which will be discussed.

Key Words : Parturition, Normal labour, Nutritional practice, Counseling, Scrub forest.

Section of science and society

E-EDUCATION: THE JOURNEY HAS JUST BEGUN

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ABSTRACT

E-Education means education with the help of electronic mode like video, web i.e. technology based. There are several advantage of E -Education and the electronic mode. Knowledge can reach to any corner through satellite without heavy cost. Here the copies can run into as many number as the number of viewers. Thus per unit cost of developing knowledge, preserving and distribution becomes petite. Yet another advantage is that electronic resources are flexible in its nature so any change or updating can take place without loss of time and are economical. It was not so easy in the case of print media

Once the knowledge is preserved in E-contain form it can be made available at the least cost in the class room as well as to the students at there convenient time and place.

E-contain can be developed in the following format:

* Video based programmes
* Web based programmes
* Technological application
* Instructional design
* Learning object Repositories

E-Education is a futuristic endeavour and this is the most appropriate time for its implementation. The initiative, once taken shall add tremendous value to the present teaching process and will transform into a large extant.

Key Words : E-Education, E-contain, Instructional design, Web, Technology.

Section of science and society

ANALYISIS OF READING HABITS OF TODAY'S TEENAGERS

(SCIENCE & MEDIA)

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ABSTRACT

In this age of electronic media dominance, children and youth spend more time watching television, playing video-games and chatting by e-mail, but they do not get much time to read books. So a study was conducted recently (last week of January, 2009) amongst classes IX, X, XI and XII of two semi-urban schools. A questionnaire was designed and circulated amongst 25 girls and 25 boys between the age of 14 to 18 years. In addition to demographic information, questions related to awareness of various newspapers and their contents, current best-

selling fiction, classic fiction, non-fiction, books on personality development, scientific journals and magazines were incorporated in the questionnaire. The findings were tabulated and analyzed on our MS Office Excel Spread. The study revealed that girls read more fiction than boys, while higher percent of boys read non-fiction and science periodicals. Regular readers had better communication skills, were more aware of their surroundings and had a higher IQ (according to their teachers). They were, thus, more socially adept and reacted more positively to the changing stimuli in the environment. A high percent of the readers of scientific materials were those whose parents were professionals, teachers or in the services. A great percentage of the students who did not read at all often showed tendencies of rowdiness and delinquency. The number of readers of scientific material is alarmingly few (about 2%). The media should therefore incorporate science education in its TV-serials, video-games, and even in cartoons and movies so that today's teenagers can become more aware of science and its latest developments.

Key Words : Teenagers, Electronic-media, Awareness, Scientific journals & magazines

Section of science and society

EFFECT OF PARENTS' EDUCATION ON LEVEL OF ENGLISH VOCABULARY OF GIRL STUDENTS

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The study was done on 99 girl students of class V. Parents of 78 girls were at least graduates where as 21 parents were under-educated i.e. had not completed their graduation. A self made vocabulary test comprising of spellings and meanings of words and their usage was administered on the students. After collecting the data from the randomly chosen sample, the scoring was done and T-test was applied.

It was found that the some children of undereducated parents performed extremely brilliant in English vocabulary while some students belonging educated parents were found to be just average. There was no significant difference in the level of learning of English vocabulary between girl students belonging to educated and undereducated parents. Hence, it can be concluded that the students' ability does not depend on her parents' educational background.

Key Words : Vocabulary, Spelling, Educated (Graduates and above), Under-educated (Under-Graduates)

Section of science and society

SCIENTIFIC ATTITUDE AND REASONING ABILITY IN GIRLS

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ABSTRACT

Scientific attitude is really a composite of a number of mental habits, or of tendencies to react consistently in certain ways to a novel or problematic situation whereas any process of drawing a conclusion from a set of premises may be called a process of reasoning. A comparative study of the reasoning ability in science and scientific attitude of girls was conducted in an English medium school in Bhopal. The impact of the parents having science

and non-science backgrounds on their daughters' reasoning ability in science and scientific attitude was investigated. The Science Attitude Scale (Grewal) and Reasoning Ability in Science Test (Joshi and Mahapatra) were used for data collection. Statistical analysis of the collected data revealed that there is hardly any correlation between these two aspects of science neither did the parents background have any significant effect nor the girls scientific reasoning or scientific attitude.

Key Words : Scientific Attitude, Reasoning Ability in Science, Science Background

Section of science and society

COLOURS FROM NATURE

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ABSTRACT

In the millennium before Christ, Indian textiles were well known in Egypt. Block printed dyed fabric from India dating back to the 8th century was discovered at Central Asia. From the 15th to 19th centuries block printed dyed textiles from Gujarat and the Deccan adorned Europeans and their homes. Although the advent of man made fibers has allowed new applications for textile products and many more technological advances have been made, the process of textile manufacture are still very much the same as they have always been. The discovery of synthetic dyes in the 19th century dealt a massive blow to the Indian Textile Industry. When chemical blue displaced natural indigo, it destroyed an entire way of life. Gandhiji intervened to help, leading to an important chapter of the freedom movement. This led to revival of interest in vegetable dyes.

Vegetable dyed fabrics are of three categories:

* Yarn dyed in natural colours and woven.
* Materials block printed with natural dyes and
* Kalamkari.

Vegetable dyes are mellow and lovely, even the fading is graceful and an even process. The background runs and the colours show up, the ingredients of natural dyes are purely natural, they are nonallergic to our body and cause no health hazards associated with chemical based colours and clothes. In fact, in some cases they act as a cure since some of the herbs which are used have medicinal values.The increase in the business of natural dyes is also encouraging the cultivation of dye yielding plants and leading to rural employment. People working in the small scale industry where vegetable dyed products are produced have got a boost with a rise in export demand.The major customers of vegetable dye include textile industry, carpet industry, cosmetic manufacturers, food sectors, weavers, designers, dyers and printers, exporters, NGOs, research and development agencies. Today, clothing fabrics must not only be fashionable but also be produced in environmentally conscious, socially acceptable and efficient ways.

Key Words : Textile manufacture,Synthetic dyes, Vegetable dyes, Rural employment, Export

Section of science and society

INFORMATION TECHNOLOGY & E-GOVERNANCE

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ABSTRACT

The advancement in Information Technology has a profound impact in country's economy, thus the quality of Human life. The convergence of computer, communications and content is creating tremendous opportunities as well as challenges. The I.T. revolution is of great significance than the Industrial revolution of 17th Century. This revolution is opening up new opportunities & possibilities of economic and social transformations from which both developed and developing countries can potentially benefit. The software industry today is emerging as one of the fastest economic sector in the economy for the last five years with a turnover of US dollar 8.2 billion and exports of US dollar 6.2 billion during 2007- 2008. Today the Govt. has targeted an export US dollar 50 billion by the year 2008-09 alone for Indian Software Industry. The Indian Software Professional today has already created their brand image in global market. More than 260 of the Fortune 1000 companies i.e. almost one out of every four global giants out sources their software requirements to India.

Today India's Software Industry has achieved a remarkable distinction for providing excellent quality. A large number of Indian Software companies have International Quality certification. India's natural resources in today's knowledge economy, its abundant technical skilled manpower, this is because India has the second largest pool of English- speaking scientific professionals in the world today, second only to the US. It is the need of the hour to keep with the trends. Administrators, policy makers etc. should constantly hone their capabilities through IT. It is also necessary to train the present work force in a new technology-driven atmosphere. The objective of this paper is to understand the role of I.T. in e-governance culture in India.

Key Words : India, Information Technology, Administration, Governance, Government.

Section of science and society

VIRTUAL WORLD IN CINEMATICS

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ABSTRACT

Computer animation has become a powerful tool in visualizing better imagination.Films have been made almost on every topic from reality to fiction, science to psychology. Drama to geography and many more, nearly very aspect of life is explored in films to its full strength. The cinematic influence is obvious throughout the world from 19th century to date the actual meaning of cinema was understood after years of hard work.

Animation is a new dawn but yet an old genre with the blink of explosion and exploration. The advent of movies since 19th century has given us a wide variety of motion pictures as well as animations. Animation has always been a trade mark for the Disney World and they have proved this by producing amazing characters which only computer animation could bring into action. One can easily observe this as most of the great and successful animated characters are produced by Disney World or Warner Brothers. In 1999 "The Old Giant" an animated movie proved to be the stepping stone for the animation world. The year 2000 was known as the year for better and profound animation in history. In India cinema, the year 2008 proved to be a great year for animated movies i.e., Jai Hanuman, My Friend Ganesha, and Road Side Romeo were screened. Since the first time man started drawing lines, then cartoons and then earliest silent movies; black and white gave way to tech-colors, silence to surround sounds and similarly in the same way animation to computer animation which has become more effective and life like. Cartoon animation has existed since two decades; improvements in technology has opened up a whole new range of opportunities though one must keep in mind that there can be no replacement for classic human acting and characters. The animated characters such as X-men, Lion King, Aladdin, Spiderman, Superman, and many more have been transformed into live action features but there is still a long way to go!

Key Words : Virtual World, Computer animation, Technology, Improvements, Explosion and Exploration

REDUCING BEHAVIOR PROBLEMS IN THE SCHOOL CLASSROOM

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ABSTRACT

Education system is rapidly changing in Indian schools where much of the attention currently is given to improving students' academic achievement addresses issues of curriculum, instructional strategies, and interventions or services for students. However, even after addressing these issues, barriers still remain for some students. An estimated one-third of students fail to learn because of psychosocial problems that interfere with their ability to fully attend to and engage in instructional activities, prompting a call for new directions for addressing barriers to learning. Indian society is now facing the problem of unusual behavior of the school students' at large scale. Increased academic pressure in addition to lots of exposure to audio-visual media has changed the mindset of secondary students alarmingly, causing behavioral problems. Present paper put forth the various reasons, which are responsible for behavioral problems in secondary school students. Based on study of existing database it analyses the various approaches that are adopted by teachers and their respective effect on student's behavior in class. This is aimed to suggest new approaches which go beyond explicitly academic interventions to take on the learning challenges posed by problematic student behavior and the ways schools deal with it. Approaches aimed at improving school and classroom environments, including reducing the negative effects of disruptive or distracting behaviors, can enhance the chances that effective teaching and learning will occur, both for the students exhibiting problem behaviors and for their classmates. It also highlights the crucial role of administrators in enabling mentoring and collaborative opportunities for staff. It endeavors to put forth measures considering that the social and behavioral climate of a classroom can reflect the climate of the school more broadly, and stress on the contributions of strategies or programs to improving student behavior by and large.

Key Words : Unusual behavior, Psychological problem, Mindset, Explicit, Stress.

Section of science and society

POVERTY IN INDIA: AN ANALYSIS

(WITH SPECIAL REFERENCE OF ASHTA CITY)

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ABSTRACT

Poverty means a person's lack of command over adequate goods and services to satisfy his basic needs in relation to food, clothing, medical aid etc. In Indian context poverty means when a person doesn't get a nutritional intake of 2400 calories in villages and 2100 calories in cities but according to government new rules a person will be come under the below poverty line if his/her maximum yearly income is Rs. 15000/-. During the survey author found that in Ashta city approximately 10% part of total population comes below poverty line. It may be a small picture of whole canvas because many family and person cannot be registered them as a below poverty line because of lengthy process and corrupt practices. Author came to know that many person's annual income is just approximately Rs. 2000/- what is this when C.S.O. is forecasting approximately Rs. 38084/- per annum per capita income. It is shameful for us. Now this is the time when we should come forward and take a fight with poverty.

Key Words : Poverty, Per capita income, Literacy, Medical aid, Population growth.

Section of science and society

Database Management system in Vocational Education Programme

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Vocational Education in broader sense has been a part of our living and our traditions. In this sense, its history is as old as of human being itself. The man for his survival was bound to learn certain skills. With the progress of human civilization, skill up-gradation also progressed. The need, time and place have been decisive factors in the process of skill development. Each one of us needs skills - basic skills, life or survival skills, communication skills, inter-personal and social skills, occupational skills, techno-managerial skills, leadership skills etc. It is the level of competence based on knowledge and skills acquired which makes us successful in our life. In this broader perspective, therefore, every one needs vocational education and training in one form or the other, at one stage or the other for better living. The vocational education is learning to do, learning for productivity and learning for employability. A student in order to be more skillful, productive and efficient as a worker in his occupation plans his career for better earning and livelihood through vocational education. The student becomes employable which leads early settlement in life. In this way, the vocational student benefits the society, the national by virtue of being a creative and productive citizen later on.

Key Words : Survival skills, Communication skills, Vocational Education.

Section of science and society

PROTECTION OF NATURAL RESOURCES

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ABSTRACT

The natural resources are the materials which living organisms can take from nature for the sustenance of their lives. Man modified the environment with increasing scientific knowledge and it suits the immediate needs in comparison to any other organism. This scientific knowledge enables man to improve the quality of his life. Natural resources-forest resources, water resources, mineral resources, food resources, energy resources and land resources are already available in nature and they are National properties and India's wealth. Human activities have played a prominent role in environment's serious degradation and depletion through over use, misuse and mismanagement of natural resources to meet the human needs and to satisfy the increasing greed. Population growth is one of the major factors. At present the situation is so alarming that the man-made environment is causing a major threat to the survival of man as well as of other organisms. Urbanization and its associated problems have polluted the environment. Healthy environment is essential for our better health. It is the need of time to protect the natural resources and the individual and social group should unite together and acquire awareness and knowledge, develop skills and abilities and participate in solving real life environmental problems. This paper deals with human interference with the environment, need for public awareness and environmental education for protecting natural resources.

Key Words : Health, Environment, Urbanization, Awareness Environmental Education, Scientific Knowledge.

Section of science and society

USE OF PESTICIDES AND ITS EFFECTS ON THE HEALTH OF FARMERS

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A pesticide is any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any pest. Scientific survey and evidences indicate that particles of pesticides, sprayed or used over crops leave un dissolved and harmful elements which are transferred to human and other living bodies through grains, vegetables, fruits and grasses, causing a number of diseases, ailments and harmful effects on our health. The indiscriminate use of pesticide concerns the presence of pesticide residues in our foods. Children suffer from pesticide residues to a greater extent than adult. Their relative body size is small in comparison to the amount they ingest, and their immune systems are weaker. In children eating a non organic diet pesticide residues are found to be 6 time higher than kids on an organic diet. According to WHO, 14000 people die every year in the third world countries due to pesticide poisoning. Its immediate effect has appeared on environment and ecosystem also.

Large scale death of birds is reported every year. According to study by CCS Haryana Agricultural University, the pesticide residue persistence in agricultural produce, food commodities, animal, feed, fodder, animal products, irrigation water are matter of serious concern as their presence is more than Maximum Residue Limit (MRL) of PFA, 1954, We have chosen this topic for research because the above problem has arisen not only in India but also

in the whole world. More use of pesticides has become dangerous not only for the crops but also effects human being, and environment. I wanted to know the effects of the pesticides on the health of farmers and on the productivity and fertility of the soil.

Key Words : Pesticide, Maximum Residue Limit, Environment, Human being, organic diet.

Section of science and society

TO STUDY THE IMPACT OF MEDIA ON SCIENCE ACHIEVEMENT OF YOUTH OF BHOPAL CITY

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ABSTRACT

In the world today, with the unprecedented improvement in the field of science and technology, media (viz. print media and electronic media) have become almost as necessary as food and clothing. Youth are often more familiar with computers and internet than their parents and teachers. Does access to computer and internet have a positive impact on achievement in schools? The present study is descriptive - survey based in nature. Sample comprised of 200 youths (male / female) of Bhopal city. Random Sampling technique was used for selection of sample. Investigator used self - prepared Questionnaire and school Achievement scores. The data were analyzed with the help of percentages, correlation. The investigator reached to the conclusion that a mixed picture of the impact of computer and internet access on achievement emerged, like some positive relationship, no relationship at all and even negative relationship.

Key Words : Media, Youth, Achievement.

Section of science and society

ORGANIC FARMING IN INDIA - A STEP TOWARDS SUSTAINABLE AGRICULTURE

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Organic Farming is gaining gradual momentum across the world. The ill effects of chemicals used in agriculture have changed the mindset of some consumers of different countries who are now buying organic with high premium of health. Policy makers are also promoting organic farming for restoration of soil health and generation of rural economy apart from making efforts for creating better environment. The global organic area is 26 million hectare roughly along with 61 standards and 364 certification bodies roughly. The world organic market is 26 billion US$. The organic area in India is 2.5 million hectare including certified forest areas. Growing awareness of health and environmental issues in agriculture has demanded production of organic food which is emerging as an attractive source of rural income generation. While trends of rising consumer demand for organic are becoming discernible; sustainability in production of crops has become the prime concern in agriculture development. Organic farming

recognizes that the use of chemical in agriculture does great damage to us and to the environment. This approach to farming is totally unsustainable in the long run and is hazardous to the environment, rural communities and the consumers. Organic farming offers a self supporting and self nourishing food supply. By supporting the Organic movement we are helping to breathe life back into the land. By this research I want to know the present scenario of organic farming in India, attitude of farmers towards organic farming and future prospects not only in organic farming but also in organic marketing.

Key Words : Organic Farming, Sustainable Agriculture, Environment, Restoration of soil, Organic market.

Section of science and society

RURAL INDIA - THE BOTTOM OF THE PYRAMID GAME

(A MARKET IN TRANSITION READY TO BE SHAPED)

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Rural India is a potential market that is seeing significant income growth and employment diversity for the first time in its history. As it gets exposed, rural India will see enormous change in employment patterns, consumption patterns, spending power and aspirations. It offers enormous opportunity to be shaped. In the early 2000s, around 700 million people, i.e.70% of the Indian population lived in 6,27,000 villages, in rural areas. Of this, 90% were concentrated in villages with population less than 2000. According to the study conducted in 2001 by the National Council for Applied Economics Research (NCAER) there were as many "middle income and above" households in rural areas as there were in urban areas.

There were almost twice as many "low income households" in rural areas as in urban areas. There were 2.3 million "highest income" households in urban areas as against 1.6 million in rural areas. NCAER projections indicated that the number of "middle income and above" households was expected to grow to 111 million in rural India by 2007, compared to 59 million in urban India. But why rural India is vastly underserved today? It is underserved today because most business does not recognize the opportunity to shape it.

The purpose of research is to make the correct perception of rural India and build a vision to rise up to the challenge of creating whole new business streams to meet the needs of a low education, high exposure, low income, and high aspirations. The rural market may be alluring but it is not without its problems- low per capita disposable incomes, large number of daily wage earners, acute dependence on the vagaries of the monsoon, seasonal consumption linked to harvests and festivals and special occasions, power problems and inaccessibility to conventional advertising media. Thus rural consumer is not unlike his urban counter part in many ways. What type of strategy to adopt for acceptance, affordability, availability and awareness to tap this underserved market? Rural marketing is thus a time consuming affair and requires considerable investments in terms of evolving appropriate strategies with a view to tackle the problems.

Key Words : Alluring, Disposable incomes, Potential market, Underserved market, Conventional advertising media. and above" households.

Section of science and society

HUMAN RIGHT AWARENESS - A STUDY OF HIGHER SECONDARY STUDENTS

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ABSTRACT

The present study was undertaken with the aim of assessing knowledge regarding Human Rights of the higher secondary students. The total sample for the present study consisted of 60 boys and girls in the age group 16 to 18 years residing in urban areas of the Bhopal district. Human Right knowledge questionnaire constructed by the authors in 2008 was used for collecting of information regarding the existing knowledge of girls and boys about human rights. Results pointed out that most of the students of higher secondary students had very poor knowledge regarding human rights. Total mean scores of the boys are higher than the girls i.e. boys had more knowledge in comparison to girls regarding human rights in 16-18 age group. The result provided a base line for developing a guideline for human right education programme. Every human being should have the knowledge of his rights and privileges and he should assert them. But this should not be the absolute assertion leading to the encroachment of the neighbor's rights and privileges. "Vidhya Dadati Vinayam" The very spirit of this Sanskrit Motto explains that "Vinaya" or humility comes from gaining "Vidhya" or knowledge and it leads to enlightenment. We have to attract upcoming generation not only for excellence research but also for the qualitative, competitive research which increases human values and doesn't encroach on anybody's right.

Key Words : Human Rights, Education, Higher Secondary, Awareness, Ignorance.

Section of science and society

NEW DIRECTIONS FOR AGRICULTURAL MARKETING IN MADHYA PRADESH

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Madhya Pradesh is characterized as a predominantly agricultural State with majority farmers small and marginal engaged in subsistence farming and with very little marketable surplus. Their sales are characterized as distress sales. Their situation in the post reform period has further worsened as a result of the inequitable growth process of the Indian Economy where the benefits of high growth have not trickled down to the grass root levels and rural areas . The falling employment elasticity's in the last three decades and financial starvation in rural areas has further marginalized this section of the population from the growth process. In states like M.P. most farmers are not even able to recover their costs. Keeping all the above in mind, it will not be wrong to say that any efforts to promote agricultural marketing shall remain concentrated to bigger farmers as it is only they who produce marketable surplus. To do away with this inequity and to bring the entire farming community, including small and marginal

farmers into the gamut of increased agricultural sales, there can basically be two ways out,

1. Increase their productivities beyond subsistence levels

2. Provide them minimum basic food security so that dependence on their own farm produce for mere survival can be reduced if not wiped out. This way their farm lands can be diverted to the production of profitable as well as surplus crops.

In the current era of market oriented growth it becomes imperative to connect this segment of the population with the agricultural market so as to make the growth process more inclusive as envisaged in the 11th Five Year Plan. It is in this background that the present paper makes an attempt to (i) review of the working and impact of agri-marketing reforms already undertaken by M.P. Government and (ii)provide suggestions for next generation reforms.

The authors opine that agricultural dynamism can be brought about by adopting measures to increase agricultural surpluses to industry; establishing farmers' corporations on the basis of land and labour equity so as to make new technology in agriculture 'viable'

Policy formulation should also focus on 'thinking big' in the direction of global marketing. Identification of commodities having global demand, changing tastes and preferences and our comparative advantage in developing such products and employing 'GREEN' farming techniques can go a long way in making us global leaders in agricultural trade. In such cases as floriculture, aquaculture, horticulture, medicinal and aromatic plant farming, organic farming, agro-forestry, agro-processing etc., where there is tremendous export potential; public-private partnerships even farmers societies-MNC partnerships can be encouraged. Since such activities require not only lot of initial finance but also proper marketing strategies and linkages, certifications and packaging; in which most of our farmers lack both-capability and capacity.

Key Words : Subsistence, Marketable, Inclusive, Viable, Green Farming.

Section of science and society

A MODERN APPROACH IN BUSINESS: E-COMMERCE

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ABSTRACT

E-Commerce is Buying & selling on-Line, Usually Via the Internet.Typically a Web Site Advertises good & services & the Buyer fills in a form on the web Site to select the items to the purchased & provide delivery & payment details Information is Electronically Transferred from computer to computer in an automated way. It includes technologies like electronic data interchange (EDI), Bar coding, scanning, E-mail and fax & so on.

In E-Commerce Physical presence is not required. E-Commerce opens up new avenues of trading & improves efficiency of conventional Business Processes,markets & services in goods. & services both in domestic & foreign markets . E-Commerce is not simply a concept but it has became a market force of Reckon with. It involves the automation of a variety of Business to Business (B2B) & Business to consumer (B2C) transactions

through reliable & secure connectors.

It provides great opportunities to businesses of the developing countries like India since they will have global customer reach over the internet E-Commerce provides the various opportunities to Business like Broader market. reach ; provides Better customer services ; lower the labour cost ; use of public & private services ; automatic trading of digital goods ; useful fore cooperative product development & distribution ; useful for providing transport & other logistic facilities; provides instant communication with consumers & trading partners.

However in India, infrastructure required for E-Commerce is less as compared to USA & Japan. But even then the continuously expanding adoption of E-Commerce in India will definitely bring about revolutionary changes is our market system.

Key Words : Trading, Logistic facilities, EDI, Public & private Services, Customers Services.

Section of science and society

INCLUSIVE EDUCATION: NEED OF THE SOCIETY

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ABSTRACT

Inclusive education means creating conducive for children with special needs. Inclusive education needs planning and adaptation in the curriculum of the schools. Teachers needed to change their teaching styles to meet the needs of each student to increase educational opportunities for persons with disabilities.

Inclusive schooling practices embrace the idea that since every one is a unique individual one needs to organize schools, teaching and learning so that each student gets a learning experience appropriate to him/her that will result in meaningful learning to high standard of achievement. The objective of inclusive education is to acquaint every one about diversity in society, provide accessibility to education to all provision for tailor made learning, and collaborate with families, agencies and communities.

Education is conceived as most important investment in development & progress of any nation. Right to education is fundamental right of each human being. Integration of differently baled children has to be taken seriously to provide educational opportunities to children with special needs to study in normal schools so as to reduce their isolation and promote psychological acceptance to other school going children. There is no dearth of talent among the students with some disabilities, the society has to take it seriously for development of their full potential, this needs proper attention from all.

Key Words : Learning environment, Meaningful learning, Development & progress, Educational opportunities, psychological acceptance.

Section of science and society

EMOTIONAL INTELLIGENCE: A NEW OUT LOOK

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ABSTRACT

The emergence of concepts like emotional competence, emotional labour, emotional creativity, feelings, mood and temperament helped us to understand human behaviour. The term "emotional intelligence" became popular with the Goleman's book 'Emotional Intelligence' (1995).Soon it was evinced that effectiveness of workers, work groups and organization is shaped by emotional and social competencies.

The big five personality factors provides integrative framework and focuses on a core set of behavioural traits - OCEAN (Openness to experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism) which along with emotional intelligence enhances inter personal skills of individual., higher level of life satisfaction and lower level of depression.

Today students at all level are facing ample of stress in order to fulfill the demands of fast moving scientific life, which make them more prone for psychosomatic disorders, where as according to big five personality traits a high level of EQ would help for better management of stress & lower level of psychological distress. Emotional intelligence utilizes the maximum potential of students, officers, beaurocrates etc. and provide effectiveness in work situation by developing sense of empathy about others in interpersonal and intrapersonal aspect of individual. The present paper examines the relationship of Emotional Intelligence with personality and overall performance of the person.

Key Words : Emotional creativity, Behavioural traits, Psychological distress

Section of science and society

EMOTIONAL INTELLIGENCE: A COMPARATIVE STUDY OF THE LEVEL OF EMOTIONAL INTELLIGENCE OF STD. XII

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ABSTRACT

The study was done on 40 girls and 40 boys of class XII of Navnidh Hasssomal Lakhani Public School and Mithi Gobindram Public School respectively. The standardized test Emotionally Intelligence was administered on randomly chosen adolescents. After scoring t-Test was applied. It was found that there was no significant difference between emotional intelligence of girls and boys of class XII. The researcher concludes that care should be not taken not only towards the academic but also the emotional concerns of the adolescence students.

Key Words : Emotional Intelligence, Adolescence, Emotional concerns.

Section of science and society

IDENTIFICATION OF LEARNING DIFFICULTIES ON FACTORS IN ALGEBRA BY CONSTRUCTING DIAGNOSTIC TEST AN EXPERIMENTAL STUDY

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ABSTRACT

Today the overall development of a nation depends mostly on the scientific development. Mathematics is called the mother of science. Every subject is somehow related to mathematics. It is closely related to our daily life. In spite of this there are a number of reasons; lack of teaching interest in teachers, intellectual causes and family causes affects the children's mathematical education. Generally the students have a feeling of fear towards mathematics, especially algebra. So there is a great need of creating diagnostic tests to identify their deficits in the subject. These causes could be removed by remedial teaching in schools. The purpose of the study was to identify the learning difficulties on factors in algebra of class VIII students by constructing diagnostic test. 50 students of two schools of Bhopal city were taken as the sample. Pre-test was applied to identify the learning difficulties on factors in Algebra. After remedial teaching, post -test was applied. In pre-test 30% students were successful, 70% students were failed .After remedial teaching, on post-test 85% students were passed and 15% students were failed .The statistical techniques used for the analysis of data were percentage, Standard deviation and t-test.

The result of study shows that the achievement level of the students increases after remedial teaching as compare to conventional teaching.

Key Words : Diagnostic test, Algebra, Achievement level, Learning difficulties, Conventional, Remedial teaching.

Section of science and society

EFFECT OF SOCIO-ECONOMIC STATUS ON ACHIEVEMENT OF STUDENTS IN SCIENCE

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ABSTRACT

A family's socio-economic status is based on family income, parental education level, parental occupation and social status in the community. Families with high socioeconomic status often have more success in preparing their young children for school because they typically have access to a wide range of resources to promote and support young children's development. They are able to provide their young children with high quality child care, books and brainstorming games to encourage them in various learning activities at home. Moreover, they have easy access to information regarding their children's health as well as social, emotional and cognitive development. In addition,

families with high socio-economic status often seek information to help them better prepare their young children for school. How equitably the benefits of schooling are distributed across students from different socioeconomic backgrounds can be understood by examining the relationship between socio-economic background and student performance. In the present study, SES was measured by an index that included information describing family structure, parental education and occupation and whether a student's family has specific educational and cultural possessions at home. The relationship between SES and science achievement has been measured by grouping students into four SES quartiles and comparing their average science scores. The data analysis revealed that socio-economic status and access to resources are extremely important factors that influence student achievement in science. A positive relationship between SES and science performance has been found. When access to resources both within the family and school are limited, students suffer and lag behind in their academic achievements. Providing extra funding for the poorest schools and offering incentives for quality teachers to work in disadvantaged schools could be the beginning steps for a more successful future for all students. Consequently, there is a need to reduce educational wastage through student counseling at the secondary and pre-university levels, and the expansion of tertiary and university education.

Key Words : Socio-economic status, academic achievement, brainstorming, emotional and cognitive development, educational wastage.

Section of science and society

ECONOMIC STABILITY AND NUTRITIONAL STATUS

(ANALYTICAL STUDY OF RURAL AND URBAN WOMEN IN MADHYA PRADESH)

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ABSTRACT

The health and nutritional status of women directly influence her newborn's birth weight and chances of survival, her competence to rear and her ability to take care of other children and household members. In a situation where she is engaged in any type of income generating activity, economic stability of that house hold will also extensively depend on her well being. Economic stability and good health pave way to societal well being and thus national well being. It is globally recognized that addressing any sector in isolation may not yield desired results. This is true for nutrition sector also. Hence a comprehensive approach is needed for policy formulation to grassroots level implementation involving all the allied sectors, key ingredients of this integrated approach are , clear nutritional goals at policy level , strategies to improve house hold food and nutrition security, caring for the socially, economically and nutritionally deprived women and children, preventing and controlling major public health micro nutrient deficiencies promoting appropriate diets and healthy life styles supported with strong monitoring and evaluation mechanism which can food into mid course correction. National family health survey 2001, demonstrated that Madhya Pradesh is home to highest percentage of children (55%) who are suffering from both acute and chronic under nutrition as measured by weight for age indicator also. This high proportion of under weight children (55%) has remained unchanged since early maternal and infant mortality rates are also very high in Madhya Pradesh as revealed in latest finding by sample registration system. These sensitive yet crucial indicators are greatly influenced by the

nutritional status of women in the state. Unit level data appertaining to 15.49 ever married women age group is considered for the study variables used in the study are region, type of residence (rural /urban) height, weight, anemia status, BMI of the respondent, respondent's education level and occupational status. In the survey M.P. has been divided into seven regions. The study shows that across regions rural women are more prone to under nutrition and they co exist in all the regions.

Key Words : Nutrition, Economic stability, BMI, Nutrient deficiency, Anemia status.

Section of science and society

IMPACTS OF CLIMATE CHANGE AND DISASTERS ON FOOD

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ABSTRACT

Sustainable development of the earth's limited water and land resources is of paramount importance, because of rising populations and often conflicting demands for these resources.

Climate change and climate variability, typhoons, floods, droughts and other climate elements related to natural disasters have a direct influence on the quantity and quality of agricultural productions access, on new technology in agricultural and food production, such as modern irrigation schemes, soil un-conservation and management techniques and erosion control. These should in any case be accompanied by knowledge of information about weather and climate and other related environmental factors to make full of technological advanced. Therefore environmental monitoring of climate and agro climate on the region of Monsoon Tropical Climate with many disasters of South Eat Asia in general, and particular in Vietnam, are important problem for National, Regional food security. Real situation of food security in Vietnam: It is shown that food assess on the poverty. Poverty is widespread in Vietnam but has been significantly reduced during the 1990s, largely as a result of the rapid economic growth; Stability of food supply and assess of rice and other food crops in Vietnam is seasonal. Food prices rise in the months leading up to Tet (New Year by Moon Calendar) and in the between- harvest period of March-May, and fall during the main rice harvest in September-November. The impacts of climate change and disaster here Shows the impact of climate change and disasters (typhoon, flood and drought duration ENSO events, ...) on food crop yields such as rice in Winter- Spring and Summer crop season, maize, soy-bean... and then directly Influence on Agriculture and Food security in Vietnam; Decision-makers and practice for sustainable development on agriculture and food security in Vietnam and some other developing countries as well.

Planning ahead: Your emergency food supply

Canned goods, such as ready-to-eat canned meats, fruits and vegetables, are good choices. Foods in glass bottles and jars may break in a disaster. Canned foods can be kept almost indefinitely as long as they are not leaking or bulging. For optimal quality, it is best to replace canned goods every 12 to 18 months.

Key Words : Sustainable development, Food security, Disaster, Canned goods and Canned foods.

Section of science and society

SCIENTIFIC TEMPER AND ETHICAL CONCERNS

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Although ethics are significant in all walks of life, this paper highlights the ethical concerns associated with the environment and the medical world. Man's inquisitive tendency leads him to explore the hidden treasures and resources of nature and to utilize them for the benefits of humanity without considering the repercussions of endless and ignorant utilization. This resulted in distortion of natural harmony causing self-destruction. Since nature and its wilderness is an integral companion to man, the bioethical notion and environmental philosophy demands a permanent and stable behavioral code of conduct for the conservation of nature and its resources. The dominant environmental issue of the day is pollution: Air, Water and Soil, which constitute the basic life support system for all living beings. A threat to them is a threat to our existence. Other environmental issues include- Deforestation resulting in floods, soil erosion, environmental and ecological imbalance; Green House Effect resulting in global warming; Depletion of ozone layer causing skin cancer and other diseases, disposal of toxic wastes creating long term consumerist attitude towards life. The techno-economic forces have exploited nature to its utmost. This mercenary attitude was never questioned-perhaps because man, being the most privileged creature has dominion over the whole of nature. The current global concern for nature and environment stems from the motive of protecting the interests of man, because our exploitation of nature has rebounded to pose threat to our basic life support systems. Medical technology is probably the most advanced branch of technology today. But technicalization has stunted human skill in doctors and has made them medical technicians. The medical profession is at cross roads and it is difficult to predict what directions it will take in future because it lacks ethics. A patient is looked upon as a distorted machine, completely overlooking their psycho-socioeconomic dimensions. This has undermined the ethical and humanitarian aspects of the profession. Further deterioration has occurred due to unprecedented commercialization of medicine in the recent years.

Key Words : Scientific temper, Ethical concerns, Medical technology, Technicalization, Psycho-socioeconomic dimensions.

Section of science and society

PREVALENCE OF THYROID DISEASE IN YOUNG GENERATION: A REVIEW OF BHOPAL RESEARCH

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ABSTRACT

The aim of this study is to know about thyroid problem, and to show its prevalence with clinical spectrum of thyroid disease in young generation of Bhopal district. Bhopal is known as city of lakes but unfortunately research

evidence shows the contamination of soil, water, and ground water, vegetable and breast milk by a range of toxic chemicals present in alarming concentration, which affect, directly or indirectly health of men & women of Bhopal. The function of the thyroid gland can be inhibited by a variety of chemical agents collectively referred to as goitrogens, because they suppress T3 & T4 hormone synthesis.Over a period of two year five month 600 cases were selected to make this study. They had a few symptoms of thyroid disease. All 600 cases were from different areas of Bhopal. They were selected by purposive sampling method to form this subject of study. Data was collected through interview and questionnaire technique. Signs &symptoms, Nutritional status, clinical investigation, and anthropometry measurement included in this questionnaire form. Statistical formulas are used for analysis of this research.

In this study, out of 600 cases 172 male cases and 428 female cases were selected. They were in the age group of 18 to 45 years. In this study, data shows that out of 600 cases 308 cases were detected with thyroid disease having strong symptoms, 180 with mild symptoms and 112 were found with undiagnosed thyroid having mild symptoms. This demographic result shows prevalence of this disease and the shocking report is that only 280 were aware and would like to treat this disease. : Thyroid disease is difficult to diagnose because symptoms are easily confused with other conditions. Untreated thyroid disease can lead to severe long term complications such as infertility, anemia, osteoporosis, diabetes and cardiac diseases. If thyroid is not treated properly long term major problem related to metabolism, absorption were seen in patients. Now- a- days thyroid disease is common in younger women which affect reproductive function. This probably only applies to severe cases of hyper- or hypothyroidism. Once adequately treated, neither of these disorders significantly impacts on fertility. Thyroid disease is a life long condition. With careful management of lifestyle, stress, dietary management and proper medication, people can live healthy normal lives.

Key Words : Thyroid, Osteoporosis, Goitrogens, Hypothyroid, Hyperthyroid.

Section of science and society

EFFECTIVENESS OF CONSTRUCTIVIST APPROACH ON PROBLEM SOLVING AND METACOGNITIVE SKILLS

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ABSTRACT

Constructivism is a psychological theory of knowledge which argues that human beings construct knowledge and meaning from their experiences.. One of the enduring problems that educators in the sciences face in classroom teaching is how to ensure a well-structured knowledge base without overburdening students with facts, formulae and inert knowledge. It must be realized that teaching should be designed not only for broad coverage of the field but also for the opportunities to master important concepts and practice key intellectual abilities. Of fundamental importance is the development of students' problem solving skills and metacognitive abilities at secondary level, as this creates the foundation for future learning. In this study, the investigator tried to find out the effectiveness of constructivist approach on problem solving and metacognitive skills of students in science at secondary level. The aim was to strengthen the metacognitive and reflective skills of students to assist them in adopting the strategies and reflective processes that enabled them to define, plan and self monitor their thinking during problem solving. It was

found that constructivist approach has positive effect on the development of metacognitive skills of students in science. The data analysis revealed that constructivist approach is equally effective for both boys and girls. The results indicate that there is significant influence of constructivist approach on problem solving ability of students. Learners need to be given opportunities to develop understanding of concepts and learning process skills, and be given ample opportunity to practise them in the context of the subject matter domains where they will have to use them. It is proposed that metacognitive skills can be fostered by developing learners' awareness of the problem solving approaches of experts, offering modeling and training in problem solving strategies and employing pedagogies that enable learners to monitor and self correct their own problem solving approaches.

Key Words : Problem solving, Metacognition, Constructivism, Reflective skills, Modeling and training.

Section of science and society

IDENTIFICATION OF USERS' INFORMATION NEEDS: AN ANALYSIS OF INTER-LIBRARY LOAN REQUESTS FOR JOURNALS

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ABSTRACT

The paper describes an attempt made to identify the Sant Hirdaram Girls College library users' information needs by using data of inter-library loan (ILL) requests. ILL requests received for the year 2007 and 2008 were analysed. There were 125 documents requested during this period. The parameters studied were: frequently requested journals. The study found that 16 journals were the most frequently requested journals, in which 31.8 per cent of requested documents had been published. About 50 per cent of the requested documents were published since 1998. The results show that female library users heavily seek information from selected items and those that were published in the past few years.

Key Words : User needs, Information, Library user studies, Inter-library loan, Library collection development.

Section of science and society

'SENSATIONALISATION' OF SCIENCE BY THE ELECTRONIC MEDIA

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ABSTRACT

Journalism functions in any society by sensitizing people to issues and contemporary problems. However, there is a thin line between sensitization and "Sensationalisation ". As compared to the print media which has a limited access the electronic media has far reaching influence. With the beginning of 24 X 7 news channels and the corresponding dearth of reporting material there is a constant need to "create" news so that maximum eyeballs can

be attracted to the television screen. Today Science has also been sacrificed as a victim in the race to gain TRPs. In today's globalised and highly competitive age, the need to attract the attention of the society at any costs has led to the falling of standards and moral vacuosity. The electronic media has not shied away from using the scientific world to further its own ends. Over the years, one finds that scientific phenomena are explained to the common man in the grab of superstitions. Theories such as the Big Bang, the truth about UFOs or even the birth of a genetically defected child is sensationalized by reporters/news presenters with no scientific background and knowledge, using banal language. Popular news channels twist scientific truth and present them to the society quoting public interest.Stories on science usually fall into few decided categories - break through stories, explaining new inventions and scare stories explaining natural phenomena in a gothic manner. In its avid thirst for news accountability has been ignored by the media. The media needs to take cognizance of the fact that in a country inhabited by of millions of uneducated, impoverished and superstitions people, such irresponsible behavior can have long term repercussions. Since the media plays a pivotal role in any society, the need of the hour is to make people believe in science rather than misrepresent it. In our opinion, the media can play a deciding role in sensitizing people towards science. In fact, when we speak of "Science for Everyman" we have to believe the role that the electronic media can play in introducing audience friendly language and concepts that can even be understood by the layman. If the electronic media makes a conscious effort in contributing to science, then the children, regarded as the future can be greatly benefited as they will grow up as enlightened, broad minded and scientific individuals/citizens of any society.

Key Words : Sensationalise, Globalisation, Print media, Electronic media, Accountability.

Section of science and society

SPIRITUAL ORIENTATION OF TEACHERS AND STUDENTS

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ABSTRACT

Spirituality is necessary for the happiness of mankind. Spirituality means having faith in the basic goodness of man & pursuing meaningful goals and purpose in life. The Orientation is essential to create inter-Connectedness and a sense of harmony between human beings. Need for a spiritual focus in Education has thus assumed significance. The teachers need to be orientated and sensitized about spiritual dimensions of life; the view is affirmed by the finding of small study taken up in the department by the author. This is a study of spiritualistic orientation among the college teachers and college students. The sample consisted of 50 female teachers and 50students selected from various degree colleges of Bhopal city on the basis of stratified random sampling technique. The data were analyzed using two - way analysis of variance, followed by multiple comparison test namely the Schaffer test. The result showed that teachers would be more spiritualistic orientation ($f = 2.82$, $df = 601.5$) significant at 0.01 level. The result further showed that the students level of spiritualistic orientation ($f = 1.045$, $df = 352$) at 0.05 level. The paper presents the insights gathered from this study, which conforms the need to integrate spiritual components in the educational process and such components in the college curriculum.

Key Word : Spirituality, Inter-Connectedness, Spiritualistic orientation, Educational process, Curriculum.

Section of science and society

ENVIRONMENT - FRIENDLY JUTE FIBRE CONTRIBUTING IN COUNTRY'S ECONOMIC DEVELOPMENT AND GROWTH

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ABSTRACT

The Processes of economic growth is invariably accompanied by increased level of pollution and environmental degradation. Indiscriminate industrialization, urbanization and environmental pollution are bringing about certain atmospheric changes which are likely to cause uncertain and irreversible hazards to future generations. Sustainable development can be achieved only if the environment is conserved and improved, at least the stock of natural resources and environmental quality should be kept constant or on non- negative change. Of all natural resources, land is certainly the most important. It is the basis of most of the primary productive activities. Land is basically required for agriculture and factories as well. Agricultural production has two components -food grains and non-food grains. In the non food grains group, jute crop is important for the economy not only due to its capacity to earn foreign exchange but this industry provides substantial employment opportunities in agriculture and industrial sectors. With the diversification and use of newly developed technology in the jute industry , the manufacturing of silk like soft fabric, curtains, floor coverings, wall hangings and even more wide and a luxurious range of home decor products being made out of the environment-friendly jute fibre is commendable. For the encouragement of diversification of jute products, the Government of India has provided many facilities from time to time like import of particular variety of raw jute , reduction in import duty for advanced machines, license-free establishment of new units or capacity expansion of old units makings jute fabrics, creating strong market linkages , expanding the marketing of diversified jute products within the country and abroad, and other supportive measures covering research and development and to enable the industry to become cost and quality competitive in domestic and international markets based on the inherent strength of jute as an environment friendly fibre. Raw material banks are being engaged in exploring additional usage areas for jute yarn, fibre and fabric. Jute based cottage industries are fast developing in India. Handicrafts of India have become world famous. Employment has grown at a fast pace in the Indian craft sector in 1990s and afterwards. Non traditional Art-craft based on the use of 'Golden thread of Bengal' i.e. jute, is flourishing constantly. Jute handicrafts like paper holder, table mats, wall hangings etc ; jute fabric; jute carpet ;jute made ups like bags , purse , jacket etc are the widely popular environment friendly products available easily now a days.

Key Words : Environment-friendly fibre, Natural resource, Economic development, Diversified jute products, Handicrafts.

Section of science and society

INFRASTRUCTURE DEVELOPMENT FOR DISASTER MANAGEMENT: ROLE OF NGO'S

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ABSTRACT

India lies in a region highly vulnerable to natural disasters. Between 1991 and 2000, almost 40 % of natural disasters occurred in Asia and the total affected people in the region counts for almost 90% of the world total. The critical role of the NGOs in disaster reduction and response has been widely acknowledged, still more input is needed from them with reference to infrastructure development, in order to save future generation from the impact of natural disasters as far as possible. The important function of the Non-Governmental Organization (NGOs) is that of being a link between the Government and the community. It has been observed in the 5 major natural disasters occurred in last decade that NGO's had played a crucial role in disaster management related activities. They have been proved to be of immense help in infrastructural development as far as occurrence of natural disasters in concerned to a certain extent. However , networking and collaboration among them has been found weak in majority of cases due to the lack of resources and organizational constraints.

This paper presents an analytical study of the role of NGO's in infrastructure development for disaster management. It examines the work done by a number on NGO's in Sumatra tsunami in Tamilnadu the worst hit states of India. Considering the importance of participation of NGO's in infrastructure development it in an endeavor to suggest strategies for improving the efficiency and effectiveness of disaster risk reduction and response activities in the country.

Key Words : Tamilnadu, Natural, Disaster, Sumatra, India.

Section of science and society

CHANGING ATTITUDE OF MUSLIMS TOWARDS SCIENCE EDUCATION

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ABSTRACT

Dr. Chandralekha Lehri in her book 'Socio-Demographic Profile of Muslims' which was a study of the Social Status of Muslims in Bhopal conducted in the last decade, remarked that there was no attempt to relate Madarasa education to contemporary life and its needs.

The current study shows that this blockage of exposure of Muslim students to the knowledge of science and technology and other modern concepts is being dismantled. Muslims have started realising that change is inevitable. They have acknowledged that the realisation of a country's aspirations involves changes in the knowledge, skills,

interests and values of the people, as a whole and science education is the fundamental method of social progress and reform. Muslims in Bhopal are now working with the theme that education is both conservative and progressive. The Ulemah are exploiting education today to transmit their religion and culture to the next generation. The rising generation, which is also being conveyed the activities and experiences of the past generations, is simultaneously being exposed to new domains of knowledge such as computer literacy and modern sciences.

Though, most Muslims have not accepted any change in their traditions including purdah, they are no longer suppressing the social growth of their women folk. Women are now being encouraged to acquire modern education and many girls who wear 'veils' have come in-stream with their counterparts from the wider population. Many English medium schools are imparting Muslim religious education as well as many religious schools (Madarsas) have opened up to modern education of science, technology and computer application. .

Key Words : Muslims, Science Education, Social Change, Traditions & Modernization

Section of science and society

COMPARATIVE STUDY OF EMPOWERMENT AND JOB SATISFACTION OF COLLEGE SCIENCE TEACHERS

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ABSTRACT

The purpose of the study was to determine the effect of empowerment on job satisfaction of science teachers working in various colleges. A sample of 50 teachers (20 science teachers) working in various college, affiliated to Barkatullah University was selected by stratified random sampling method for the study. A pre-standardized 'Teacher Job Satisfaction Scale' developed by Y.Mudgil, I.S.Muhar and P.Bhatia and a self-standardized tool on Women Empowerment were used for data collection.

The result revealed that there was no significant difference between job satisfaction and empowerment level of female teachers particularly the science teachers working in various colleges of Bhopal. The mean score and standard deviation for job satisfaction were found to be 231.1, 23.86 respectively and that of empowerment were found to be = 74.04 and 5.98 whereas the't' value was calculated to be 1.58.

It also showed that there was no significant difference between job satisfaction and women empowerment of college teachers at 0.01 and 0.05 levels. But in case of science teachers in particular the 't' value was 5.06 which shows that there is significant difference between job satisfaction and women empowerment at 0.01 and 0.05 levels.

The teachers of higher education play the most significant role in the development of the quality of life of human being and the betterment of the society. The success of any educational system and its effectiveness depends largely on the extent of commitment, empowerment and the job satisfaction of the teachers. Hence, the teachers empowerment and job satisfaction are clearly very important factors to any educational organization and hence to society.

Key Words : Women Empowerment, Job Satisfaction, College Teachers, Educational system, Educational organization.