ZOOLIFE Vol. VI 2020

(COVID-19)





People of all ages CAN be infected by the corona virus. Older people and people with pre-existing medical conditions such as asthma, diabetes, heart disease appear to be more vulnerable to virus.

Published by : Department of Zoology

C.M.P. College, Prayagraj, U.P., India A Constituent P.G. College of University of Allahabad



 President
 : 9415217599

 H.G.S.
 : 9389998000

 Head Office
 : 7081209610

The Kayastha Pathshala

12/4, Kamla Nehru Road, Prayagraj (Allahabad)

President Ch. Jitendra Nath Singh Advocate

Date

<u>MESSAGE</u>

It gives me immense pleasure to know that the Department of Zoology, CMP P.G. College, Prayagraj is publishing the VI volume of Zoolife.

Zoolife has been providing a very good forum for the Graduate and Post Graduate students of the Zoology Department to enrich their studies and writing skills.

I appreciate the efforts of the Editorial Board, Faculty Members and Students for bringing out this volume in this phase of Covid-19 Pandemic.

Further, I extend my best wishes for the publication and the future endevours.

518/2020

(Ch. Jitendra Nath Singh) Chairperson Governing Body of CMP P.G. College, Prayagraj

Dr. Brijesh Kumar

C.M.P. Degree College, Allahabad (A Constituent PG College, University of Allahabad)

Resi. :91, New Mumfordganj, Allahabad-211002 Phone : 0532-2250208, 9335154006 E_mail : bks_1957@yahoo.co.in





E_mail : cmpdc1@gmail.com Office Phone : 0532-2256762

Date: 10 08 2020

<u>Message</u>

It is a matter of great pleasure and satisfaction that Departmental of Zoology is publishing its next edition of magazine ZOOLIFE.

For giving shape and bringing out the magazine, I truly appreciate the unique teacher-student relationship. I congratulate Dr. Vandana Mathur and her team for their editorial capabilities for encouraging their students. I wish more and greater success to the department in its efforts towards such creative enterprise.

hojesh runan (Dr. Brijesh Kumar) Principal

Dr. Neerja Kapoor M.Sc. Ph.D., FISCA Convener & Associate Professor



Department of Zoology CMP College, Prayagraj-211001 India Mob. : +91 9450405611 Email : neerja.kapoor@rediffmail.com

Ref.....

Date.....



Message

It gives me great pleasure that the Department of Zoology is publishing VI th edition of Zoolife. This gives an opportunity to students to share their ideas and thought with other fellow students and teachers. Not only that their writings enhance their creative skills and enrich their knowledge base, the magazine also highlights their achievements which give inspiration to other students. The teachers/faculty is always there to guide them in their academic endeavors. This is a pride moment for the Department that our some PG students have been selected for summer training in reputed research labs, and the first batch of research scholars got admission in the Department. Our Department is a part of DBT Star College Scheme under which numerous programmes have been planned, especially for UG students, department-wise and inter-disciplinary, to enhance their knowledge, skills and scientific temperament.

We are aware that this year is very special in the sense that the whole world is suffering from pandemic, known as COVID -19. During this period of crisis, the Department has gone for on-line classes, in order to safeguard the academic interests of our dear students. The Department was the first in the College to organize an International Webinar on, "COVID- 19 and the Environment" on World Environment Day i.e. June 5th, 2020 which was a great success.

The Department is making all efforts to enrich the academic caliber of the students and the faculty by creating an academic environment, increasing research capabilities and enlarging infra-structural facilities. I wish a bright future of our students, research scholars and the faculty.

Neerojata

Neerja Kapoor

Department of Zoology

C.M.P. Degree College, (Allahabad University) Allahabad-211006



11.8,2020

Editors Voice

Covid -19 pandamic... follow "the new life model"... difficult but not impossible. It will take at least one and a half years for the vaccine to be fully developed and officially put into use. Since the enemy cannot be completely eliminated, it is necessary to learn to coexist with the virus. Only by following the new rules of life we can live in peace with corona virus that is lurking around the corner.

Everyone understands that it is a long-term war. To win and survive from unseen enemy, we have to change our behavior and lifestyle. 'Bad' things can't be forsaken for all times. Using risk assessment models in principle, humans can continue to live well. It is worth changing our behavior and lifestyle.

The four basic rules which should be incorporated in our life style-

- Social distancing
- Wearing a mask
- · Washing our hands frequently
- Strengthening our Immune system

Dear students, we are going through a turbulent time in the history of mankind. The global family is practicing social distancing. Billions are locked in their home. This is also a test of resilience of our civilization. This pandemic has badly affected our education pattern...lock downs...delayed session, from offline mode to online mode...uncertainty of exams and admissions etc. Teaching that once took place within the confines of the classroom is now moved to online. For many of you, this is your first experience with an online course. As an online learner, self motivation and discipline are paramount. This means that you are completely responsible for establishing and maintain a regular study system. Accept the challenges and move ahead.

I thank all the students who have shown keen interest in giving shape to ZOOLIFE –VIth edition and special gratitude to the members of editorial board.

With best wishes

matter

Dr. Vandana Mathur Assoclate Professor

Patron

Ch. Jitendra Nath Singh, Chairperson
Governing Body of CMP PG College, Prayagraj *Advisor*Dr. Brijesh Kumar, Principal, CMP PG College, Prayagraj *Chief Editor*Dr. Vandana Mathur, Associate Professor, Department of Zoology *Editor*Dr. Hemlata Pant, Assistant Professor, Department of Zoology *Associate Editor*Dr. Jyoti Verma, Assistant Professor, Department of Zoology *Member of Editorial Board*Dr. Manoj Kumar Jaiswal, Assistant Professor, Department of Zoology
Dr. Ajeet Kumar Singh, Assistant Professor, Department of Zoology

Dr. Charu Tripathi, Assistant Professor, Department of Zoology



Student Editor Shivanshu Rathaur, M.Sc. IV Semester

Front Page designed by:

Shine Graphics & Printers 9/11 Daira Shah Ghulam Ali, Rani Mandi, Prayagraj, M. 9335466300

Back Page designed by:

Surabhi Ricchariya, M.Sc. IV Semester

A Brief Report of International Webinar

Department of Zoology, CMP Degree College (a constituent PG college of University of Allahabad), selected under DBT Star College scheme, has organized a One Day International Webinar on 5th June, 2020, TheWorld Environment Day. The topic was "COVID-19 AND THE ENVIRONMENT". A total of 2009 participants including students, research scholars, faculty members from various departments from 16 states and four countries were registered and participated in the webinar. Among the participants 50.8% were female and 49.2% were male. There were 12 National and International panellists, who delivered their lectures in this event. The Inaugural session was started form 11.00 am and the technical session was started at 11.30 am continued till 3.00 pm.

Webinar was inaugurated by the Chief Guest Prof. R.R.Tewari, Hon'ble Vice Chancellor, University of Allahabad, Allahabad. In the beginning, Dr. Neerja Kapoor Convener of Zoology Department introduced the topic of the webinar and highlighted the rationale for holding the webinar on World Environment Day. She welcomed the Chief Guest, Chief Patron, Patron, Panellists and Participants of the webinar.

Dr. Brijesh Kumar, Principal of the College / Patron of the webinar welcomed the guests and hoped that this first International Webinar will be a milestone in the history of the college.

Hon'ble Vice Chancellor, Prof R. R. Tewari, the Chief Guest of the webinar emphasized that COVID-19 has affected the whole society and economics of the world. People confined to their homes have to reinvent themselves in the new way of living. He further said that this pandemic has affected the educational system the most but at the same time, we observed some positive effects on the environment and climate.

The Chief Patron and President, Governing Body of the College, Ch. Jitendra Nath Singh ji in his Presidential address briefly touched on the evolution and spread of this pandemic and how it has affected our life and the environment. He appreciated the efforts of the Convener, Zoology Department for taking the initiative.

The technical session was started with the first panellist Prof. M.M.Goel, former VC of Jagan Nath University, Jaipur. He delivered his lecture on the topic "Implications of COVID caused Lockdown on Sustainable Development of India". He said that we have to enhance the quality of life and utilise the natural resources effectively by keeping environment clean. He stressed on public participation for environment protection.

Second speaker, Mr. Vivek Kakkar, Senior Director and Client Services Head (ITES), Ohio, USA, discussed on the topic "Digital Transformation and Engineering Trends in Retail/CPG. He explained in detail about the digital transformation taking place in the world, and how it is affecting retail sector in the world.

Prof. Ganesh Kawadia, Former Chairman, PG Department of Economics and Research at Devi Ahilya University, Indore and in his topic "Economic Development and Environmental Trade off" emphasized that environment should be given priority over economic growth.

Ms. Oksana Kachkan presently working as Technology Programme Manager at the Investment Banking in London, UK highlighted the changing work culture from office to home, and said that organisations are moving to this work culture in this technological changing era in her talk on "COVID-19: How it changed our view on Work from Home".

Dr Iti Garg who is a Scientist and Head, Genomics Division at Defence Institute of Physiological and Allied Sciences of Ministry of Defence at New Delhi describes in detail the clinical aspects and management strategies to deal with COVID-19 Pandemics.

Dr. S.P. Sati, an Environmental Scientist at College of Forestry at Rani Chauri, Tehri Garhwal, Uttarakhand in his talk on "World after COVID-19" discussed various changes in the environment. How the present scenario of pollution affect the environment and its future prospects.

Ms. Manvi Tandon presently working as an Assistant Manager in Multinational Consulting firm in London, UK shared her suggestions on "Role of Technology in the fight against COVID-19". According to her COVID-19 is more vulnerable but technology is also updated with time to fight against COVID-19. She described various tools like 3D-printed Oxygen mask, 3D printed Door handle, Drones for surveillance etc. which can be used for safe life and also described various tools for education.

Dr. Bahram Ramesh from Herat, Afghanistan ,in his talk on "Impact of COVID-19 on Environment, Economy and Democracy" opined that presently the entire world is facing the problems related with COVID-19 but it affects not only the human health, it also has its severe impact on economy and democracy.

Dr Neeraj Kumar from the Department of Zoology, Meerut College, Meerut delivered his talk on "Environmental Flow Requirements and Bioindicators Potential of Major Life forms in the River Bhagirathi of Central Himalayas".

Dr. Bhupendra Bahadur Tiwari working as Professor at Shri Ram Swaroop Memorial College of Engineering and Management, Lucknow presided on "COVID-19 Outbreak: Environment vs Economy" and ended with vital idea that climate friendly policies may

helpful in increasing GDP.

Dr. Radha Chaube presently working at Department of Zoology, Banaras Hindu University, Varanasi in her presentation described the Impact of Global Novel COVID-19 on the aquatic Animals and Environment of Varanasi.

Technical session was ended with the talk of Dr Sudhir Srivastava from Department of Zoology, Arts, Commerce and Science College, Taloda, Nandurbar, Maharashtra . He threw lights on various aspects of biodiversity in his talk on "Environmental Protection by Conserving Biodiversity".

The Vote of thanks was given by Dr Neerja Kapoor to the Chief guest, Prof. R. R.Tewari ji, for sparing his valuable time to inaugurate the webinar, Chief Patron, Ch.Jitendra Nath Singh ji for his constant encouragement, Principal for his continuous cooperation, all the distinguished panellists from India and abroad for accepting our invitation to enlighten and enrich the knowledge of the participants. Dr. Vandana Mathur, Dr Uma Rani Agrawal, Dr Manoj Kumar Jaiswal of Zoology Department of CMP Degree College and Dr. Ashish Khare, JK Institute of University of Allahabad assisted in conducting the webinar.

!! Organizing Committee !!

Convener and Co-ordinator	-	Dr. Neerja Kapoor
Co-Coordinator	-	Dr. Vandana Mathur
Organizing Secretary	-	Dr. Uma Rani Agrawal
Co-Organizing Secretary	-	Dr. Vinita Jaiswal
Technical Advisor	-	Dr. Ashish Khare
Technical Committee	-	Dr. Manoj Kumar Jaiswal, Dr. Charu Tripathi
Technical Support	-	Dr. Punit Kumar Singh, Dr. Govind Gaurav
Media Committee	-	Dr. Ashih Mishra, Dr. Hemlata Pant,
		Dr. Jyoti Verma, Dr. Vinay Kumar Singh
Publication Comittee	-	Dr. Sudhi Srivastava, Dr. Nidhi Triapthi,
		Dr. Ajeet Kumar Singh, Dr. Anuradha

Famous Indian Environmentalist

- 1. Sunderlal Bahuguna: He was born on 9 January, 1927. He is an environmentalist and the leader of Chipko Movement. In his anti-liqour drive and Chipko Movement, he organized tribal women of the hill state, Uttarakhand. In 1981, The Government of India was given *Padma Shri Award* in 1981 to him. He also received *Jamnalal Bajaj Award* in 1986, *Right Livelihood Award* for Chipko Movement in 1987 and *Podma Vibhusan Award* in 2009. Shri Bahuguna has also written books (i) *Environmental Crisis* and *Human at Risk (ii) Indias Environment: Myth and Reality* (Coauthored by Vandana Shiva and Medha Patekar).
- 2. Chandi Prasad Bhatt: He is social activist and Gandhian Environmentalist was born on 23rd June 1934 in Gopeshwar of District Chamoli (Uttarakhand). He is known for his work on Subaltern Social Ecology and considered one of the India's first modern Environmentalist. He founded an organization known as : *Dasholi Gram Swarajya Sangh* for the welfare of poor villagers of Gopeshwar in 1964. He got much fame for such a kind of his social services through DGSS which later served as a mother organization of the Chipko Movement in Gopeshwar. He has written many books such as: (i) Ecosystem of Central Himalya (ii) Future of Large Projects in the Himalaya (iii) पर्वत-पर्वत बस्ती-बस्ती एक (iv) अधूरे ज्ञान और काल्पनिक विश्वास पर हिमालय से छेड़खानी घातक (v) प्रतिकार के अंकुर (vi) सामाजिक कार्यकॉर्गा की चुनिंदा यात्राऐं I
- 3. Dr. Vandana Shiva: She was born on 25 November 1952 at Dehradun. Dr. Shiva is an environmental activist and is known for her *anti-globalization*. She criticized genetically modified organisms (GMOs) and blamed *Monsanto's Bt. Collon* that compelled thousands of Indian farmers to commit suicide. As it was a matter of serious concern, she voiced against it at the Brooklyn Botanical garden in New York. She made efforts for protecting the livelihood of proletarian (man of labouring class) people and organized women for protection of forest & biodiversity conservation. She is working as *Director of Research Foundation for Science, Technology & Natural Policy* at Dehradun. In 1993, she was conferred *Right Livelihood Award*. She constituted '*Navdanya*' for protection of biodiversity in living resources. She with her efforts has got conservation in India. She authored about 20 books among which (1) Monocultures of the mind (2) Staying Alive: Women, (3) Ecology and Development (4) Biopiracy and soil, not oil: Environmental Justice in an age of climate crisis.

- 4. Medha Patkar: Medha Patkar was born on 1st December, 1954. She is known for the cause of labourers, women & poor people from the down-trodden section of the society. Medha Patkar founded an organization known as: *National Alliance of People's Movement* which brought her in the limelight of other social workers, labour unions, Political workers and leaders of the country. She got associated with *Narmada Bachao Andolan* which affected about 3,20,000 people who had to evacuate their dwelling place of Narmada river valley (M.P.)-the site for building a dam known as *Sardar Sarovar Dam*. She was on 17 day long fast against the dam and had a demand for rehabilitation of people removed from the area. She got support from *Baba Amte,* various political leaders, social workers, NGO's social media and other agencies worldwide. She got *Right Livelihood* Award by the India Government.
- 5. Maneka Ghandi: She was born on 26 August, 1963. She is well known 'animal right activist' of India. She advocates for protection of animals for which an organization-"People for Animals" has been founded for taking their case against all types of cruelity. For meeting out this problem, she has authored a book-'Heads and Tails'. A T.V. Programme with the above title (Heads and Tails) is also anchored by her. She is a chairperson of the Jury of the International Energy Globe Foundation which intends to award people making best environmental innovations of the year.
- 6. Chewang Norphel: He was born in the year 1935 he is a civil engineer by profession is known as '*Ice-Man*' for developing *artificial glaciers* in Leh region. He has been developed 15 artificial glaciers. This type of contribution of Mr. Norphel is helpful in giving way for the groundwater level in the region. His artificial glaciers have to serve for *longer duration of crop irrigation*, thus boosting the agricultural production in the region. Shooting of a documentary features film on the glaciers called *white knight* has been done by Arati Srivastava.
- 7. Mike Pandey: He was born in Nairobi Kenya, he is an Indian film maker specializing in films about wildlife and the environment. He has won over 300 Awards for his work to spread awareness about biodiversity and species conservation.
- 8. S.C. Mehta: He was born in 12, Oct. 1946 in Rajouri. He is a famous India Environmental lawyer. He is concerned with the public Interest Litigation (PILs) seeking the environmental protection against industrial pollution. In 1984, Mr. Mehta filed a petition in Supreme Court of India against the industrial units like iron foundries, glass factories, petroleum refinery & other industries that dump air pollutants in the Taj Trapezium Zone (TTZ). TTZ-a trapezium shaped area of 10,400 sq. km. spreads over Agra, Ferozabad, Mathura, Etah and Hathras districts of the 250

functional industrial units, 170 are in Firozabad and the rest in Agra. TTZ has 40 protected monuments of which Taj Mahal, Agra fort and Fatehpur Sikri are the world Heritage sites-the tourists attraction spots of the western U.P. The air pollutants corrode into the marbles of the Taj and other historical monuments. In December, 1996, the Apex court gave its judgment imposing a total ban on the use of coal and other fossil fuels and the industries were asked to switch over to CNG. He was awarded a Goldman environmental prize in 1996 for his tirade against pollution causing industries.

9. Miss Sunita Narain: Born on 1 January, 1961. She is Director of Centre for Science and Environment (A Non-Government Organization), founded by Mr. Anil Agarwal in 1980 at New Delhi. The organization is not meant for gaining any profit, but encourages research activities for the human welfare. She is the Editor of fortnightly magazine-'*Down to Earth'* publishing from CSE. In 2010 her name featured in the worlds 100 public intellectuals in the US Journal of Foreign Policy. A '*Tiger Task Force'* was organized by her in 2005 to conserve tiger in India. Her name appears in the Prime Ministers council for climate change and the National Ganga River Basin Authority. She was given Padma Shri Award in 2005, Raja Lakshmi Award and Stoch Kholm Water Prize.

Dr. Hemlata Pant and Dr. Jyoti Verma

Asst. Prof., Department of Zoology CMP College, Prayagraj, U.P., India

॥ श्रद्धांतति ॥ अत्यन्त दुःख के साथ सूचित करना पड़ रहा है कि श्री मूलचन्द्र जन्तू विज्ञान विभाग सी.एम.पी. पी.जी. कालेज, प्रयागराज, उ.प्र.

जन्तु विज्ञान विभाग सा.एम.पा. पा.जा. कालज, प्रयागराज, उ.प्र. में लैब बियरर के पद पर कार्यरत थे जिनका निधन दिनांक 24.7.2020 को हो गया है । इन्होंने जन्तु विज्ञान विभाग में 17 वर्ष की सेवायें प्रदान की थी ।

ईश्वर इनकी दिवंगत आत्मा को शान्ति प्रदान करे । – (द्वारा जन्तु विज्ञान विभाग परिवार)



स्व0 मूलचन्द्र जन्मदिन 1.12.1962 मृत्यु 24.7.2020

Bioindicators

Bioindicators are living organisms such as plants, planktons, animals, and microbes which are used to screen the health of the natural ecosystem in the environment i.e. gives us an idea of the health of an ecosystem. They are very sensitive to pollution in their environment, so if pollutants are present, the organism may change its morphology, physiology or behavior, or it could even die. No single species can adequately indicate every type of disturbance or stress in all environments i.e. bioindicator are specific for every kind of pollution which is present in that particular environment. Ecologists have established a broad set of criteria that species must exhibit to be considered good bioindicators (see Table 1).

Good indicator ability	Provide measurable response (sensitive to the disturbance or stress but does not experience mortality or accummulate pollutants directly from their environment)
	Response reflects the whole population/community/ecosystem response
	Respond in proportion to the degree of contamination or degradation
Abundant and common	Adequate local population density (rare species are not optimal)
	Common, including distribution within area of question
	Relatively stable despite moderate climatic and environmental variability
Well-studied	Ecology and life history well understood
	Taxonomically well documented and stable
	Easy and cheap to survey
Economically/commercially important	Species already being harvested for other purposes
	Public interest in or awareness of the speces

Table 1: Regardless of the geographic region, type of disturbance, environment, or organism, good bioindicators often share several characteristics.

There are a certain factors which govern the presence of Bioindicators in environment such as transmission of light, water, temperature, and suspended solids.

Types-



The advantages associated with using Bioindicators are as follows:

- 1. Biological impacts can be determined.
- 2. To monitor Plant in synergetic and antagonistic impacts of various pollutants on a creature.



3. Early stage diagnosis as well as harmful effects of toxins to plants, as well as human beings, can be monitored.

some examples of bioindicator-

- 1. Lichens-A lichen is a composite organism that arises from algae or cyanobacteria (or both) living among filaments of a fungus in a mutually beneficial relationship (symbiotoc relationship). The hardy lichens are useful bioindicators for air pollution, especially sulfur dioxide pollution.
- 2. Frogs- Most frogs require suitable habitat in both the terrestrial and aquatic environments, and have permeable skin that can easily absorb toxic chemicals. The health of frogs is thought to be indicative of the health of the biosphere as a whole.

Organism	Stimulus	Response
Frogs	Terrestrial/freshwater pollution	Reduced population
Lichens	Forest structure, climate, pollution	Reduced population
Algae	Pollution, nutrient loading	Reduced biomass
E. coli	Pollution (especially cadmium)	Stress protein production, population decrease
Ants	Disturbance from mining, bushfires, land clearance	Reduced populations, changes in species density, diversity etc.

Shivanshu Rathaur

4th Sem. (2019-20) CMP College University of Allahabad

The Spread of Covid-19: A Biochemical War

This is the time of the bio-chemical world war named "COVID-19'. The coronavirus are a group of related enveloped RNA viruses that cause disease in mammals and birds discovered in 1968, named by Almeida and Tyrell. In humans, these viruses cause respiratory tract infections that can range from mild to lethal. Due to having crown like structures, the virus named as Corona. A technical term is given to recently identified variety of the disease caused by them as COVID-19 that is elaborated as CO- Corona, VI- Virus, D-Disease and 19 stands for its emergence in year 2019.

First case of Corona Virus was identified in Wuhan city of China in November, 2019. After that it starts spreading not only throughout China but all over the world. No Country of world left untouched of this disease. Our country India has also get worsely affected by this disease even after a series of lockdowns to prevent it. First case of COVID-19 was reported on 30 January, 2020, in India. Now, India have 3rd highest number of Covid cases in the world after U.S.A and Brazil.

Fight with Corona by taking precaution and enhancing your Immunity

Although many countries including China, Russia, and U.S.A. claimed for the vaccine of covid-19 is getting ready for human trial, there is no clear-cut evidence of these to be the status of launching in market. Even after launching, there is doubt of effectiveness of vaccine of one country over the people of other. In this way we can say that, no proper treatment has been diagnosed for the cure of this disease. Now a days, Hydroxychloroquine is being used as treatment but this is not assured treatment of virus but it fights with only symptoms. Plasma Therapy is also in trend to treat it but, very less cured people are interested to donate plasma. In this situation precaution is better than cure. In other words, we can say that precaution is the only solution to fight against this dangerous disease.



Precaution Measures-

- 1. Cover mouth while sneezing.
- 2. Use mask if you are seek or going outside. It prevents spread of virus. There is no need to take expensive mask in preventive situation. You can use home made mask also that can be washed after every use and dried under sun. A Covid positive individual is required to use disposable mask.
- 3. Wash/sanitize your hand after coming from outside, touching outdoor things, before meal, before & after touching your face, etc.
- 4. Wash the vegetables and fruits thoroughly before use.
- 5. Follow social distancing.
- 6. Quarantine yourself if you have symptoms and concert doctor if needed.
- 7. Avoid gatherings.
- 8. Follow the guidelines of the government.

Ways to enhance immunity-

- 1. Take nutrient rich and easily digestible diet e.g. Milk, green vegetables, fruits etc.
- 2. Avoid to take non-veg.
- 3. Do exercise at-least once for half an hour in a day.
- 4. Play indoor games like badminton etc.
- 5. Be mentally relaxed by taking proper sleep and away from stress.

Many professionals including Doctors, Nurses, Pharmacists, and Other Paramedical Staff, Policeman, media workers and sweepers are on duty as corona warriors to keep us safe. Now, it's our duty to be inside home for them and never hide if we have symptoms of Covid-19.It is better to be indoor for keeping yourself and others safe. Don't go outside unnecessarily. Suggestive activities for keeping yourself busy are: Play indoor games, Give time to indoor hobbies, Read books, Do online course etc.

~~Stay home, Stay safe~~

Rishi Kant Shukla

Ex-M.Sc. Student Session- 2018-2020 Senior Pharmacist E.S.I., Labour Medical Services Government of U.P.

Effect of Covid-19 Outbreak on Environment What is COVID-19 ?

The **COVID-19** pandemic is considered as the most crucial global health calamity of the century and the greatest challenge that the humankind faced since the second World War. The newly emerging SARS related coronavirus designated as **SARS CoV-2** is the third highly pathogenic Beta coronavirus to impact human populations, emerged in Wuhan, China in late December 2019 and spread to more than 213 countries. WHO declared the 2019nCoV outbreak a **Public Health Emergency on 30 January, 2020.** It has rapidly spread around the World, posing enormous health, economic, environmental and social challenges to the entire human population. The huge negative effects of living through the COVID-19 pandemic are obvious several global economic losses, overwhelmed health care systems and general disruption of societies the ongoing pandemic may also have some indirect positive impact on environment., human health, animals and ecosystem responses. Worldwide spread of COVID-19 in a quite short time has brought a dramatic decrease in industrial activities, road traffic and tourism. Reports from all over the World are indicating that after the outbreak of COVID-19, environmental conditions including air quality and water quality of rivers are improving and wildlife is blooming.

Positive indirect effect of COVID-19 on the environment

COVID-19 lockdown: Positive consequences for Air quality: The widespread quarantines and travel restrictions imposed by several countries have resulted in reduced use of and demand for oil and its products, which has resulted in reduction emission of smoke and waste due to oil consumption. The **National Aeronautics and Space Administration** (NASA) and the **European Space Agency (ESA)** recently reported that nitrogen dioxide air pollution has been reduced in china. The **Centre for Research on Energy and Clean Air** also reported that CO2 emission in china were down 25% in the two weeks. In other parts of world, such as Europe, air pollution has dramatically reduced. A sharp reduction in NO2 concentrations in countries such as France, Germany, Italy, and span is reported by **ESA**, **2020**.



Evolution of NO₂ concentration in China

Evolution of NO₂ concentration in some region of Europe

India also shows similar drops in NO2, CO2 and greenhouse gas levels in their major cities. In Delhi metropolitan areas, pollution levels have dropped most dramatically NO2 level from March 25 to May 2 have averaged 90 μ mol/m2 compare to 162 μ mol/m2 from march 1 to march 24. In greater Mumbai a similar trend has been observed as NO2 levels from March 25 to May 2 averaged 77 μ mol/m2. According to **SAFAR** Air quality of all big cities are better than 2019.

COVID-19 lockdown: A ventilator for beaches and rivers:

The lock of tourists, as a result of social distancing measures due to the new coronavirus pandemic, has caused a notable change in the appearance of many beaches in the World. Braches likes those of Acapulco in Mexico, Barcelona in Spain and Salinas in Ecuador now look crystal clear water. The nationwide lockdown was imposed on March 25, 2020, and within the 10 days, signs of improvement in water quality started surfacing. According to the real times water monitoring data of CPCB, out of 36 monitoring units placed in the Ganga, water quality at 27 points was found suitable for bathing and propagation of wildlife and fisheries, in the lockdown period. Since all major polluting industries are closed, the toxic load is off the river. Ganga river at Haridwar and Rishikesh was reported fit for drinking due to decrease in sewage and industrial effluents. In Delhi Yamuna river concentration of pH, EC, DO, BOD and COD have been reduced by 1-10%, 33-66%, 51%, 45-90%, and 53-82% respectively during this lockdown phase in comparison to pre lockdown phase. Improvement in the quality of numbers of rivers of India including Ganga, Cauvery, Sutlej, and Yamuna etc. As per Karnataka state Pollution Control Board, the quality of water in Cauvery and tributaries like Kabini, Hemavati, Shimsha, and Lakshamana thirtha is also back to what it used to be before decades.

Reduction of environmental noise level -

The use of private and public transportation has decreased significantly. Also commercial activities have stopped almost entirely. All these changes have caused the noise level to drop considerably in the most cities in the World. According to **Central Pollution Control Board (CPCB)** report noise pollution decline **5** to **10 db** in India.

Lockdown effect on Wildlife -

It took 10 days into India's lockdown for the wildlife to reclaim public spaces again. In Uttarakhand, three **Sambar deer** were spotted walking on the streets, while a **Nilgai** was found strolling in Noida. A small Indian **Civet** was seen in Kerala's Kozhikoda, Olive Ridley **Turtles** came ashore a beach in Odisha, a **Bison** passed through a market place in Karnataka, and not just in India. From the US to France, Italy to Japan, Poland to England, animals have truly come out of the wild. Wild **Turkeys** took their spot at a school playground in California, US. A **Coyote** was spotted on the streets of San Francisco; **Deer** were seen in a town in Poland; **wild pigs** reached the streets of Paris, France.

Negative impact of COVID-19 on the environment-

Due to quarantine policies, established in most countries, have led consumers increase their demands for online shopping for home delivery. Consequently, organic and inorganic waste generated by households has increased. Medical waste is also on the rise. In many countries has been an increase in garbage from personal protective equipment such as masks and gloves. Local waste problems have emerged as many municipalities have suspended their recycling activities over fear of virus. Reduction in waste recycling a major environmental problem due to lockdown. Natural ecosystem and protective species are at risk during coronavirus crisis. In many countries, environmental protective workers at national parks and land and marine conservation zone are required to stay at home in lockdown, leaving these areas unmonitored. Their absence has resulted in a rise of illegal deforestation, fishing and wildlife hunting.

Km. Shivani Surya

M.Sc. 4th Semester CMP Degree College Department of Zoology

Impact of COVID-19 Pandemic on The Mental Health of Students

Mental health of the students is the topic of interest throughout the world. The entire performance of the students depends on his mental health. Disturbance in the mental health not only have negative impact to the particular students but also have serious negative impacts on the community, as today's students is the future of the country therefore, the mental health of the students has to be given at most important. A COVID-19 epidemic has been spreading in china and other parts of the world since 2019. The epidemic has not only brought the risk of death from infection but also unbreable psychological pressure.

Till date there is no proven treatment to manage the Novel corona virus disease. As the rate of spread is increasing day by day, lockdown is the only option available to slowdown the rate of spreading the infection. In this process, the entire education institute were also locked down all of sudden. The students were in different phase of their academic year like some are about to complete the academic year, some are about to write their entrance examination and some are writing their examinations. It is well known that students experience lots of stress especially before and during examinations. The examinations were postponed due to lockdown effect and the actual date of exam awaited. In this context many students were undergoing mental stress and there is strong need to consider their mental health status. Though many of the educational institute have launched online classes, adaptation of the students to sudden transmission from routine teaching method is stressful. This is true especially in case of slow learners, further, the fear of corona disease will add up to their stress.

There is need of psychiatrist, in this context to keep the mental balance of the students. Every educational institution may think of stablishing a mental health cell that comprises of a psychiatrist or psychologist and dean and senior faculty members of the institute. Regular online counseling can be planned along with the online classes. Regular monitoring of stress level using the online tools can be done to prevent the student to enter into the state of depression. The cell will also monitor the students even after lockdown as it takes time for the students to normalize himself after the long, break of his studies. Continuous monitoring, offering counseling to the needy students will help to keep the students mentally health and do well in personal and professional life.

Twinkle Yadav Research scholar, Department of Zoology

Planktonic Diversity of River Mandakini, Chitrakoot (U.P)

Introduction

Chitrakoot is the 'Hill of many wonders'. It is indeed a gift of nature and gods, located in the banks of river Mandakini and falls in the northern Vindhya range spread over the states of Uttar Pradesh and Madhya Pradesh. The general topography is hilly, precipitation and undulating cut off by river Mandakini (an offshoots of Ganga) also known as Payasuni in Chitrakoot region. The River Mandakini is one of the holy rivers of India, which flows across the Chitrakoot area of the eastern part of Bundelkhand region. River Mandakani originates from the hills of Khillora near Pindra village, Majhagawan block (250 09'24.8"N, 800 52'55.3"E), district Satna, Madhya Pradesh (M.P.) from an elevation of 156 m above the mean sea level. The catchment area of the river is 1956.3 km². The basin of river Mandakani is shared by the states of Madhya Pradesh (M.P.) and Uttar Pradesh (U.P.). The perennial reach of river Mandakini is Sati Anusuiya , from where a large number of springs feed the river.

What are Planktons?

The word Plankton is originated from Greek word meaning "wanderer" or "drifter". Planktons are organisms having size range relatively small and microscopic or sometimes large (jellyfish), including both plants and animals which live suspended in the water column of seas, lakes, ponds and rivers and which are incapable of swimming, transporting against different physical factors such as currents, waves, wind occurring in water bodies. Examples: Diatoms, Dinoflagellates, coccolithophores etc. There are three functional groups of planktons, each with microbial members: Phytoplankton, Zooplankton, Saproplankton . The phytoplankton are the photoautotrophic plankton which can do photosynthesis. They are producers, or autotrophs, that forms the foundation of most marine food webs. They include microbes (cyanobacteria) and eukaryotes (algae, especially the single-celled dinoflagellates and diatoms). The zooplankton are larger heterotrophic plankton, including protozoans which play a role in aquatic food webs, as a resource for consumers on higher trophic levels (including fish). Saproplankton are those plankton found on the surface of stagnant water. These organisms inhabit water rich in decaying organic matter or in foul waters. Usually they are non-photosynthetic microorganisms. Eg: Bacteria, Fungi.



Mandakini River, Chitrakoot

Status of Planktons in the River Mandakini

On the basis of observations and laboratory analysis, at present, following species of Planktons are recorded :

Table : Generic status of phytoplankton(A) and zooplankton(B) recorded from Mandakini river during study

Group	Genus	Order	Zooplanktons
	Fragilaria		Ampherusa glacialis
	Entomonesis	Amphipods	
	Guinardia	1pp o wo	Amphipod
	Lioloma		Cyclops
D 11 1 1	Leptocylindrus	Copepods	Bradyidius similis
Bacıllarıophyceae	Detonula	Ostracod	Boroecia glacialis
	Lauderia	Ostracou	Boloccia giacialis
	Asterionellapsis	Diptera	Mosquito larvae
	Skeletonema	Cladacara	Danhaia
	Thalassiothrix	Claudeela	Daphnia
	Cylindrospermopsis	Calanoida	Gaetanus tenuispinus
Cyanophyceae	Oscillatoria		
	Planktothrix	B	
	Ceratium		Zanalasla
Deinococcaceae	Deinococcus	ons 36%	
	Cochlodinium		
Chlorellaceae	Chlorella		Phytoplan
Gamophyceae	Spirogyra		ktons
	Α		64%

Pie Graph showing composition of planktons in the water of river Mandakini



Pie graph showing composition of Phytoplankton in the water of river Mandakini

Phytoplanktons



Pie graph showing composition of Zooplankton in the water of river Mandakini

Zooplanktons



Fragilaria Lauderia Planktothrix Bradyidius *similis* Mosquito larvae *Cyclops* The overall composition of Phytoplankton was 64% and Zooplankton was 36%. **Conclusion**

Measures of diversity are frequently seen as indicators of the status of ecological systems. River Manadakini have rich planktonic diversity and density.On the basis of the study of the river Mandakini, Phytoplantons were more abundant than zooplanktons. Phytoplankton growth depends on the availability of carbon dioxide, sunlight, and nutrients. Phytoplankton, like land plants, require nutrients such as nitrate, phosphate, silicate, and calcium at various levels depending on the species. They are the foundation of the aquatic food web, the primary producers, feeding everything from microscopic, animal-like zooplankton. Small fish and invertebrates also graze on the plant-like organisms, and then those smaller animals are eaten by bigger ones.

Surbhi Richhariya

4thSem (2019-2020) CMP College (University of Allahabad)

Why Doesn't Ebola Cause Disease in Bats, as it Does in People?

(University of Texas Medical Branch at Galveston)

A new study uncovered new information on why the Ebola virus can live within bats without causing them harm, while the same virus wreaks deadly havoc to people.

A new study by researchers from The University of Texas Medical Branch at Galveston uncovered new information on why the Ebola virus can live within bats without causing them harm, while the same virus wreaks deadly havoc to people. This study is now available in Cell Reports. The Ebola virus causes a devastating, often fatal, infectious disease in people. Within the past decade, Ebola has caused two large and difficult to control outbreaks, one of which recently ended in the Democratic Republic of the Congo.

When a virus brings serious disease to people, it means that humans are not good hosts for the virus. Viruses depend on a living host for their survival and have natural reservoirs -- a hosting animal species in which a virus naturally lives and reproduces without causing disease. Bats are likely a natural reservoir for the Ebola virus, but little is known about how the virus evolves in bats.

Like most other RNA viruses, Ebola's molecules are structured in a way that makes them more prone to genomic errors and mutations than other types of viruses. Because of this, Ebola and similar viruses have a remarkable ability to adapt to and replicate in new environments. In the study, the research team, led by Alex Bukreyev, a UTMB virologist in the departments of pathology and microbiology and immunology, working with the team of Raul Andino, University of California, San Francisco, investigated how the Ebola virus adapts to both bat and human cells. They assessed changes in mutation rates and the structure of Ebola virus populations repeatedly in both bat and human cell lines using an ultra-deep genetic sequencing. We identified a number of meaningful differences in how the Ebola virus evolves when placed in a human cell line relative to a bat cell line," Bukreyev said. "For instance, the RNA editing enzyme called ADAR within bat cells play a greater role in the replication and evolution of the Ebola virus than do such enzymes in human cells. We found that the envelope protein of Ebola virus undergoes a drastic increase in certain mutations within bat cells, but this was not found in human cells. This study identifies a novel mechanism by which Ebola virus is likely to evolve in bats."

The study suggests that the Ebola virus and bats can live together harmoniously because of the bat cell's ability to induce changes in the virus that make it less capable of harm. Bukreyev said that the study's findings validate the ultra-deep genetic sequencing used in this study as a predictive tool that can identify viral mutations associated with more adaptive evolution. This technology can be very useful in studying, and perhaps shaping, the evolution of emerging viruses, like SARS-CoV-2, the virus responsible for COVID-19

Nidhi Pandey Bsc 3rd year CMP College, Prayagraj

Tears

When we cry tears are released from eyes. It is mostly made of water, but also contain salt, fatty oils and proteins. Sodium gives tears a salty taste. Our eyes produce three types of tears-Basal tears, Reflex tears and Emotional tears.

Basal tears -

Basal tears are omnipresent in our eyes. It released from the lacrimal gland, present in the upper region of eye ball and drained through lacrimal punctum, present in the lower region. It protect from debris and keep them lubricated and nourished. The human body produce 243 ml of basal tears everyday. Eyes produce fewer basal tears as we get older, which is why dry eyes are more common in older adults.

Reflex tear -

These form when our eyes are exposed to irritants, such as smoke, onions or even a very strong dusty wind. The sensory nerves in our cornea communicate this irritation to the brain stem, which in turn sends hormone to the lacrimal gland and reflex tears come out from gland. These tears make eyes free from the irritating substance.

Emotional tears -

When we sad, happy or feeling other intense emotions then limbic system of our brain is activated and send a signal to the lacrimal gland which produce these tears which is overflow and out from the eyes. This is control by autonomic nervous system which means we consciously not controlled. It contain ACTH (Adrenocorticotropic hormones), indicates high stress levels, and leucineenkephalinso when it come out from the body that work as a natural pain killer. Some scientist believe that with the help of emotional tears toxin and waste product pass out from the body which make we feel physically and emotionally better.In Japan some people have organized crying clubs where they watch sad movies, television show and read tear-inducing book.

Our tears workhard to protect our eyes, clear out irritants and soothe emotion.

Vaishali Kushwaha

M.Sc. II Semester

New Blood Test May Be Able to Detect Cancer

Researchers at the John Hopkins University in Baltimore have announced that they are close to developing a new blood test that could detect common cancer forms.

The new test, called CancerSEEK, would cost about \$500 and be able to identify early forms of cancer cells in the body. According to the scientists, the test concentrates on the most frequent types of cancers including lung, breast, colon, and stomach cancer.

After testing about 1000 people diagnosed with these cancer forms the new blood test found signs of cancer in 70% of them. Tumours release tiny amounts of altered DNA into the blood stream. The test looks for mutations in 16 genes that frequently come up in cancer.

Although the first tests have had promising results there are still problems that have to be dealt with. There is still a high rate of false alarms, where cancer is shown in patients who are not diagnosed with any disease. Another problem is that the test sometimes shows signs of cancer but cannot pinpoint where exactly in the body they appear.

Doctors state that the new blood test could be a major breakthrough for cancer patients and can extend their lives. The earlier a cancer is found and located the better the chances are for it to be treated

Ankita Singh and Sarika Singh

M.Sc. IV Sem.

Aspirin Against Ovarian Cancer

A research found that women who were heavy users of non-aspirin nonsteroidal antiinflammatory drugs (NSAIDs), such as ibuprofen (Advil) or naproxen (Aleve), over a long period of time had a higher risk of developing ovarian cancer.

Ovarian cancer is the most fatal gynaecological cancer, largely due to lack of early detection strategies. It is believed that inflammation that occurs during ovulation adds to the development of this cancer. But anti-inflammatory medications, such as aspirin, have been shown to lower the risk of certain types of cancers.

Ankita Singh and Ankita Mishra

M.Sc. IV Sem.

JAGUAR: The Amazing Amazon Big Cat Has Become Nearly Threatened Species

Considered a protector and symbol of power, Jaguars personify the mysterious beauty of the Amazon. This iconic species plays a vital role in its habitat by controlling other species' populations and helping maintain a healthy ecosystem. Unfortunately, the jaguar's range has decreased by half in the last 100 years due to deforestation and agricultural activities, resulting in reduced and even extinct jaguar populations in some countries. Despite numerous conservation efforts, their populations continue to decline.

Human-driven activities including hunting, destruction of forest habitat, loss of prey species, and human-wildlife conflict are also impacting jaguar populations. Jaguars were once hunted for their pelts until the 1970s, when stricter laws and new protections prohibited such activity. Now it appears that with increasing Chinese investment in Latin America, demand for jaguar parts, like fangs and claws, is rising again, driving illegal jaguar hunting and poaching, even in strongholds like the Amazon.

Ankita Singh

M.Sc. IV Sem.

The World's Fastest Shark Now Facing Extinction, Conservation Experts Warn

The world's fastest shark is hurtling towards extinction following years of hunting for its prized meat and fins. The shortfin mako, which can swim at speeds exceeding 40mph, is not currently subject to any international fishing restrictions despite populations falling by up to 60 per cent in some regions. Its dramatic decline, along with that of its cousin the longfin mako, was reflected in the International Union for the Conservation of Nature's latest assessment of shark species' status. Both species were downgraded from "vulnerable" to "endangered" – the same category as other famously threatened species like blue whales and Asian elephants. "Our results are alarming and yet not surprising, as we find the sharks that are especially slow-growing, sought-after and unprotected from overfishing tend to be the most threatened," said Professor Nicholas Dulvy, co-chair of the IUCN's Shark Specialist Group.

Ankita Singh

M.Sc. IV Sem.

Medical Use of Scorpion Venom

Scorpion venom could be used to help save lives rather than end them, protein from some scorpion venoms can be used in immunosuppressant and antimalarial drugs, and amino acids in scorpion venom can help clinicians more easily detect lethal brain tumors. For example- a scorpion called *Diplocentrusmelici* has venom that contain red color compound, is very effective at killing off regular tuberculosis-causing bacteria. A drug called VIDATOX is obtained from Blue scorpion, it's known as "Cuba's miracle Drug" that shows promising anti-cancer activity and the drug has yielded positive results against various cancers and auto-immune diseases. unfortunately, scorpion venom is the most expensive liquid on earth.

Ankita Singh

M.Sc. IV Sem.

जंगल मे तो आग लगी है,
लपटे उनको छूती है।
तुम तो घुस जाओगे घर के अंदर ,
पर ये जंगल कहाँ मिलेंगे।
सोचो अब ये जीव कहाँ मिलेंगे।।
ना जाने कितने विलुप्त हो गये ,
ना जाने कितने विलुप्त होरहे है।
जुबा होकर बेजुबाँ है
दर्द बता सकते नही।
आँशु बहाते है पर ,
हम समझ पाते नही।
अपना कोई एक दूर हो जाये,
तो हम तड़प जाते हैं।
पर इनकी तो पूरी पीढ़ी विलुप्त हो जाती है
ये कुछ कह पाते नही।
सोचो अब ये जीव कहाँ मिलेंगे।।
बचपन मे देखे थे,
इन आंखों ने ढेरो तोता मैना थे।
सुना था अपने बड़ो से मैंने ,
कौवे की कांव कांव से,
किसी के आने का संदेसा मिलता था।
खत्म होगया संदेश का ये सिलसिला,

सोचो अब ये जीव कहाँ मिलेंगे

अब ये संदेश कैसे मिलेंगे। सोचो अब ये जीव कहाँ मिलेंगे।।

काटा था जिस पेड़ को तुमने , आशिया था उसका उसपर । तिनका तिनका चुनकर घोषला बनाया था , थे नन्हे जिसमे अंडे उसके । चूर चूर हुआ उसका हर सपना था , सोचो अब आसिया कहा बनेगा । सोचो अब ये जीव कहाँ मिलेंगे॥

कहने को हम मॉर्डन हो चुके है , पर अपना वातावरण ही खो चुके हैं। मछली रानी रहती थी , कल तक नदिया कल कल बहती थी । नदियों ने रुख मोड़ा है , ना जाने कितने जीवो ने हमें छोड़ा है। मगन है ,हम अब भी अपनी चकाचौंध में , सोचो अब ये नदिया कहां मिलेंगे।। सोचो अब ये जीव कहा मिलेंगे।।

Richa Singh

B.Sc. 2nd Year

शीर्षक - प्रकृति का ह्रास

की नगरी में एक बार फिर हैवानियत सी छायी है,, इन्सानियत आज फिर से जंगल में आग लगी है,, ऐसी खबर मेरे कानो में आयी हैं, जीव, जन्तु, पेड़-पौधे और मछलियों के ज़ीवन में फिर तूफानी लहर आयी है, फिर से किसी जंगल में पेड काटने के लिये मशीन लगायी जाने वाली है,, फ़लो से जहाँ कभी वादियाँ महका करती थी उन वादियों से शेर , चीतों और हाथियों के रोने और कराहने की आवाजें आयी हैं कोयल , कौए और गौरैयों को जिन पेड़ो पर घोसले लगाने थे कल आज उन पेडो की जड़े ही काटी जानी है,, और खरगोशों को जिन खेतो से गाज़र ,, मूली और खीरे चुरा कर ले जाने थे गिलहरियों उन खेतो में तो अब सिर्फ बुझती हुई आग की राख ही बची पड़ी है मछलियों , मगरमच्छो और झींगुरो को जिस नदीं - सागर में अपनी रातें बितानी थी, उस जल में तो अब कचरा और काईं जमने लगी हैं बन्दरो और लंगुरो को जिन लताओं पर लटक कर पकडम -पकडायी खेलनी थी, उन लताओं की बची राख से तो अब बरतन माँजने की तैयारी है, प्रकृति के साथ खिलवाड़ खेलकर जी नहीं भरा है अभी भी इंसानी बस्ती का,, अभी तो ग्लोबल वार्मिंग प्रोग्राम ,, क्लीन इन्डिया ग्रीन इन्डिया कैम्पेन का नाटक फिर से शुरू करने की तैयारी है ||

धन्यवाद II

Name - Purnima Devi

Class - B.Sc. Second year Section - B Roll number -93

Science without religion is lame. Religion without science is blind.

> Sakshi Shukla B.Sc. third year

हैं कितने बेबस !

है कितने बेबस ,लाचार मगर कुछ भी ना हैं कह पाते। बीमारी हो, या हो आपदा सबकुछ हैं चुप कर सह जाते। कहने को हैं पशु मगर इंसानियत नही हैं सिखलाते।।

जंगल काटे इनके हमने , घर हैं छीने इनके हमनें .

फिर भी कुछ ना कह पाते**।**

इंसान होते तो ना जाने ,

कितने केस हैं ठोंक जाते

कहने को हैं पशु मगर

इंसानीयत यही हैं सिखलाते]]

वफ़ादारी का सबूत भी तो कुत्ते -बिल्ली ही दे जाते

इंसानों में तो अपने ही यहाँ

ख़ंजर हैं भोंक जाते।

कहने को हैं पशु मगर

इंसानियत यही हैं सिखलाते]]

पेड़ लगाओ ,धरती बचाओ !

के नारे हम ना जाने

कितने हैं लगाते।

अरे ! पेड़ बचाना तो उन मच्छरों से सीखो

जो अमेज़न के जंगलो में हैं उन्हें

लकड़हारों से हैं बचाते ,

लकड़हारों से हैं बचाते।

Pragati Rajpoot B.Sc-3rd year –B

Corona Virus: The Present Threat on Zoological World

Corona viruses is first observed in chinese man in Thailand was infected with it. The drug for this virus is still not detected because it is changing its genome continuously.

Corona virus causing illness from the simple cold to severe disease like Middle East Respiratory Syndrome (MERS-Cov) and Severe Acute Respiratory Syndrome (SARS-Cov). A new corona virus strain is i.e. Novel corona virus (N- Cov) is recently identified.

Corona virus is tranmitted mainly by bat to humans. SARA-Cov are transmitted from civet cat to humans. MERS-Cov are transmitted from from dromedary camels to human.

Symptoms of Infection

The symptoms are very common as the cold showing respiratory problems, fever, nausia, cough, but in extreme case infection may cause pneumonia, severe acute respiratory syndrome, kidney failure and even death also.

Precautions

According to WHO infection can be prevented by regular washing, wearing proper mask to cover nose and also ears, by covering nose and mouth during sneezing and coughing.

Infected person should be placed isolated from other and avoid the close contact with them.

Infected person after sneezing or coughing must throw their tissue paper in dustbin and clean their hands properly in order to avoid infection to others

> Annapurna Singh M.Sc-2nd Sem.

Xenobot

Scientists have for the first time created the self healing robot using the stem cell of frog. It is a biological robot generated from embryo of African clawed frog (*Xenopus laevis*) and less than a millimetre wide and it can travel inside the human body. They are used for delivering medicines to a target cell inside patients.

These robot can walk swim and survive for weeks without food. And it is biodegradable. After completing their job after seven days they are just dead skin

Annapurna Singh

M.Sc-2nd Sem.

Amazing Facts About Human Body

- The human brain has a memory capacity which is the equivalent of more than four tetrabytes on a hard drive.
- A single human brain generates more electrical impulses in a day than all the telephones of the world combined.
- Nerve impulses sent from the brain move at a speed of 274 km/h.
- The human heart pumps 182 million litres of blood during the average lifetime.
- The total length of all the blood vessels in the human body is about 100,000 km.
- At least 700 enzymes are active in the human body.
- · Not only human beings, but also koalas have unique finger prints.
- There are more than 100 different viruses which causea cold.
- Human skin is completely replaced about 1,000 times during a person's lifetime.
- The surface area of a human lungs is approximately equal to the area of a tennis court.
- During a person's lifetime, the small intestine is about 2.5 meters. But when person die, the muscles in the walls of their intestine relax, and its length increases to 6 meters.
- Bones are about 5 times stronger than steel.

Nidhi Gupta M.Sc. IVth Sem.

Heat Stroke – A Medical Emergency

When the body temperature rises beyond a critical temperature (i.e above 105° F or 40° C), the person develops heat stroke. When the body cannot cool itself in an extremely hot environment, body temperature can increase quickly. Even a few minutes of very high body temperature can sometimes is fatal. For this reason, Heat stroke is treated immediately by placing the person in cold water bath or by spray or sponge cooling of the skin. Heat stroke is the most common heat related illness and is associated with organ failure, shock and in severe cases neurological dysfunctions.

Types of Heat stroke-basically it is of 2 types:

- 1. Exertional Heat Stroke (EHS) normally occurs in young age people who engage in strenuous physical activities for a long period of time in an extremely hot environment.
- 2. Non-Exertional Heat Stroke (NEHS) It affects elder individuals and persons who are chronically ill.

Relation between Heat Stroke and Heat Exhaustion-

Heat stroke and heat exhaustion are two different medical terms. Heat exhaustion occurs when body gets too hot. Prolonged heat exhaustion can lead to heat stroke. Heat stroke is also considered as a medical emergency. Hot weather and heavy exercise are the two main causes of heat stroke.

The medical term used for excessive body heat is "Hyperthermia". The first phase is heat exhaustion. According to Centres for Disease control and Prevention (CDC), muscle cramps are the early sign of heat exhaustion. Other symptoms of heat exhaustion include heavy sweating, vomiting and increase in heart rate. The second and the advanced stage of the heat exhaustion is the heat stroke.

According to an analysis by the New York Department of Health and Mental Hygiene, 2013, thousands of deaths occur in the New York every year. Although people of very young age or very old age, small children, people suffering from chronic disorders and the persons taking psychoactive drugs are more prone to heat stroke and heat exhaustion. Common symptoms of Heat stroke includes-

- Dizziness
- Vomiting

- Loss of consciousness
- Heavy sweating
- Muscle cramps
- Tachycardia
- Dark yellowish urine
- Fainting(in severe heat stroke)

Some life threatening effects of heat stroke-

- Neurological dysfunction(parenchymatous degeneration of brain cells)
- Leads to organ failure (especially of vital organs such as kidney, liver. Liver failure occurs due to hepatic injuries)
- Seizure and shock
- Lack of sweating
- Difficulty in breathing

Acclimatization of people to heat- People living in the tropical regions and mining areas requires acclimatization to very hot environment. Acclimatization to heat is achieved when a person exposed to heat for several hours each day by performing extremely heavy work will develop increased tolerance to such a hot conditions and hence the individual is acclimatized within few weeks. Some pathological changes have been noticed in acclimatized people such as increase in the maximum rate of sweating. Increase in plasma volume, very less loss of salt in the sweat, almost no urine (due to increased secretion of aldosterone hormone).

Some precautions taken to prevent heat stroke-

- Drink at least 2 litres of water per day and avoid alcohol and caffeine consumption(according to Arizon's department of Health Services)
- Wear light weight and light coloured clothes
- Avoid strenuous physical activities
- Stay indoors as much as possible.

Nidhi Ojha M.Sc 4th Semester

Dopamine Modulation of Honeybees

Primary antennal lobes (ALs)] of the honey bee brain are invaded by dopamine (DA)immunoreactive neurons early in development (pupal stage 3), immediately before a period of rapid growth and compartmentalization of the AL neuropil. We examine the modulatory actions of DA on honey bee AL neurons during this period. Voltage-clamp recordings in whole cell configuration were used to determine the effects of DA on ionic currents in AL neurons in vitro from pupal bees at stages 4-6 of the nine stages of metamorphic adult development. In ~45% of the neurons tested, DA ($5-50 \times 10^{-5}$ M) reduced the amplitude of outward currents in the cells. In addition to a slowly activating, sustained outward current, DA reduced the amplitude of a rapidly activating, transient outward conductance in some cells. Both of the currents modulated by DA could be abolished by the removal of Ca^{2+} from the external medium or by treatment of cells with charybdotoxin (2×10^{-8} M), a blocker of Ca^{2+} -dependent K⁺ currents in the cells. Ca^{2+} currents were not affected by DA, nor were Atype K^+ currents (I_A). Results suggest that the delayed rectifier-like current (I_{KV}) also remains intact in the presence of DA. Ca^{2+} -dependent K⁺ currents are targets of DA modulation in honey bee AL neurons. This study lends support to the hypothesis that DA plays a role in the developing brain of the bee.

Introduction

During metamorphosis, the CNS of the honey bee, Apis mellifera, undergoes dramatic growth and reorganization. Nowhere are the changes more striking than in the primary olfactory centers [antennal lobes (ALs)] of the brain. Around pupal stage 2 of the nine stages of metamorphic adult development, antennal sensory afferent neurons enter the ALs. Their arrival triggers the formation of prominent subunits of synaptic neuropil called glomeruli hich are the functional subunits of the AL neuropil Each glomerulus contains the terminal arbors of antennal sensory afferent neurons, processes of local interneurons, dendrites of projection (output) neurons, and ramifications of centrifugal neurons that project to the ALs from other sites in the brain . Immediately before glomerulus formation (pupal stage 3), developing ALs are invaded by dopamine (DA) immunoreactive processes that ramify extensively in the central neuropil of the lobes. These processes originate from cell bodies located in the lateral deutocerebral soma rind, posterior to each AL. The same cells extend processes into the dorsal lobe of the deutocerebrum, as well as to the protocerebrum and suboesphageal ganglion. Around pupal stage 4, there is a surge in DA levels in the ALs, and rapid neurite outgrowth apparent in stage 5 AL neurons in vitro is enhanced by exposure to DA. While the identity of the receptors that mediate the effects of DA has yet to be determined, mRNA for three DA receptor genes, Amdop1, Amdop2, and Amdop3, has been detected in cells that surround the developing AL neuropil of the bee. The expression of these genes, in particular Amdop2, is strongly developmentally regulated, suggesting that DA plays a central role in the developing brain of the bee.

In adult worker bees, DA levels in brain, and levels of dopamine receptor gene expression change markedly during the lifetime of the bee. Intriguingly, regardless of age,

DA levels in the ALs of foragers are higher than in the ALs of bees performing nursing duties, suggesting that DA in ALs is linked to behavioral state. While it has been suggested that biogenic amines such as DA might influence response thresholds for task-related stimuli, relatively little is known about the mechanisms through which this amine operates in the brain of the bee.

In this study, whole cell voltage-clamp recordings were used to examine the modulatory actions of DA on ionic currents expressed by honey bee AL neurons in vitro. Our results reveal that Ca^{2+} -activated K⁺ currents are targets of DA modulation in these cells.

Sweta Mishra Department of Zoology CMP Degree College

Project Tiger And Project Elephant

For saving and maintaining their communityGovernment of India launched some projects for some special species. These project sare designed to protect the species in situ, by conserving their natural habitat.

Project tiger

Project Tiger is a type of wildlife conservation act and it was initiated in Indiain1972 for protecting the valuable and extinct species of tigers. It was launched on Apri 11,1973 and has became one of the most successful wildlife conservation Ventures. Initially, the the project started with 9 Tiger reserve, It cover the area of 16,339 km². The population of tigers were 2226. The selection of Reserves is base on representation of Eco-typical wilderness areas across bio-geographic range of tiger distribution in the country.

Project elephant

Elephant (Elephas maximus) is the largest terrestrial mammal in India. Project elephant was launched in1992 by the government of India. This projectis working under the ministry of Environment and Forest and climate change. This ministry provided financial and Technical Support two majore lephant and bearing states in country for protection of elephants, their Habitats and corridors.

Objective of the project elephant

Project elephant was launched by the government of India with following objectives :-

- 1) To protect elephants, their Habitatsand corridors.
- 2) To address issues of man-animal dispute.
- 3) Welfare of captive elephants.

Pushpam Shukla M.Sc.4th Sem Environmental Science

New Species of Butterfly Discovered

They have a long-lasting history of co-evolution with flowering plants. The other notable features of butterflies are their extraordinary range of colours and patterns, and their wings. These are discussed below.

Angiosperms (flowering plants) evolved in the Lower Cretaceous, but did not become common until the Upper Cretaceous. Butterflies were the last major group of insects to appear on the planet. They evolved from moths in the latest Cretaceous or the earliest Cainozoic. The earliest known butterfly fossils date to the mid Eocene epoch, between 40–50 million years ago.

Like moths, butterflies have four wings covered with tiny scales. When a butterfly is not flying, its wings are usually folded over its back. The wings are patterned and are often brightly coloured. There are many different kinds of butterflies. The males and females of each kind are often slightly different from each other. Butterfly watching is a popular hobby. Some people also keep collections of dead butterflies that they have caught.

Like all insects with complete metamorphosis, a butterfly's life goes through four distinct stages. It begins as an egg, which hatches into a larva (a caterpillar). After some time, the larva turns into a chrysalis. While it is in the chrysalis stage, it changes to become an adult butterfly. To complete the cycle, adults mate and the females lay the eggs.

Butterfly, (superfamily Papilionoidea), any of numerous species of insects belonging to multiple families. Butterflies, along with the moths and the skippers, make up the insect order Lepidoptera. Butterflies are nearly worldwide in their distribution.

Recently, two new species of butterfly has been discovered by lepidopterists i.e. Striped Hairstreak and Elusive Prince in Changlang district of Arunachal Pradesh.

At present, India has 1,327 species of butterfly as compared to 1,318 species in 2015. **Striped Hairstreak:**

Scientific Name: Yamamotozephyrus kwangtugenesis

Discovery: It is found in Vijaynagar village of Changlang district of Arunachal Pradesh, bordering Myanmar.

It was a subject of interest for the lepidopterists as its genus is diversified into several genera (i.e. sub-divisions) and thus, difficult to trace.

Habitat:

It was first recorded in Hainan province of China.

It is also found in North America, from the Rocky Mountains.

Elusive Prince:

Scientific Name: Rohana tonkiniana

Discovery: It is found in Miao subdivision situated on the periphery of the Namdapha National Park. In India only a male specimen of the Elusive Prince was found.

Initially it was considered as a variant of the Black Prince, but the study revealed that it is different and not recorded in India before.

Habitat: It was first recorded in Tonkin in north Vietnam.

The Rohana Genus: It has been represented in India by two species — the Black Prince (Rohana parisatis) and the Brown Prince (Rohana parvata).

Significance for Arunachal Pradesh:

These discoveries from Arunachal Pradesh indicate the rich biodiversity of the State. The government thus needs to focus on helping volunteers or citizen scientists by providing the support needed. This will help in boosting eco-tourism apart from regular scientific research.

Butterfly

Butterflies are insects from the order Lepidoptera of phylum Arthropoda which also includes moths. Adult butterflies have large, often brightly coloured wings, and conspicuous, fluttering flight.

Significance:

Rich Biodiversity: Abundance of butterflies in any area represents the rich biodiversity.

Indicator Species: The butterfly acts as an indicator species.

An indicator species provides information on the overall condition of the ecosystem and of other species in that ecosystem. They reflect the quality and changes in environmental conditions as well as aspects of community composition.

Pollinator: It acts as a pollinator by helping in pollination and conserving several species of plants.

Namdapha National Park

It lies at the international border between India and Myanmar within Changlang District in the state of Arunachal Pradesh. It is only park in the World to have the four Feline species of big cat namely the Tiger (Panthera Tigris), Leopard (Panthera Pardus), inSnow Leopard (Panthera Uncia) and Clouded Leopard (Neofelis Nebulosa).

Hoolock Gibbons, the only 'ape' species found in India is found in this National Park.

Atul Kumar B.Sc (Bio) 2nd year CMP Digree College

College Students Life

The common definition of student life refers to a group of people with a common purpose or shared duties at an institution of higher learning.

They are united for the common purpose to receive an education that qualifies them for a life profession through achievement of a college degree.

Students are defined by modern culture, in society the term "student life" is frequently heard in association with their social life on campus in a college dorm. However, this association leads to the wrong impression. Students are learners with a social life that is disassociated from classroom learning. The impression that students spend the majority of their college life partying is not accurate. In fact, the reality is that students spend most of their time in class, reading textbooks, studying for exams or working either part-time jobs or college-work study. The desire to be recognized through their academic pursuits and not defined by their social activities is a part of the learning process. Student life might have some common aspects, but when grouped together it varies according to individual schools and their norms. What might be a popular activity at one particular college, will not be the norm at every college, individual aspects and commonalities are what comprise the concept of student life.

Student life also involves a limitation of personal freedom. Students learn that they can no longer do what they want without any consequences, their lives as independent learners come with new responsibilities. First and foremost, student's lives revolve primarily around receiving an education through classroom learning. Most students are on their own for the first time, they have to set their own alarm clocks, have meals alone and get to class on their own. They do not have their families with them. They have to make it on their own, or fail.

Nikhil Jaiswal

M.Sc. 4th Sem CMP P.G College Allahabad

"Effect of Antiepileptic Drugs (Sodium Valproate) on Development of Drosophila Melanogaster "

Epilepsy, the most common seizure disorder, is a chronic condition that briefly interrupts the normal electricalactivity of the brain to cause unpredictable and recurrent seizures .It is the most common disorder of the central nervous system (CNS) after stroke. Epilepsy causes due to the brain injury, stroke, brain tumors, and infection of the brain, birth defects and some unknown causes. Treatment in epilepsy can help, but this condition can't be cured. During a seizure, a person experiences abnormalbehavioursymptoms and sensations, sometimes including loss of consciousness.

There are many more drugs which can be used in the treatment of epilepsy that are Phenobarbital (PB), Phenytoin (PHT), Carbmazepine (CBZ) and Valproate(VAL), commonly these are called the antiepileptic drugs (AEDs). Sodium valproate (VAL) is the most frequently used antiepileptic drug. VPA is a broad spectrum antiepileptic drug effective over the complete range on seizure types. Besides it has proven to be an effective role in the management of epilepsy, it has lot of side effects on the normal body physiology. It causes weight gain, aplastic anemia, hepatitis etc. Other than these, it also effects reproduction and fertility. Various studies showed the use of antiepileptic drug can lead to decreased fertility and increased incidence of reproductive endocrine disorders in both men and women .Infemale, it causes menstrual disorders reflecting ovulatory dysfunction which reduces fertility. In males AEDs may reduce sperm motility, induce sperm abnormality and decreases testicular volume .Further VAL it can pass through the placenta.VLA has the highest risk of birth defects. Some epilepsy can only be controlled by valproate, and also the risk of birth defects with valproate is two to five times higher than other frequently used antiepileptic drugs . VPA can affect each life stage in a different manner and may depend on a specific stage of life history traits. Increase rate of fetal structural abnormality intrauterine growth retardation and improve fetal death have occurred with valproate administration to pregnant women. Hypoglycemia has also been reported in neonates whose mothers have taken valproate during pregnancy.

Various studies has been done to show the effect of VLA on development. VLA show the deleterious effect on the development of Ambystomamexicanum and Xenopuslaevis embryo). In Ambystoma the neural folds formation is delayed and showed a flattered and wavy shape, and embryos successively died. The most sensitive species, Ambystoma, developed headoedema VLAwhereas the anurans were not affected. VLA also induce neural tube defects in mouse and human). Valproic acid is associated with the occurrence of polycystic ovary syndrome when used in young, adulthood or adolescence. Because of thethe teratogenic property of VLA is not recommended for women of child bearing age

(pregnancy time). In most animals the drug was teratogenic but the effective teratogenic doses differed widely.VPA induced malformations of multiple organs in mice rites and gerbils renal and id8 skeletal defects in rabbits etc. Hypoglycemia has been reported in neonates whose mother have taken valproate during pregnancy.

About Drosophila -

Classification

Phylum	-	Anthropoda
Class	-	Insecta
Order	-	Diptera
Genus	-	Drosophila
Species	-	melanogaster

Fruit flies are small about 2-4 mm long, pale yellow colour to reddish brown or black, and having transverse black rings across the abdomen. They have brick red coloured compound eyes they have lack patterns on wings with plumos (feathery) and Arista antennae, bristking on the head and thorax. It is small (adults a few mm long), fecund (hundreds of progeny from a single female), a rapid breeder (generation time about 10 days), innocuous, and an undemanding laboratory pet. Thus, the use of Drosophila melanogaster has many similarities to the mammalian reproductive system, including putative sex hormones and conserved proteins involved in genitourinary development. Furthermore the D. melanogaster model would present significant advantages in time efficiency and cost-effectiveness compared with mammalian models . The Drosophilidae model offers an excellent system efficiently screen agents with potential therapeutic . Functional analysis of human disease genes including high throughput pharmacological screens as well as behavioural assays have become available in D.melanogaster.

They are sexually dimorphic .It will be assumed that the different concentration of VLA in the medium culture of this insect could negatively change the developmental stages, including egg hatching; larvae transformation into pupae, the developmental period and be also the cause some morphological changes. The mean developmental time may vary for VLA exposure. Some earlier studies of VPA in mice on days 8–9 of gestation, results in failure of cranial neural tube closure, as well as limb abnormalities such as syndactyly and oligodactyly. In rats, embryos with 0-3 somites were exposed to VPA showed retarted growth and development.Drug induced anomalies also includesopen neural tube, irregular somites and asymmetrical enlarged forebrain.Exposure of VPA during the first trimester of gestation n humans has been associated with a cluster of facial abnormalities (e.g. cleft lip and palate, broad nasal base) and neural tube defects . Earlier studies on different species of Drosophila showedwing deformities, kinking bristles, abnormal thoraxanddefective haltere, So on the basis of earlier studies we can also assume that it may effects on the phenotypic changes in D.

melanogaster.

The present study emphasizes on the effect of Antileptic drugs during childbearing age or during pregnancy, using Drosophila melanogaster as a modelsystem. Our study may help to know the teratogen effect of antileptic drug during childbearing age or in pregnancy. Any AED must be use at optimum in women of childbearing age and during pregnancy, a thorough understanding of the teratogenic effects of antiepileptic drugs and knowledge of the differences in risks between various treatment options are needed. Careful planning and management should be done prior to and during pregnancy will minimize the risks to the mother and the fetus. Antiepileptic drug choices should be discussed before conception so that there need not be any major medication changes during pregnency.

Vibha Kushwaha M.Sc. 4th Semester, Cell Biology

Uterine Hypoplasia and its Relation with Infertility

Uterine hypoplasia is a congenital (present from birth) reproductive disorder in which uterus is small in size. This disorder is also considered as hypoplastic uterus or in simple terms rudimentary uterus because of the small size of uterus. The uterine cavity may be reduced to a length of 2 and 6cm. This disorder generally comes under a broader condition which is known as Mayer-Rokitansky-Kuster-Hauser (MRKH) syndrome also named by Mullerian agenesis. It is a rare congenital syndrome characterized by underdeveloped vagina and uterus along with some genital tract abnormalities. Women with this syndrome are characterized by the the presence of 46XX karyotype,normal female secondary sexual characters, normal ovarian functions and underdeveloped vagina. The women suffering from hypoplastic uterus have very small size of uterus. The small size of the womb which is unable to conceive a baby is called a hypoplastic womb.

There are 3 types of uterine hypoplasia:

- 1. Simple uterine hypoplasia- the uterus is small in size but is of regular shape.
- 2. Elongated uterine hypoplasia-an elongated uterus with a normal fundus.
- 3. Malformative uterine hypoplasia-uterus is either T or Y-shaped or is abnormal.

Cause-

Vagina is either absent or underdeveloped due to the failure of the sino-vaginal bulb to develop during the embryonic stage. Congenital uterine abnormalities occur due to defects during formation and development of the Mullerian duct at embryonic stage.

Symptoms-

- 1. Primary Amenorrhea (absent menses) even after 15 years but secondary sexual characteristics are usually present in that girl or women.
- 2. Persistent abdominal pain.
- 3. Late menarche with infrequent menstruation.
- 3. Congenital uterine abnormalities are associated with pregnancy loss or abortion in the first and second trimester due to distortion of the uterine cavity which is evaluated and examined after uterine assessment such as ultrasound or sonography.

Treatment-

- 1. The cheaper, quicker and surer option is to adopt a baby.
- 2. If there is a chromosomal defect or if there is any possibility of egg formation after diagnosis, then chances of treatment with assisted reproductive methods like IVF, hormone replacement to start periods, egg forming medicines can be done to achieve conception. After this, testing for a normal baby is also required and also the risk of abortion is very high and this whole process is very costly as well as tedious.
- 3. The women's genital parts/outwards appear normally so it is difficult to diagnosed until puberty. When a girl does not having her menses even after 15 years then she must visist a doctor for treatment. Treatments include-medical checkups and genital outwards test and assessment, blood tests, ultrasound, MRI, sonography.
- 4. Another methods of diagnosis such as laparoscopy and hysteroscopy are uso used to examine the anatomical, morphological genital parts as well as functions of the uterus.
- 5. Uterine hypoplasia has a significant influence on both fertility and physiological health of women, hence it is essential to diagnose and accurately visualize the anatomical details of genital tract. Surgery is necessary for restoration of normal sexual function; even reproduction may sometimes possible if assisted reproductive methods are performed.

Nidhi Ojha M.Sc 4th Semester

Chernobyl Disaster

The Chernobyl disaster (26 April-1986) was a unique event and the only accident in the history of commercial nuclear power where radiation-related fatalities occurred.

Location-The Chernobyl Nuclear Power Plant, officially known as the V.I. Lenin Atomic Power Plant during the Soviet era, began construction in 1970 in a remote region near Ukraine's swamp filled northern border, 15 km. northwest of the small town of Chernobyl.

Function of Nuclear Power Plant- The heat generated by nuclear reactions is used to heat water and produce steam, which goes on to turn a turbine. This in turn drives a generator producing electricity. The steam that drive the turbine is cooled and condensed back to water, which can then be recycled back through the reactor continuously.

The Chernobyl plant used four Soviet-designed RBMK-1000 nuclear reactors — a design that's now universally recognized as inherently flawed. RBMK reactors were of a pressure tube design that used an enriched U-235 uranium dioxide fuel to heat water, creating steam that drives the reactors' turbines and generates electricity, according to the World Nuclear Association.

Chernobyl Accident- On 25th April 1986, before a basic shutdown procedure the reactor crew attempted an experiment how long turbines would spin and supply power to the main circulating pumps following a loss of main electrical power supply.

During the planned decrease of reactor power in preparation for the electrical test, the power unexpectedly dropped to a near-zero level. The operators were able to only partially restore the specified test power, which put the reactor in a potentially unstable condition. This risk was not made evident in the operating instructions, so the operators proceeded with the electrical test. Upon test completion, the operators triggered a reactor shutdown, but a combination of unstable conditions and reactor design flaws caused an uncontrolled nuclear chain reaction instead.

A large amount of energy was suddenly released, vaporising superheated cooling water and rupturing the reactor core in a highly destructive steam explosion and releasing fission product in the atmosphere. About two to three seconds later, a second explosion threw out fragments from the fuel channels and hot graphite caused by the production of Hydrogen from zirconium-steam reactions. This was immediately followed by an open-air reactor core fire that released considerable airborne radioactive contamination (total of about 14 EBq (14 x 1018 Bq) of radioactivity was released, over half of it being from biologically-inert noble gases) for about nine days that precipitated onto parts of the USSR and western Europe,

especially Belarus, 16km away, where around 70% landed.

Cause of Accident- The 1991 report by the State Committee on the Supervision of Safety in Industry and Nuclear Power on the root cause of the accident looked past the operator actions. It said that while it was certainly true the operators placed their reactor in a dangerously unstable condition (in fact in a condition which virtually guaranteed an accident). It was also true that in doing so they had not in fact violated a number of vital operating policies and principles, since no such policies and principles had been articulated.

The test, which was considered essentially to concern the non-nuclear part of the power plant, was carried out without a proper exchange of information and coordination between the team in charge of the test and the personnel in charge of the safety of the nuclear reactor. Therefore, inadequate safety precautions were included in the test programme and the operating personnel were not alerted to the nuclear safety implications of the electrical test and its potential danger.

Impact of Chernobyl accident-The accident destroyed the Chernobyl 4 reactor, killing 30 operators and firemen within three months and several further deaths later. One person was killed immediately and a second died in hospital soon after as a result of injuries received. Another person is reported to have died at the time from a coronary thrombosisc. Acute radiation syndrome (ARS) was originally diagnosed in 237 people onsite and involved with the clean-up and it was later confirmed in 134 cases. Of these, 28 people died as a result of ARS within a few weeks of the accident. Nineteen more workers subsequently died till 1987.

Chernobyl Today-Today, Chernobyl is mostly a ghost town, although a small number of homes in the area are still lived in.Nowadays, despite being the site of the world's deadliest nuclear accident, Chernobyl has become a surprisingly popular tourist spot. The ruins of Chernobyl reactor are now contained under a metal shell. The area is still highly radioactive and will likely remain as such for up to 20,000 years.

Shraddha Dwivedi

M.Sc.-4th Semester (Zoology) Environmental Science

Effect of Sanitizer on Skin

Regular use of sanitizer can actually do more damage than good. We should not be overdoing its use because of its adverse effects on the skin:

Strips the skin of its natural barrier: - Hand sanitizers contain over 60% of alcohol, which breaks down the essential proteins and lipids on the skin, thus weakening its natural ability to fight outside infections.

Makes the skin dry: Alcohol in hand sanitizers irritates and dries out the skin. This makes it susceptible to cracks and contact dermatitis.

Prone to sunburn: Too much use of hand sanitizers can make your skin sensitive to UV light. This happens because the alcohol thins the layers of the skin and makes it easier for sun rays to penetrate deep in the skin of your hands.

Speeds up the ageing process: Dryness, sensitivity to sunlight, lack of natural hydration can lead to increased appearance of fine lines, wrinkles, cracks, and flakiness on hand hands.

Causes allergies: Hand sanitizers are a mix of alcohol and chemicals and since manufacturers need not dictate what 'fragrance' they are using, you don't know what you are putting on your hands. It can penetrate in the skin layers and cause allergic reactions.

Weakens the immune system: Use of hand sanitizers decreases the body's ability to fight the antibodies and outside infections making it exposed to more bacterial infections and diseases.

Cause Hormone Problems: "According to the FDA, triclosan present in a hand sanitizer also causes hormone problems.

Some Can Impact Your Body Development: "A hand sanitizer that has too much fragrance could be loaded with toxic chemicals like phthalates and parabens. Phthalates are endocrine disruptors that can affect human body development and reproduction. Parabens are chemicals that can negatively affect the functioning of hormones, fertility, birth outcomes, and reproductive development."

Sonal Singh

M.Sc. 4th Sem. C.M.P. College University of Allahabad

Obesity

Obesity is the biggest problem of present day. In India 60% population facing it in which number of females is higher than males. It is simply the increase of fat in your body resulting significant impairment of health from diseases like hypertension, atherosclerosis, heart disease, and diabetes.

- It is not determined by body weigh but from the body mass index which is calculated by dividing the weight by the square of height. The National Institutes of Health issued guidelines that categorize the people with more than 25 BMIs as overweight i.e. having some risk because of excess fat. People with greater than 30 BMIs had increased health risk.
- The location of fat is important consequences. People with abdominal fat have greater risk for diabetes and cardiovascular disease than on the buttocks and thighs because of important difference in physiology of adipose tissue in these regions.
- · Genetic factor also play important role in obesity.

National Research Council Dietary Recommendation

- Reduce fat intake to 30% or less of calories. Reduce saturated fatty acid intake less than 105 O f calories.
- Eat vegetables and fruites, especially green and yellow vegetables and citrus fruit and also breads, cereals and legumes.
- · Maintain protein intake at moderate levels
- Balance food intake and physical activity. Alcohol should be avoided and maintain calcium intake.
- Avoid intake of food in excess of recommended dietary allowance.

Annapurna Singh

M.Sc. 2nd Sem.

"covid-19 Lockdown Caused 50 Percent Global Reduction in Human-linked Earth Vibrations"

The lack of human activity during lockdown caused human-linked vibrations in the Earth to drop by an average of 50% between March and May 2020. This quiet period, likely caused by the total global effect of social distancing measures, closure of services and industry, and drops in tourism and travel, is the longest and most pronounced quiet period of seismic noise in recorded history.

"Our study uniquely highlights just how much human activities impact the solid Earth, and could let us see more clearly than ever what differentiates human and natural noise."

Anthropause

Measured by instruments called seismometers, seismic noise is caused by vibrations within the Earth, which travel like waves. The waves can be triggered by earthquakes, volcanoes, and bombs -- but also by daily human activity like travel and industry.

Although 2020 has not seen a reduction in earthquakes, the drop in human-caused seismic noise is unprecedented. The strongest drops were found in urban areas, but the study also found signatures of the lockdown on sensors buried hundreds of metres underground and in more remote areas. Human-generated noise usually dampens during quiet periods like over the Christmas/New Year period and Chinese New Year, and during weekends and overnight. However, the drop in vibrations caused by COVID-19 lockdown measures eclipse even those seen during these periods.

Some researchers are dubbing this drop in anthropogenic (human-caused) noise and pollution the 'anthropause '. To gather the data, researchers looked at seismic data from a global network of 268 seismic stations in 117 countries and found significant noise reductions compared to before any lockdown at 185 of those stations. Beginning in China in late January 2020, and followed by Europe and the rest of the world in March to April 2020, researchers tracked the 'wave' of quietening between March and May as worldwide lockdown measures took hold.

The largest drops in vibrations were seen in the most densely populated areas, like Singapore and New York City, but drops were also seen in remote areas like Germany's Black Forest and Rundu in Namibia. Citizen-owned seismometers, which tend to measure more localised noise, noted large drops around universities and schools around Cornwall, UK and Boston, USA -- a drop in noise 20 per cent larger than seen during school holidays. Countries like Barbados, where lockdown coincided with the tourist season, saw a 50 per cent decrease in noise. This coincided with flight data that suggested tourists returned home in the weeks before official lockdown.

Listening in

Over the past few decades, seismic noise has gradually increased as economies and populations have grown. The drastic changes to daily life caused by the pandemic have provided a unique opportunity to study their environmental impacts, such as reductions in emissions and pollution in the atmosphere. The changes have also given us the opportunity to listen in to the Earth's natural vibrations without the distortions of human input. Dr. Hicks said: "The lockdowns caused by the coronavirus pandemic may have given us a glimmer of insight into how human and natural noise interact within the Earth. We hope this insight will spawn new studies that help us listen better to the Earth and understand natural signals we would otherwise have missed."

Ankita Tiwari M.Sc IVth Semester CMP PG College, Prayagraj

The "Wimpy" Chromosome

Much smaller than its counterpart, the Y chromosome has shrunken drastically over 200 million years of evolution. Even those who study it have used the word "wimpy" to describe it, and yet it continues to stick around even though sex chromosomes in non-mammalian vertebrates are known to experience quite a bit of evolutionarily turnover. Trends in Genetics outlines a new theory-called the "persistent Y hypothesis".

The Y chromosome is generally thought to be protected from extinction by having important functions in sex determination and sperm production, which, if moved to somewhere else in the genome, would signal its demise. However, we propose that the future of the Y chromosome is secure because it carries executioner genes that are critical for successful progression of male meiosis -- and unlike other genes on the Y, these executioners self-regulate.

One step of meiosis requires the silencing of both the X and Y chromosomes during a specific window. Importantly, the Y chromosome bears genes that regulate this process. Bearing these genes is what protects the Y chromosome from extinction. The genes that regulate the silencing process, the Zfy genes, are called 'executioner' genes. When these genes are turned on at the wrong time and at the wrong place during meiosis, they are toxic and execute the developing sperm cell. They essentially act as their own judge, and in doing so, protect the Y from being lost."

Ankita Mishra

M.Sc 4th Semester C.M.P PG College, , Prayagraj

Major Environmental Pollution Control Activities

- Policy initiatives to improve environment like the National Conservation Strategy and Policy Statement for Environment and development, 1992, Policy Statement for Abatement of Pollution, 1992 and National Forest Policy, 1988.
- · Identification and Action Plans for 17 categories of major polluting industries.
- Identification of 24 critically polluted areas for pollution abatement and improving environment.
- Notification and implementation of emission and effluent standards for air, water and noise levels. Standards are formulated by a multidisciplinary group keeping in view the international standards, existing technologies and impact on health and environment.
- Action plans for 141 polluted river stretches to improve quality of river water.
- For controlling vehicular pollution, progressive emission norms at the manufacturing stage have been notified, cleaner fuels like unleaded petrol, low sulphur diesel and compressed natural gas (CNG) introduced.
- Use of beneficiated coal with an ash content not exceeding 34% irrespective of their distance from pit head.
- · Setting up of Common Effluent Treatment Plants (CETPs) for clusters of SSI units.
- · Identification of clean technologies for large industries and clean technologies / processes for small scale industries.
- Preparation of a Zoning Atlas, indicating status of the environment at district levels to guide environmentally sound location/siting of industries.
- · Initiation of environmental epidemiological studies in seven critically polluted areas to study the impact of environment on health.
- · Implementation of an Eco-mark scheme to encourage production / consumption of environment friendly products.
- Mandatory submission of annual Environmental statement which could be extended into environmental audit.
- Setting up of authorities like the Environment Pollution (Prevention and Control) Authority for the National Capital Region for protecting and improving the quality of environment and preventing controlling and abating environmental pollution.
- Provision of fiscal incentives for installation of pollution control equipment and also for shifting of industries from congested areas.

Swati Upadhyay

M.Sc. 4th Semester CMP Degree PG college

Asian Palm Civet and the Sars Pandemic

A civet is a small, lean, mostly nocturnal mammal native to tropical Asia and Africa. It is found in tropical forests and belongs to the family Viverridae. Viverridae are characterized for having half-retractile toes, rough tongues and glands in the anus. Furthermore, the Asian Civet Cat belongs to the genus Paradoxurus, which comprises of two other species of civets, namely Brown palm civet and Golden palm civet. Amongst these, Asian palm civet is the most endangered specie thanks to poaching and animal exploitation for the production of coffee. The faeces of Asian Palm Civet are popularly used in southeastern Asia for the brewing of the most expensive coffee in the world, Kopi Luwak. The beans for this beverage are acquired from the undigested cherry seeds found in the faeces of civet cat. Since the seeds have passed through the digestive system of the civet cat, there are multiple enzymes and proteins which attach to the seed while the flesh of the cherry is absorbed, and this ends up creating an aromatic faecal matter. Humans initially started ingesting these seeds during the slave era in China as a result of forbidden access to coffee for the poor, therefore these people had decided to make coffee from the undigested seeds in the faecal matter of the civet cats; a commodity which is now sold for over \$80 per cup of beverage. This practice soon became a common practice for the local population, thanks to the accessibility and unique flavour that the coffee had. Unsurprisingly enough, tourists were astonished by this practice and mesmerized from the flavour of the beverage, this popularized the production of Kopi Luwak globally until it became the most expensive coffee in the world. Unfortunately, this led to the illegal poaching and industry farming of Civet cats, resulting in inhumane conditions for the cats and animal abuse for the price of a coffee.Recently, a joint China-Hong Kong research team stated that it had found a genetic link between SARS-CoV-1 in civet cat and humans, bearing out claims that the virus had jumped across species. Severe Acute Respiratory Syndrome emerged in southern China in 2002, swept through the province of Guangdong and spread globally around in 2003, infecting 8000 people and killing 800. There is plenty of evidence for this Cat to have played a major role in the infection of thousands in southeastern China as a result of animal-tohuman transmission of SARS.Research shows that the SARS coronavirus found in human victims is this same as the SARS coronavirus found in civet cats, scientist discovered the virus had the same genetic profile after running tests on six SARS carrying civet cat taken from a restaurant in early 2004, where a female worker had been diagnosed with the illness. It was suspected that many of the customers and local population had also suffered from the SARS-CoV-1 virus due to the same etiology. As a reflection from this historic pandemic, the following words of wisdom published in the American Journal of Public Health by Professor David Benathar serve as a good thought to have in mind if we want to prevent future pandemics: "changing the way humans treat animals -- most basically ceasing to eat them-would significantly reduce the likelihood of a much-feared (viral) pandemic." Essentially, becoming VEGETARIAN could PREVENT any future pandemic.

Garima Singh

B.Sc Ist year C.M.P Degree College, Prayagraj

Important World Environment Days

Date	Days
2 February	World wetland day
28 February	National science day
21 March	World forestry day
22 March	World water day
22 March	World biodiversity day
23 March	World meteorological day
7 April	World health day
18 April	World heritage day
22 April	Earth day
31 May	Anti tobacco day
5 June	World environment day
11 July	World population day
16 September	World ozone day
28 September	Green consumer day
3 October	World habitat day
1-7 October	World wildlife week
4 October	World animal welfare day
13 October	International day for natural disaster reduction
2 December	Bhopal tragedy day

Ankita Mishra M.Sc 4th Semester C.M.P PG College

क्या है कोरोना ?

कोरोना, कोरोना, कोरोना, क्या है यह कोरोना |

यह है एक विषाणु, चाइना में जो जन्मा | 'निडोविराल्स' गण है इसका, 'कोरोना विरिडी 'है परिवार | केंद्रीय रचना के चहुओर, मिलते हैं इसके कांटेदार उभार | उभार ऊपर लगे सूक्ष्म गोल कण, इसे दे देते हैं

'ताज ' जैसा आकार|

सार्स, मर्स से नाता इसका, है लक्षण भी इन्हीं समान| यह भी है 'जूनोटिक' यानी पशुओं से मानव में प्रेषित | भले हो पट्टीदारी सार्स-मर्स से, पर घात करें इनसे भी बीस तभी तो इस नवल प्रभेद का नाम पड़ा 'कोविड उन्नीस' चौदह दिनों तक सुस्त रहे, फिर दिखावे अपना उत्पात वाहक कौन है इसका, यही रहस्य है अभी अज्ञात, माना बड़ी है मुश्किल, जिससे हमें उबरना है, सभी सुरक्षा तरीके को अपनाकर, इस विषाणु को हराकर, हमें मां भारती का मस्तक, पूरे विश्व में ऊंचा करना है |

> डॉ. हेमलता पंत असिस्टेंट प्रोफेसर सी. एम .पी .पी. जी. कॉलेज प्रयागराज (उत्तर प्रदेश)

Change in Water Quality During Covid-19 Pandemic

Human life comes to a standstill as many countries shut themselves off from the work due to the novel coronavirus disease pandemic (COVID-19) that hit the world severely in the first quarter of 2020.These days people get locked in their home and nature started rejuvenating itself. During the lockdown some positive changes also occurred in the world. For decades, the hydrosphere has been severely polluted because of rapid urbanization, industrialization and over exploitation. During the lockdown period, the major industrial sources of pollution that affect aquatic ecosystems completely stopped. The nationwide lockdown was imposed on March 25, 2020, and within 10 days, signs of improvement in water quality started surfacing. According to the real-time water monitoring data of the CPCB, out of the 36 monitoring units placed at various points of the Ganga river, the water quality around 27 points was found suitable for bathing and propagation of wildlife and fisheries.

Ganga water at Haridwar and Rishikesh was reported fit for drinking due to 500 per cent decrease in sewage and industrial effluents. In many places the water became so clear that the fish could be seen and there was better water flow. No doubt, because of the lesser human footfall even the oceans are recovering and marine life is thriving. It is assumed that due to the lockdown, the drainage of industrial waste into the river water has stopped and brought a significant change in the water quality. The Uttarakhand Pollution Control Board, Water from Har-ki-Pauri in Haridwar was tested and the results from the tests reveal that the water here has been classified as 'fit for drinking after chlorination', for the first time in decades.

Critically endangered, South Asian River Dolphins also known as Ganges Dolphins have been spotted back in the Ganga river in Kolkata after 30 years. Tens of thousands of flamingos have gathered in the city of Navi Mumbai. The birds normally migrate to the area every year, but it has been reported that this year they have seen a massive increase in their numbers. With hope in our hearts to surpass the hard times, we shall move to a future of refined lifestyle choices to preserve Mother Nature and hope to be working cumulatively to restore our planet earth from the destruction that had been caused over the several years.

> Animesh Chaturvedi M.Sc. 4th semester C.M.P College, Prayagraj

Departmental Academic Activities (2019-2020)

- An Induction Programme for PG first semester students was conducted by Zoology Department on 5th Aug 2019. This programme was mainly organized for an informal introduction for the newly admitted students with the teachers, the curriculum, and activities of the department. Welcome address was given by the Convener, Dr. Neerja Kapoor. The programme is presided by the Principal of The College, Dr Brijesh Kumar. All the students were made familiar with the Faculties of the Department. Rules and guidelines followed in the Department and College were also discussed. Views of some teachers and students were also shared in the programme.
- **2. Teacher's Day celebration** on 6^{th} September, 2018 by B.Sc. and M.Sc. Students.
- 3. Different Inter-Departmental Academic activities were organized for Post Graduate Students of the College on 13th September, 2019.
 - A) Written Quiz Competition
 - B) Poster competition on the topic "Gene Therapy":
 - C) Power point Oral Competition on different topics of the Science

Following are the prize winners of Inter-Departmental Academic Activities held on 13th September, 2019.

Quiz Competition

Position	Name	Class and Subject
First	Saumya Rai	M.Sc. Zoology 3 rd Semester
Second	Shalini Singh Praveen Kumar Bind	M.Sc. Zoology 1st Semester M.Sc. Zoology 1st Semester
Third	Satyam Srivastava Nidhi Ojha	M.Sc. Zoology 3 rd Semester M.Sc. Zoology 3 rd Semester

Poster Competition

Position	Name	Class and Subject
First	Deepanshi Verma	M.Sc. Zoology 1st Semester
Second	Vaishnavi Tiwari Kanishka Raghuvanshi	M.Sc. Chemistry 3 rd Semester M.Sc. Chemistry 3 rd Semester
Third	Vibha Kushwaha Annapurna Singh	M.Sc. Zoology 3 rd Semester M.Sc. Zoology 1st Semester

Oral Competition

Position	Name	Class and Subject
First	Shikha Singh	M.Sc. Botany 3 rd Semester
Second	Shweta Shalini	M.Sc. Zoology 1st Semester
Third	Mahak Jaiswal Nidhi Ojha	M.Sc. Zoology 1st Semester M.Sc. Zoology 3 rd Semester

4. Academic activities for Under Graduate students consist of series of competition.

i) Written Quiz Competition for students of B.Sc. I, II, and III held on 18^{th} and 19^{th} October, 2019.

ii) Inter-Institutional Poster Competition was held on 8th November, 2019. The theme of the poster competition is "**Extinction of Aquatic Biodiversity**".

First position:	Anugya Shukla, CMP Degree College	
Second Position:	Taliya Ansari, EC College Shreyanshi ratnaker, CMP Degree College	
Third Position:	Faiza Imam, SSK Girls Degree College Ajita Singh, CMP Degree College	
Consolation:	Shreya Gupta, Kulbhaskar Ashram PG College	
iii) Inter Institutional Oral Competition was held on 8 th November, 2019 on the theme "Electronic Gadgets: Boon or Curse".		
First position:	Vatsala Kumari, CMP Degree College Prerna Mishra, SPM Govt College	
Second Position:	Ajita Singh, CMP Degree College Shivi Srivastava, CMP Degree College	
Third Position:	Bhanuja Pathak, SSK Girls Degree College Rimjhim Singh, CMP Degree College	
Consolation:	Samriddhi Singh, CMP Degree College Rishab Pandey, EC College	

5. Department of Zoology, CMP Degree College, organized a series of invited lectures for PG students.

Student Achievements (2019-2020)

- 1. Students of M.Sc. IIIrd semester participated in 3 days National Workshop from 18-20 September, 2019 on "Techniques in Molecular Biology and Biochemistry" organized by Department of Botany, CMP College in collaboration with Cytogene, Research Department Lucknow.
- 2. PG students of M.Sc. First semester participated in Two days National Workshop on "Life Style Diseases and Health" organised by The National Academy of Sciences, India and S.S. Khanna Girls' Degree College, Prayagraj on Octo16-17 October, 2019.
- 3. Following Students of M.Sc. 2nd semester participated in two days "All India Forensic Science Meet-2020" NATIONAL FORENSIC COLLOQUIUM FOR THE SUSTAINABLE DEVELOPMENT OF FORENSIC SCIENCE organized by Forensic Science Unit, Shri Teg Bahadur Khalsa College, University of Delhi held on 22nd and 23rd February, 2020 and participated on Oral Presentation.
 - > Shweta Shalini
 - Deepanshi Verma
- 4. Miss **Sahiba Sultan** is selected as "Champion" for the Year 2019-20 for Gender Sensitization Cell of the CMP Degree College.
- 5. Miss **Jyoti Mishra** of 2018 batch has qualified NET/JRF , 2019 and Joined the Ambedkar Centre for Biomedical Research, Delhi.
- 6. Two students qualified the CRET 2019 examination organized by the University of Allahabad'
 - Priya Agarwal (M.Sc. Zoology 2019 Batch)
 - Twinkle Yadav (M.Sc. Zoology 2019 Batch)
 - They are enrolled for Ph D course in the department of Zoology, CMP Degree College
- 7. Following students qualified Gate:
 - o Shreya Pandey (M.Sc. Zoology 2018 Batch)
 - Shiwangi Kesarwani (M.Sc. Zoology 2018 Batch)
- 8. Mr **Rishi Kant Shukla (2020 batch)** is qualified the Labour and Medical UP PCS Services and and joined as Pharmacist Officer at Labor Medical Department of Employees' State Insurance Dispensary, Rajnagar, Ghaziabad.
- 9. Miss **Swati Mishra** (2018 batch)- working as a Clinical Embryologist in Jeevan Jyoti Hospital, Prayagraj. She has topped in diploma in Clinical embryology, Amity University.
- 10. Suman Mishra (2019 Batch)- doing diploma in Clinical Embryology from Amity University.
- 11. Miss Anjali Mishra of M.Sc. 2019 batch becomes the topper in the Allahabad University merit list.





Dr. Vinita Jaiswal has taken charge of convenership of the department on 28.9.2020. We wish her a successful tenure and in her guidance Department will reach new heights of achievement.

Dr. HEMLATA PANT,

has been awarded

DISTINGUISHED SERVICE AWARD

(2018-19) from SAAR, Firozabad on the occasion of AIAAS - 2020 in JNU convention center, New Delhi

on the date of 31st January, 2020

Dr. HEMLATA PANT,

has been awarded

NAARI SHAKTI AWARD

on the occasion of International Womens Day March, 08, 2020 from collaboration of Bhumisha Organics, Bhopal, (M.P.) VRUNDA, Bhopal, (M.P.) Society for Environmental & Sustainable Development, Nalanda, (Bihar) and Jansahayog Foundation, Thane, (Mumbai)



महादेव प्रसाद महात्रवात्व

開始國連組織

आ नो भद्राः क्रतवो यन्तु विश्वतः 🔿