PRAKRITI SANRAKSHAN

Newsletter

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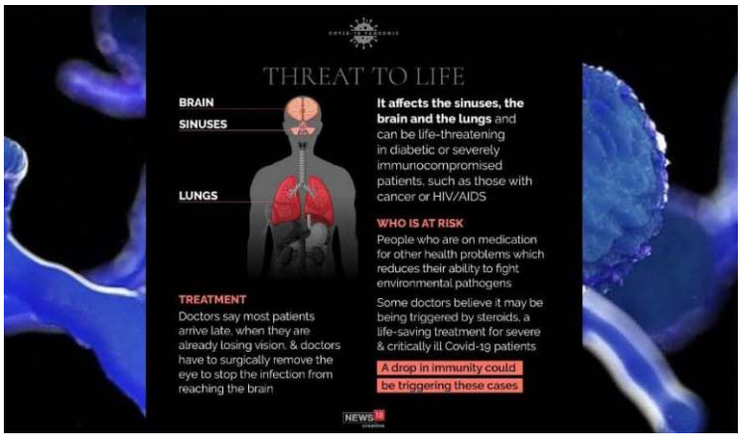
Inside Glimpses



ABOUT US

Save the Environment (STE)

SAVE THE ENVIRONMENT (STE) is the organization that aims to spread awareness to the society about environment, health and water. It was founded and registered on 19th November 1990. STE has collaborated with various organizations in the past 29 years such as All India Institute of Hygiene & Public Health (AIIHPH) and India Canada Environment Facility, DRDO Ministry of Defence, Department of Science and Technology (DST), Indian Institute of Management (IIM), Ahmedabad to mitigate the effects of arsenic and provide arsenic-free drinking water.

The vision of the society is to protect present and future generations from various Environmental Hazards. The NGO has been actively organizing various interactive sessions such as conferences (National and International), workshops, seminars and awareness programs including poster competitions, quiz competitions, science exhibitions and webinars.

STE Annual Awards 2021

(NOMINATION AND APPLICATIONS ARE INVITED)

LAST DATE 31 December, 2021

Annual Awards of STE are the tangible symbol to signify eminence of contributions made by a person or institution. This boosts the enthusiasm of the contributors who have contributed in different fields of science and social service with their excellence, expertise and approach towards achieving certain goals for the society. Recognition of such extraordinary activities is eventually very important to boost their confidence and to honour them for what they have done for the science and society. STE confers following categories of awards and honours to such eminent personalities.:

STE Dr. APJ Abdul Kalam Award
STE Fellowship Awards
STE Water Awards
STE Dr. Praloy O Basu Life Time Achievement Award
STE Green Excellence Award
STE Humanitarian Award for NGO
STE Best Teacher Award
STE Young Researcher Awards
STE Best Ideas/Innovations/Technology for Environment Awards
STE Women Awards
STE Meritorious Award for Excellence in academics and research
STE International Achiever Awards

For more information, please log on to our website
www.stenvironment.org/ste-awards/

ARTICLES ARE INVITED FOR THE
INTERNATIONAL JOURNAL OF ENVIRONMENT AND HEALTH SCIENCES

This journal is being published by Save the Environment. Send your manuscripts for peer-review by e-mail. The authors must mention address, Contact Nos. and E-MAIL ID in their forwarding letter. Proof will be sent for correction before publishing. A pledge for originality will be signed by the authors.

We are pleased to announce that the DOI prefix for International Journal of Environment and Health Sciences is now available from Crossref, the official Digital Object Identifier (DOI). The journal is now indexed in International Scientific Indexing (ISI).

For further details, please contact, Chief Editor at: **ijehseditor@gmail.com** or visit our website: **www.stenvironment.org**

OUR EVENTS

SAVE THE ENVIRONMENT

A Society for Research Awareness and Social Development

COVID-19 Vaccination Drive

As part of its humble efforts for fulfilling social duties, especially during the ongoing pandemic crisis, STE, in kind collaboration with **Suraksha Diagnostics** and in association with **Brindaban Matri Mandir**, **Fight Cancer**, **Amra Sabai Happy Club**, **Vidyasagar Park MWA** and **Milan Samity-Hrishikesh Park** organized a COVID Vaccination Camp at Biswa Bangla Convention Centre, Kolkata on 4th July, 2021. The camp was conducted under the esteemed guidance of Dr. Subir Ganguly (famous veteran oncologist).

We are delighted to share that 151 persons were vaccinated in this camp. Many lesser privileged persons were given the shot absolutely free of cost and others received it at a subsidized rate. Free of cost transportation, snacks and water were arranged free of cost for all the beneficiaries.

STE is grateful to the collaborators and wishes to continue doing social work for the betterment of society, with kind support from its patrons.

SAVE THE ENVIRONMENT (STE)
(A SOCIETY FOR RESEARCH, AWARENESS & SOCIAL DEVELOPMENT)

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We are pleased to announce that STE in Association with **Suraksha** (DIAGNOSTICS FOR YOU) is organising a **COVID-19 VACCINATION CAMP** for **1st, 2nd dose and 18+ age. We will provide Covishield vaccine at subsidize rate of Rs. 500/-** on 04.07.2021 at Milan Samity (Hrishikesh Park) from 10:00 a.m. to 2:00 p.m.

All are requested to kindly come forward and use the opportunity.

Last date for registration is 01.07.2021

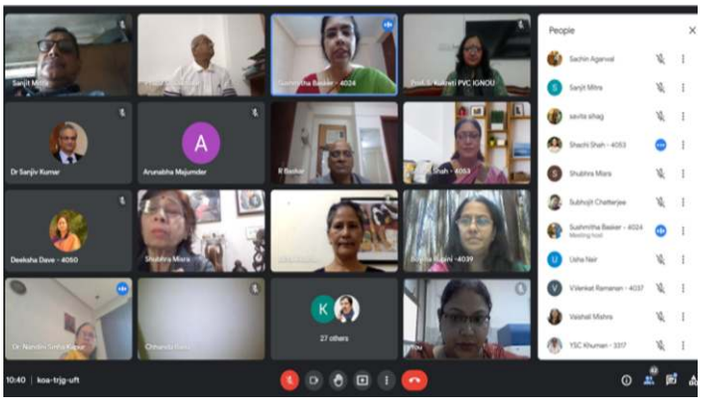
For detail contact: **Sanjit Mitra - 08697748859**

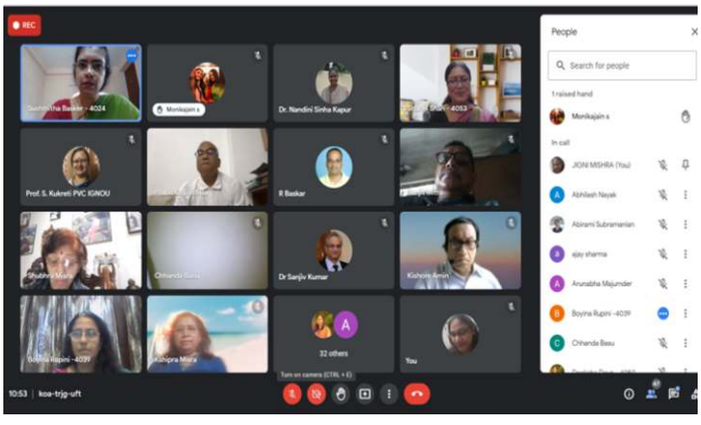
Virtual National Conference on Emerging Trends to Heal the Earth and Environment (ETHEE)

Save The Environment and **School of Interdisciplinary and Trans-disciplinary studies (SOITS, IGNOU)** successfully organized the **Virtual National Conference on Emerging Trends to Heal the Earth and Environment** (ETHEE) online on 18th September, 2021 to mark this year's celebration of World Ozone Day. The event was in alignment with this year's theme by UN i.e., '**Montreal Protocol -Keeping us, our food and vaccines cool**'.

As a concerted step for the above perspective, the aforesaid conference culminated as an intellectual amalgamation of eminent academicians, researchers, government authorities and policy makers to discuss various themes relevant for Ozone preservation.

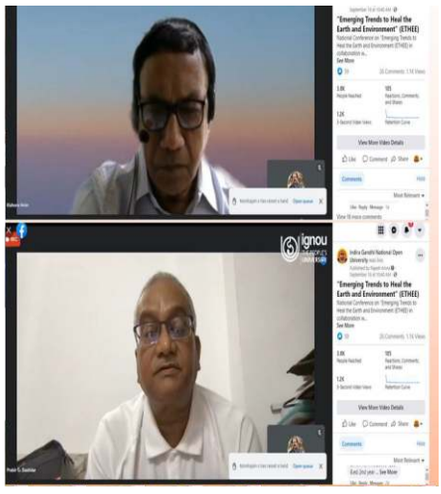
The event was graced by our **Chief Guests** *Prof. Nageshwar Rao, Hon'bl Vice-Chancellor, IGNOU & Patron, ETHEE; Prof. Sumitra Kukreti, Pro-VC, IGNOU & Co-Patron, ETHEE* and *Prof. Satyakam, Pro-VC & Director, CFSDS, IGNOU* and, **Guest of Honor** *Prof.*





Arunabha Majumder, Chairman, IWWA, Emeritus Professor, SWRE, Jadavpur University & Ex-Director, Dept. of Sanitary Engg., AIIHPH & Patron, STE.

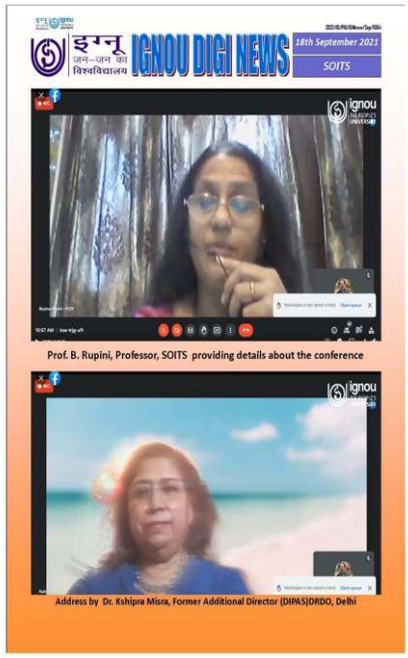
The **Keynote Speakers** of the day were *Dr. P.G. Dastider, Scientist 'G' & Adviser, MoES, GoI* and *Dr.*

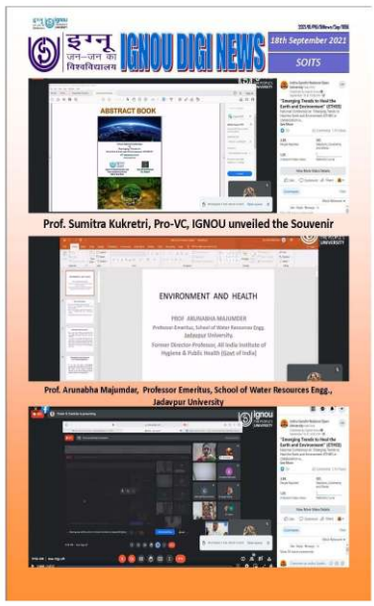


Kishor Amin, Co-investigator & Scientific Officer, ACTREC.

Young researchers presented their innovative ideas and outlook in the **Oral and Poster presentation** session which was kindly chaired by *Prof. Shachi Shah, Director, SOITS* and *Prof. R. Baskar, Professor, SOS, IGNOU*.

The relentless efforts for conducting the fruitful program by *Prof. Shachi Shah, Director, SOITS & Organizing Secretary, ETHEE*; *Prof. B. Rupini, Professor, SOITS & Convener, ETHEE*; *Dr. Kshipra Misra, Former Additional Director, DIPAS (DRDO), President, STE & Convener, ETHEE, Dr. Sushmitha Baskar, Asst.Prof., SOITS & Organizing Secretary, ETHEE*; *Dr. Jigni Mishra, Project Associate, IARI, E.C. member, STE & Organizing Secretary, ETHEE* and the *entire Organizing Committee* were lauded by all and sundry.





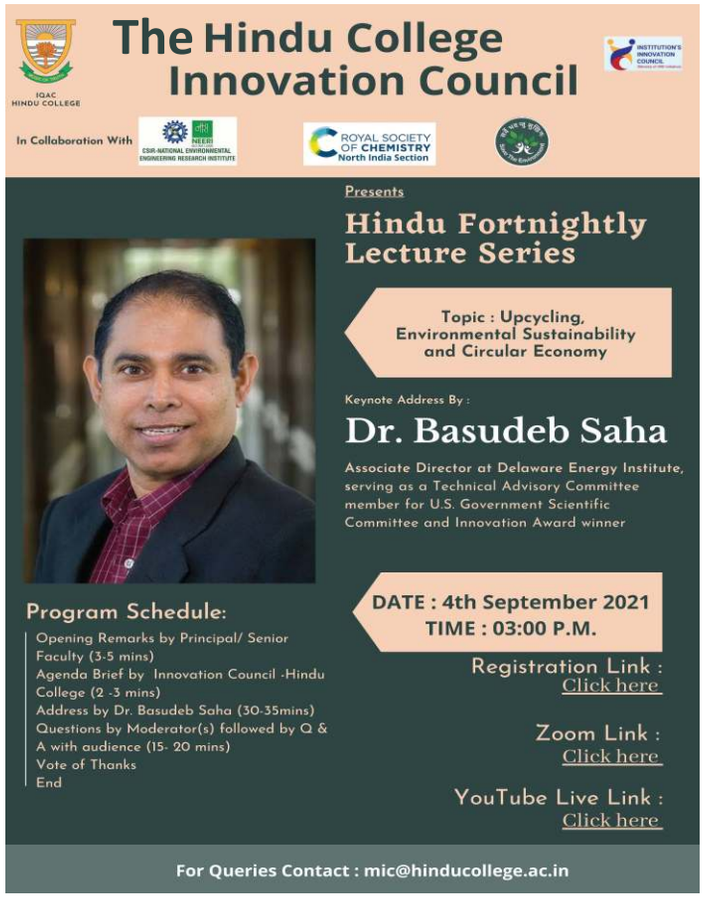
Fortnightly Lecture Series on Upcycling, Environmental Sustainability, and Circular Economy.

Save the Environment organized its first lecture of fortnightly lecture series season 2 under the aegis of MOE's Innovation cell, Government of India in collaboration with NEERI- A part of CSIR, Royal society of chemistry, North India section and The Hindu College on 4th September 2021. The lecture was delivered by **Dr. Basudeb Saha**, a member of biomass research and development technical advisory committee under US department of agriculture (USDA) US department of energy (DOE).

The event was dignified by the presence of Hindu College principal Dr. Anju Shrivastava, Vice Principal Dr. Reena Jain, President of Save the Environment Dr. Kshipra Mishra, Professor RK sharma Honorary secretary RSC North India section , members of teaching faculty and students from all over India.

Dr. Basudeb Saha's talk on upcycling ,sustainable development and circular economy was really engrossing, he acquainted us with definition of upcycling, circular economy, specially stressing on reusing and repurposing unwanted objects to create new products with value, he then linked upcycling with circular economy specially focusing on carbon neutral economy, later he potentate us with his two major fields of research i.e. turning biomass into lubricants and plastics into useful chemical intermediates, he summarise his research by talking about market dynamics and how soluble sugars can be coupled and deoxygenated to give linear chain which can further be used as biofuels, cosmetics etc.
Dr. Saha engaged his audience throughout the talk, the lecture ended with inquisitive Q&A session where in students put forth their concerns regarding the environment and economy and Dr. Saha brilliantly answered their questions.

Overall the evening was colossal success and definitely huge milestone in the journey of Save the Environment and Hindu College Innovation Council.



NATIONAL SEMINAR ON WOMEN EMPOWERMENT IN SCIENCE AND TECHNOLOGY : POWER TO TRANSFORM THE WORLD

A one - day **"National Seminar on Women Empowerment in Science and Technology :Power to Transform the World.**' was organised by **Save the Environment** and **Hindu College**, **Green Chemistry Network Centre** under the aegis of **Royal Society of Chemistry, North India Section** on **September 25, 2021** to celebrate all the empowered women in science .

The event was graced by two wonderful women science pioneers, **Dr. Susan Titus,** Scientist, Head of Marine Biotechnology department at naval materials research laboratory, DRDO and **Dr. Nupur Bahadur** ,currently working as Senior Scientist in the energy and resources institute, New Delhi and Heads as Area Convenor (TADOX) Technology Centre for water reuse in water resources, a div of TERI. The event was glorified by the benign presence of **Dr. Kshipra Misra, President, Save the Environment.**

The event commenced by a warm welcome to the virtual audience by the students of Hindu College, Pushpa Devi and Vasupriya followed by an inspiring speech from the **Principal, Hindu College, Professor Anju Srivastava.**

The keynote speakers for the programme , Dr. Susan Titus presented a brief talk on**"Biotechnology for Marine Application "** And Dr. Nupur Bahadur enlightened the students about the **"Role of Science and Technology in Making New India"** giving valuable insights into their research achievements and never-ending scope of innovative science. The talks inspired students to have creative, and innovative thinking of science and its wonders. Each talk followed an interactive questionnaire session.

After the talk sessions, **Professor Reena Jain, Vice – Principal, Hindu College** extended gratitude to the guests, dignitaries and audience for their contributions to this very successful seminar .

Following this was amusing Extempore and Poster Making competitions for the students. Mass participation from students lead the game session to be fun and grand success .

ARTICLES

THEME: HOW CAN TECHNOLOGY BE INCORPORATED TO IMPROVE PLANTATION AND AGRICULTURE?

According to the United Nations, the world's population will have a projected growth of more than 30% by 2050, thus leading to an estimated 2.3 billion more people to feed. Since the technological revolution and the increased dominance of technical innovations in all sectors of business, the focus in agriculture has shifted from subsistence farming to introduction of better harvesting and irrigation methods to increase high-quality yields.

Before delving into the benefits that the implementation of technology in the agricultural sector possesses, let us first analyze the previous impacts, most notably the Green Revolution in the 1950s and 60s. The Green Revolution was the renovation of agricultural practices in the mid-20th century through the development of new mechanized agricultural technologies. Let's take our home country. In the early 1960s before the Green Revolution 90% of India's population depended on subsistence farming. There was no proper initiative for technological change and better land reforms, which coupled with droughts brought the country to the brink of a massive famine. Post Green Revolution, however, India is now one of the world's leading rice producers which is solely attributed to the smooth transition to new technology by India.

Now, when we talk about agriculture and plantation in the 21st century, there's one term which is always synonymous with this and that is sustainable farming. Technology is the basis of Sustainable Agriculture. There has always been a debate that technology fuels the exploitation of natural resources faster through “unnatural practices" which will cause an imbalance in the “natural” environment due to human intrusion. The central perspective of sustainability in agriculture is the preservation of non-renewable resources and that can be marvelously progressed with biotechnology. Through this, the most renewable and least expensive source of energy i.e. the Sun can be used to grow more nutrient-rich and efficient food by using genetic and industrial methods in biotechnology. This involves improving the overall rate of photosynthesis which makes plantation farming more cost-effective by increasing productivity of more nutrient rich food.

However, it is also vital to recognise the uneven food distribution around the globe due to a lack of arable land. How can technology be of use here? It's simple. Insufficient usage of land to increase availability of food to people can be solved through computational technology. Remote sensing advancements such as terrain contour mapping or moisture detectors will not only increase global food production but also prevent misuse of land through poor agricultural practices.

Not only has the environment for plantation and farming been improved drastically, but the innovation of genetic technology in crops itself has been extremely beneficial. Even though critics have blamed technology for the deterioration of the genome pool in agriculture, history confirms that technology has indeed improved the genetic make-up of the crops. Genetic engineering has helped in the revival of indigenous crop varieties like rice through creating genetically modified crops (GM Crops). Not only are these enhanced in nutritional value but they are also pest-resistant which has significantly lessened the economical impact on farmers. But why is biotechnology in agriculture so phenomenal? This is primarily because food insecurity and malnutrition, which are among the most serious concerns facing lives especially in developing countries, have been tackled meticulously as genetic engineering has now provided a more widespread and effective food supply, especially in poor countries.

Talking about the future, we are brought to a very important point, and that is Climate Change. It is one of the most unprecedented challenges faced by humans in the 21st century, and as the Fifth Mass Extinction looms before us, there is dire need for immediate action, especially in agriculture. Agriculture is one of the

biggest offenders of global warming, pumping out more than a quarter of the world's annual Greenhouse Gas emissions.

Here is where technology becomes a life saver. Be it biotech crops that have pest tolerance or advanced equipment that can recognize nitrogen deficiency in soil, agri-technology has helped in reducing fuel use and increasing soil carbon storage. The impact this has had between 1996 and 2015 has been equivalent to taking nearly 12 million cars off the road for a year!

Why is this important? Because this proves that technology can be helped to develop a futuristic vision for not only agriculture and plantation, but for all sectors. Indeed, technology is changing the world, but whether we use it for our good or bad depends solely on us. After all, we are the end masters.

By Maneeza Khan
Class 11, The Heritage School
Kolkata

OZONE: THE MIGHTY SHIELD

Earth, an amazing planet, has wondrous sights to behold,
The atmosphere around our planet is one such thing, that's more precious than gold.
It consists of many layers, whose names are not alien to us,
Stratosphere is one of them upon which lies our trust.

Stratosphere is the home of a mighty shield,
Ozone layer it's called as, which fulfils our greatest need.
It protects all life on earth from harmful UV rays,
As we keep on doing our work day after day…

With 3 atoms of oxygen, the ozone molecule is made,
Put many of them together and there's nothing to be afraid.
It's Nature's greatest architecture,
We must not let it fade.

Alas, the layer is depleting because of our careless deeds,
CFC'S are the main culprit but none of us seem to pay heed.
If this shield is gone, problems will prevail
Be it skin cancer in humans or plants being decayed.

Glaciers will melt completely and eye disorders will reign
Nothing can save us then and will cause us immense pain.
So, let's not be so mean and instead go green
Let's join hands and work towards every person's dream.

Alone maybe not, but together we can create a difference,
Let's take action now and stop this menace.
Use cycles instead of cars and avoid CFC's,
Coz if ozone depletes completely, we can never live freely.

It's our turn save, what has been saving us for so long
To give back to the Earth so that nothing goes wrong
Pledge to protect the ozone layer from further harm,
And it heal it wholly to return its charm!

T. Sanjana
(XII C)
ITL Public School, Dwarka

https://www.coolingpost.com/world-news/celebrating-world-ozone-day/

SCIENTIST FACT-DISCOVER NEW 'CHOCOLATE FROG' IN SWAMP

A team of Australian scientists has discovered a curious "chocolate frog" tree frog in the lowland rainforests of New Guinea.

Tree frogs are known for their green skin -- but due to its brown coloring, researchers named it "chocolate frog" -- and the name stuck.

"The closest known relative of Litoriamira is the Australian green tree frog. The two species look similar except one is usually green, while the new species usually has a lovely chocolate colouring," Paul Oliver of the Centre for Planetary Health and Food Security and Queensland Museum, who described the discovery in a co-authored paper in the journal the Australian Journal of Zoology said in a statement.

Australia and New Guinea were once linked by land for much of the late Tertiary period 2.6 million years ago but now, New Guinea is dominated by rainforest, while northern Australia is mainly savannah. Green tree frogs (Litoriacaerulea) can be found across northern and eastern Australia and New Guinea.

Australian scientists discovered one of the creatures in 2016, according to the paper, and they think the animal could be widespread across New Guinea.

The creature was so named for its chocolate coloring.

"Because the frog lives in very hot, swampy areas with lots of crocodiles, all these things discourage exploration," co-author Steve Richards from the South Australian Museum Richards said.

Although the creatures may look like the magical, enchanted snacks found in the Harry Potter series, the similarities stop there.

"We named this new Litoria frog species Mira, which means surprised or strange in Latin, because it was a surprising discovery to find an over-looked relative of Austalia's well-known and common green tree living in the lowland rainforests of New Guinea," Oliver said.

"Resolving the biotic interchange between these two regions is critical to understanding how the rainforest and savannah habitat types have expanded and contracted over [the] time of both," Oliver said.

"Estimates for divergence of the new species in our study shows that in the Pliocene (5.3 to 2.6 million years ago) there was still connectivity between the two species across lowland tropical habitats of northern Australia and New Guinea," he added.

By Ms Pratishtha Gupta
TGT -Science
pratishthagupta123@gmail.com

Source: https://www.ctvnews.ca/sci-tech/scientists-discover-new-chocolate-frog-in-swamp-1.5448040#:~:text=Text%3A,%2D%2D%20and%20the%20name%20stuck.

BLACK FUNGUS ANOTHER UNFORESEEABLE THREAT FOR PATIENTS WITH COVID-19

The second wave of COVID-19 in India shook its healthcare infrastructure. Physicians reported high number of cases of Mucormycosis, popularly known as black fungus. It is a rare fungal infection caused by a group of molds called mucromycetes. It mostly targets those with underlying health issues or people who take medicine that lowers their body's ability to fight germ and sickness. It affects the sinuses or the lungs after inhaling fungal spores from the air. It can also occur on a cut on the skin or burn. An individual may experience headache, facial pain, nasal congestion, loss of vision or pain in the eyes, swelling in cheeks and eyes, and black crusts in the nose. It could be fatal if it goes untreated for a long time. If it appears on the nose, one should be aware that it is not limited to that area but may extend to the eyes, lungs and brain. If the infection reaches the lungs or the brain, it could cause paralysis, pneumonia, seizures and even death.

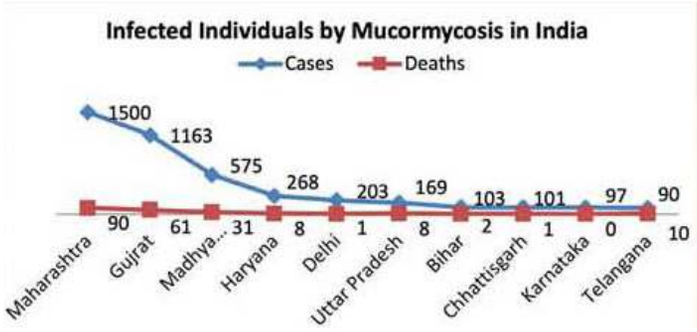
In recent past, it has been more in news because of its high occurrence in patients who have been treated for COVID-19, primarily the diabetics who have been treated with corticosteroids as part of their regular therapy. Mucosal mycosis, which is becoming more prevalent, is a condition linked to COVID-19.

What is Mucormycosis?

Mucormycosis is a fungal infection that causes tissue necrosis and infarction (tissue death due to inadequate blood supply). Though it is an extremely uncommon fungus infection, it is thought to be 70 times more common in India than the rest of the world. Mucor mould, which may be found in soil, plants, manure, and rotting fruits and vegetables causes the disease. It is everywhere: in soil and air and even in healthy people's noses and snot. The most common risk factor is diabetes mellitus, cancer and solid-organ transplantation. Often, patients with post-pulmonary tuberculosis and chronic renal illness are at an increased risk of developing the disease.

Fungus of concern: Yellow and white fungus

Black fungus is not the only type that is affecting humans right now but also their variants including white and yellow fungus. Experts believe that yellow fungus can be more harmful than black and white fungus since it affects lungs and other body organs. The white fungus can be fatal, affecting the brain, respiratory system, and digestive tract. The main cause of yellow fungus infection is poor hygiene.



Symptoms: Need not to be overlooked

Mucormycosis, which affects the nose, mouth, eyes, and brain, has a wide range of symptoms. A bad headache, nasal congestion, runny nose, and dark and black mucus might be noted in the early stages. Our nose has three turbines that keep the moisture in the air we breathe at a healthy level. These, along with the nasal passages, become black after myocardial infarction.

Ocular problems like pain behind the eyes, puffiness of the eyelids, protrusion of the brows, impaired vision, redness of the skin surrounding the eyes, and subsequent blackening are all symptoms of this condition. The infection spreads from the nose and mouth into the air chambers near the brain. Our nose has eight air chambers. There are two air chambers each at the forehead (frontal), ethmoid (between the eyes), maxillary (behind the cheek), and near the brain (sphenoid). The infection can spread from the nose and mouth to the air chambers at the brain. The cavernous sinus runs along the walls of these rooms. It has 3, 4, and 6 skull nerves that regulate the movement of eye muscles. When these are harmed by the infection it causes drooping eyelids, stoppage of ovarian

movement, Iris enlargement, as well as persistence and hazy vision. Numbness and discomfort in the cheeks might be caused by an infection of the air chambers surrounding the nose. Furthermore, if a fungal infection begins in the air sacs of the cheeks, the jaw and teeth hardly move leading to toothache.

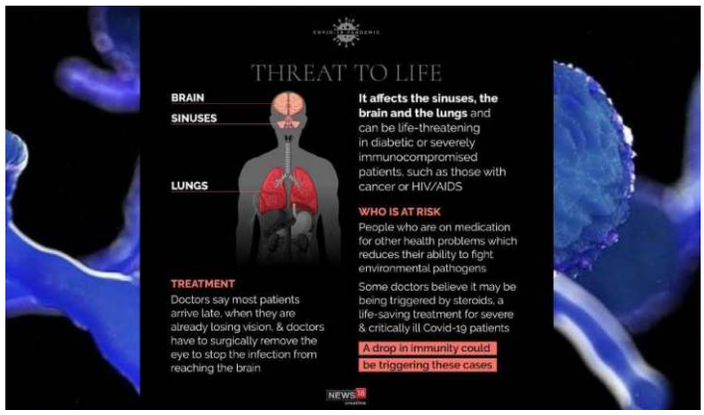
Who are at risk?

COVID-19 patients, diabetics, those having chronic renal diseases and those who have been using steroids for a long time are more likely to get infected with black fungus. People with a weakened immune system are more likely to become infected with white fungus. Mould-infested settings make people more susceptible to contracting this fungal ailment. Those with weakened immunity should stay vigilant and call a doctor if they observe any symptoms. Cancer patients, individuals with leukaemia, individuals receiving chemotherapy, people having organ transplants, individuals on econazole for fungal infections, and those on immunosuppressive medicines can be affected.

Intravenous steroids such as dexamethasone and methylprednisolone should be administered to people who are receiving oxygen from the outside and those who are on a ventilator. However, consuming too much medicine without consulting a doctor could increase the risk. Self-medication for COVID-19 based on messages circulating on social media platform causes more harm.

Diagnosis

Nasal endoscopy and CT scan of the nose and air chambers can identify the extent of the illness. If the infection has gone to the brain, cavernous sinus, or eye, an MRI can be used to identify it. Medication alone may not be as successful in treating myocardial infarction. Surgery may be necessary prior to starting medications. After surgery, the medication should be maintained. Otherwise, the fungus will likely resurface. Endoscopic sinus surgery removes blackened tissue and pus from the nose and airways, as well as pus from the nasal cavity. If the cheekbone and a portion of the palate are also damaged, the cheekbone and a portion of the palate may need to be removed. If the infection progresses to the eye, some patients may need to have their eyes removed. Otherwise, the infection may move to the brain via the optic nerve and become more severe.



Things to be avoided

Inappropriate use of steroids, including incorrect doses, timing, and selfmedication, leads to this disease directly or indirectly. Hyperglycaemia must be controlled quickly, sanitation must be maintained, and steroids must be used sparingly, only after being prescribed by doctor. If treatment is delayed, the illness spreads to both sides of the air chambers. If it spreads to the brain, it can cause paralysis. Some have fallen into a coma and are on the verge of passing away in a matter of days. As a result, it is critical to detect the infection as soon as possible. This has the potential to save both eyesight and lives. If you get a strong headache and/or discomfort in cheek or eye, see a doctor right away.

Many patients have been consuming medicines including steroids without consulting a doctor. Steroids within the first five days after corona onset are not recommended. If needed, it could be taken after 5 days in appropriate dose under the guidance of a physician. Otherwise, it may raise the risk of diabetes, hypertension, gastritis, hydrocephalus, and TB. Nondiabetics are also developing new diabetes as a result of steroid use. Increased level of ferritin in the blood helps the fungus to attach to the tissue more easily. Mucormycosis affects a variety of organs. Therefore, dedicated medical experts and doctors such as ENT surgeon, neurologist, neurosurgeon, ophthalmologist, dentist, face maxillary surgeon, oculoplastic surgeon, dermatologist, public health personnel, intensive care specialist and others should work together collectively. Due to delays in seeking medical attention and diagnosing the disease and challenges in managing the advanced stage of infection mucormycosis-related mortality is extremely high in India.

Preventative measures

To prevent infection, appropriate dosage of steroids is used as prescribed by the physician. For patients on oxygen use clean water in the humidifier and regularly replace the humidifier and hoses.

Cleanliness should be maintained in the environment. Mouth has to be rinsed twice a day with Betadine mouthwash. The fungus could be prevented from entering the nose and throat by wearing a mask. Anti-infective pills can be used as a precautionary measure by patients who are on ventilator for more than two weeks; those who have taken oxygen and steroids; uncontrolled diabetic conditions; and those who are immunocompromised. Persons with bacterial sinusitis are also infected with COVID-19, which can cause mucormycosis. It is recommended that patients who are exposed to oxygen, rinse their nose periodically with saline solution.

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काला फफूंद
कोविड-19 के मरीजों के लिए एक और अनजाना जोखिम

कोविड-19 की दूसरी लहर ने भारत के स्वास्थ्य ढांचे को पस्त करके रख दिया था। इस दौरान म्यूकरमाइकोसिस यानी काले फफूंद (ब्लैक फंगस) के संक्रमण के भी काफी मामले देखने को मिले। ये एक दुर्लभ बीमारी है, जो म्यूकरोमाइसिटीज नाम के समूह में वर्गीकृत फफूंद (कवक) से होती है। पहले से किसी बीमारी को झेल रहे लोगों में काले फफूंद के संक्रमण का अधिक खतरा रहता है। कीटाणुओं और दूसरी बीमारियों के विरुद्ध प्रतिरोधक क्षमता को कम करने वाली दवाएं ले रहे मरीजों को भी ये रोग अधिक आसानी से जकड़ता है। हवा के माध्यम से फफूंद के बीजाणु जब शरीर के भीतर प्रवेश करते हैं तो ये बीमारी नासिका कोष्ठकों, श्वास-नली और फेफड़ों को प्रभावित करती है। कई बार शरीर पर लगी चोट या त्वचा पर जलने के घाव से भी काले फफूंद के बीजाणु हमला करते हैं। सिर, आंखों या चेहरे में दर्द, बंद नाक, दृष्टि में बाधा, गालों और आंखों में सूजन, नाक में काली पपड़ी का जमना इस बीमारी के कुछ लक्षण हैं। यह रोग जानलेवा भी हो सकता है। नाक के भीतर काले फफूंद का संक्रमण आंखों, दिमाग और फेफड़ों तक फैल सकता है। फेफड़ों या दिमाग में संक्रमण के पहुंचने से मरीज लकवे के शिकार हो सकते हैं और उन्हें दौरे पड़ सकते हैं. इसके अलावा निमोनिया और कुछ परिस्थितियों में मौत भी हो सकती है।

पिछले कुछ समय से ये बीमारी समाचारों में रही है। कोविड-19 के कई रोगियों में काले फफूंद का संक्रमण पाया गया है। विशेषत: कोविड-19 के वो रोगी जो मधुमेह से पीड़ित हैं और नियमित इलाज के लिए कोर्टिकोस्टेरॉयड्स का प्रयोग कर रहे हैं। इन दिनों फैलती जा रही श्लेष्मली कवकता (म्यूकोसल माइकोसिस) की बीमारी को कोविड-19 से ही जोड़कर देखा जा रहा है।

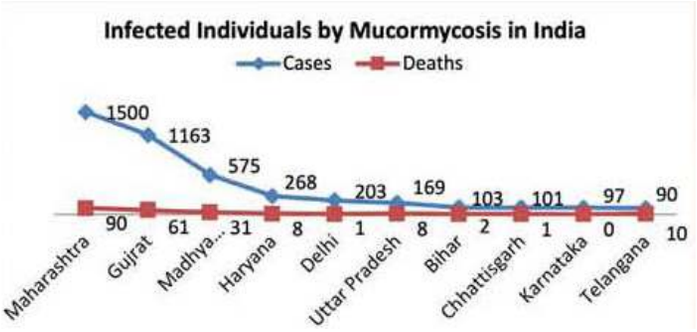
काले फफूंद (म्यूकरमाइकोसिस) की बीमारी क्या है?

फफूंद के इस संक्रमण से ऊतकों का क्षय और रोधगलन (अपर्याप्त रक्त संचार के कारण ऊतकों का मृत हो जाना) हो जाता है। हालांकि ये अत्यंत दुर्लभ रोगावस्था है, लेकिन बाकी देशों के मुकाबले भारत में 70 प्रतिशत अधिक पाई जाती है। रोग की वजह म्यूकर नाम के फफूंद के बीजाणु होते हैं। ये फफूंद मिट्टी, पेड़-पौधों की सतहों, खाद, सड़े-गले फलों, सब्जियों इत्यादि में पाई जाती है। कुल मिलाकर मिट्टी से लेकर हवा तक, यहां तक कि स्वस्थ लोगों की नासिकाओं और उनमें पाए जाने वाले कफ तक में भी इस फफूंद का पाया जाना सामान्य बात है। लेकिन इससे गंभीर रोग का खतरा मधुमेह (डायबटीज मेलिटस), कैंसर, अंग प्रत्यारोपण करवाने वाले रोगियों को ज्यादा रहता है। इसके अलावा तपेदिक और गुर्दे की दीर्घकालिक बीमारी का सामना कर रहे लोगों में भी इस संक्रमण के फैलने का ज्यादा जोखिम रहता है।

पीले और सफेद फफूंद से भी खतरा

मौजूदा समय में सिर्फ काले फफूंद की वजह से ही चिंता नहीं है। खतरा उसके अन्य प्रकारों, विशेषत: सफेद और पीले रूपांतरों से भी है। विशेषज्ञ मानते हैं कि पीले फफूंद का

संक्रमण बाकी दोनों प्रकारों के मुकाबले अधिक हानिकारक हो सकता है, क्योंकि यह सीधा फेफड़ों और अन्य अंगों को नुकसान पहुंचाता है।



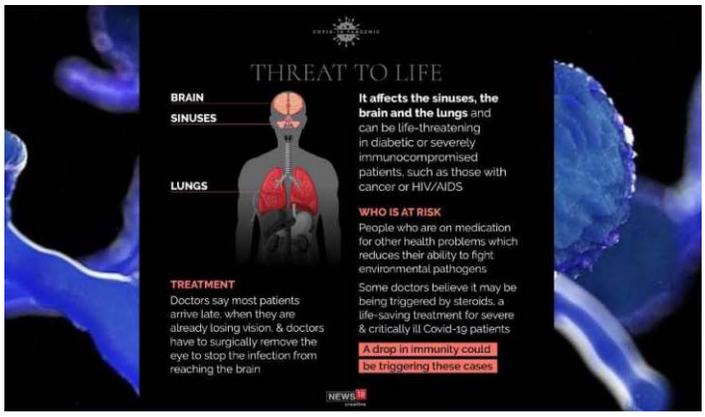
लक्षणों को लेकर असावधानी न बरतें

आंख, नाक, मस्तिष्क और मुंह को प्रभावित करने वाले म्यूकरमाइकोसिस संक्रमण के कई लक्षण हैं। रोग के प्रारंभिक चरणों में तेज सिरदर्द, बंद नाक, नाक का बहना और नाक में गहरे, काले रंग का श्लेष्म (म्यूकस) देखने को मिलता है।

मनुष्य की नासिका में सर्पीले आकार की तीन हड्डियां (टर्बिनेट्स) होती हैं, जो श्वास-नलियों में समुचित नमी सुनिश्चित करती हैं। काले फफूंद के मरीजों में इन हड्डियों के अलावा नासिका-मार्ग भी पेशीय रोधगलन (मायोकार्डियल इन्फेर्कशन) के बाद काले पड़ जाते हैं।

इसके अलावा काले फफूंद के संक्रमण का अंदाजा आंख-संबंधी लक्षणों से भी लगाया जा सकता है। अगर आंखों के पिछले हिस्से में दर्द हो, पलकों में सूजन, भवों में असामान्य उभार हो, कम दिखाई दे या फिर आंखों के आसपास की त्वचा लाल हो और धीरे-धीरे काली पड़ने लगे तो ये इस बीमारी के संकेत हो सकते हैं। संक्रमण नाक और मुंह से होते हुए मस्तिष्क के समीप वायु कोष्ठकों तक पहुंच जाता है। मनुष्यों के नासिका-तंत्र में ऐसे आठ वायु कोष्ठक होते हैं-माथे वाले हिस्से में (फ्रांटल), आंखों के बीच वाले हिस्से (एथमॉएड), गाल की हड्डियों के पीछे (मैक्जिलरी) और मस्तिष्क के निकट (स्फीनॉइड) दो-दो वायु कोष्ठक होते हैं। आंखों की मांसपेशियों को नियंत्रित करने वाले कपाल के हिस्से में 3,4 और 6 तंत्रिकाएं होती हैं। संक्रमण की वजह से जब इन तंत्रिकाओं को हानि पहुंचती है तो पलकें स्वयं ही बंद होने लगती हैं, आंखों की पुतलियां बड़ी हो जाती हैं और दृष्टि लगातार धुंधली होती जाती है।

काले फफूंद के रोगियों में प्रायः गाल की हड्डियां तो सुन्न हो जाती हैं या फिर उनमें तकलीफ पाई जाती है। इतना ही नहीं, यदि



संक्रमण गाल की हड्डियों वाले वायु कोषों तक पहुंच जाए तो जबड़े और दांत जड़ हो जाते हैं और दांतों में भी दर्द महसूस होता है।

किन लोगों को है अधिक सावधानी की आवश्यकता?

कोविड-19, मधुमेह और गुर्दे के दीर्घकालिक रोगों से पीड़ित जो लोग अधिक समय से स्टेरॉयड्स ले रहे हों, उन्हें काले फफूंद के रोग का खतरा अधिक रहता है। वहीं जिनकी प्रतिरोधक क्षमता कमजोर है, उन्हें सफेद फफूंद के संक्रमण से भी अधिक सावधान रहने की आवश्यकता होती है। उपरोक्त संक्रमणों से बचने के लिए फफूंदी भरी जगहों से दूर रहना चाहिए। कमजोर प्रतिरोधक क्षमता वाले लोगों को सतर्क रहना चाहिए और कोई बी लक्षण दिखने पर चिकित्सक से परामर्श करना चाहिए। कैंसर रोगी, ल्यूकेमिया के मरीज, कीमोथेरेपी ले रहे लोग, अंग प्रत्यारोपण करवाने वाले, किसी तरह के फफूंद संक्रमण के लिए इकोनाजोल का प्रयोग कर रहे लोग और शरीर के प्रतिरोधक तंत्र को कमजोर करने वाली किसी भी दवाई का सेवन करने वाले संक्रमित हो सकते हैं।

बाह्य साधन से ऑक्सीजन ले रहे या फिर वेंटिलेटर की मदद पर आश्रित रोगियों को डेक्सामेथोसोन और मिथाइलप्रेडनिसोलोन जैसे अंतरूशिरा टीके दिए जाने चाहिए।

रोग का निदान

एन्डोस्कोपी और नाक एवं वायु कोष्ठकों के सीटी स्कैन से घातक फफूंदों के संक्रमण का पता लगाया जा सकता है। यदि संक्रमण मस्तिष्क, नाक के गुहामय हिस्से या आंख तक पहुंच चुका है तो एमआरआई के माध्यम से रोग की पहचान संभव है। अगर संक्रमण के कारण ऊतकों का रोधगलन होने लगा हो तो दवाओं से पहले शल्य-चिकित्सा की आवश्यक्ता पड़ेगी। शल्य चिकित्सा हो जाने के बाद दवाएं जारी रखनी होंगी अन्यथा फफूंद के बीजाणु फिर शरीर में पनप सकते हैं। एन्डोस्कोपी से नाक की शल्य चिकित्सा करके नासिका कोष्ठक और वायु कोष्ठकों से संक्रमित काले ऊतकों के साथ मवाद को भी बाहर निकाला जाता है। यदि गाल की हड्डी और तालु को नुकसान

पहुंचा हो तो उनके संक्रमित हिस्सों को निकालना पड़ता है। आंख तक संक्रमण के पहुंचने पर कुछ मरीजों की आंख भी निकालनी पड़ती है। अगर ऐसा ना करें तो दृक (ऑप्टिक) तंत्रिका के माध्यम से संक्रमण मस्तिष्क तक भी पहुंच सकता है और ये एक घातक परिस्थिति हो सकती है।

इन चीजों से बचें

काले फफूंद का संक्रमण स्टेरॉयड्स की अनुचित, गलत मात्रा और गलत समय पर प्रयोग से हो सकता है। बिना चिकित्सीय परामर्श के दवाओं का सेवन भी प्रत्यक्ष या परोक्ष रूप से इस रोग की वजह बन सकता है। सुरक्षित रहने के लिए उच्च मधुमेह को तुरंत काबू में करें, साफ-सफाई का विशेष ध्यान रखें और स्टेरॉयड्स का इस्तेमाल चिकित्सक की सलाह पर तभी करें जब बेहद आवश्यक हो। अगर बीमारी का इलाज समय पर न किया जाए तो यह वायु कोष्ठकों के दोनों ओर तक फैल सकती है। इसके मस्तिष्क तक पहुंचने से शरीर को लकवा मारने का जोखिम रहता है। कुछ रोगी अतिमूर्छा (कोमा) में भी चले जाते हैं। सही उपचार न होने पर कुछ दिनों में जान जाने का भी जोखिम रहता है। इसलिए काले फफूंद के संक्रमण का पता जितनी जल्दी चल जाए उतना ही बेहतर होता है। इससे न सिर्फ रोगियों की आंखें बल्कि उनके प्राण भी बच सकते हैं। अत: सिरदर्द या गालों अथवा आंखों में तकलीफ होने पर तुरंत चिकित्सक के पास जाना चाहिए।

कोविड-19 के बहुत सारे रोगी चिकित्सीय परामर्श लिए बिना ही स्टेरॉयड्स और अन्य दवाओं का सेवन करते पाए गए हैं। कोविड-19 के विषाणु से संक्रमित होने के पहले पांच दिनों के भीतर स्टेरॉयड्स के सेवन की सलाह नहीं दी जाती है। अगर इस अवधि के बाद उनकी आवश्यक्ता हो तो उचित मात्रा में और चिकित्सक के मार्गदर्शन में उनका प्रयोग करें। अन्यथा मधुमेह, उच्च-रक्तचाप, क्षय रोग, गैस्ट्राइटिस और हाइड्रोसिफेलस जैसी बीमारियों का खतरा बढ़ सकता है। स्टेरॉयड्स के प्रयोग से अब तक मधुमेह से बचे हुए मरीज भी इस बीमारी की चपेट में आ रहे हैं। रक्त में फेरिटिन की मात्रा अधिक होने से फफूंद ऊतकों के साथ आसानी से चिपक जाते हैं। म्यूकरमाकोसिस की बीमारी से कई अंगों को हानि पहुंच सकती है। इसलिए बीमारी के उपचार के लिए कई तरह के विशेषज्ञों जैसे आंख-नाक-गले के शल्य चिकित्सकों, स्नायु विज्ञानियों (न्यूरोलॉजिस्ट), स्नायु शल्य चिकित्सकों, नेत्र विज्ञानियों, दंत चिकित्सकों, चेहरे और दाढ़ के शल्य चिकित्सकों, नेत्रों और चेहरे की प्लास्टिक शल्य चिकित्सा करने वाले विशेषज्ञों, त्वचा विज्ञानियों, जन-स्वास्थ्य कर्मियों, गहन देखभाल विशेषज्ञों और अन्य को मिलकर काम करना चाहिए। भारत में काले फफूंद के संक्रमण से मृत्यु दर काफी अधिक है क्योंकि लोगों को उपचार मिलने में देरी होती है, बीमारी का पता समय पर नहीं चल पाता और इस रोग के बढ़ जाने पर इलाज में कई चुनौतियां पेश आती हैं।

ऐसे हो सकती है इस रोग से रक्षा

संक्रमण से बचने के लिए चिकित्सीय सलाह पर ही उचित मात्रा में स्टेरॉयड्स का सेवन करें। रोगी को ऑक्सीजन देते समय वायु को नम करने वाले उपकरण में साफ पानी का प्रयोग करें। ऑक्सीजन देने के लिए आवश्यक इस उपकरण के साथ-साथ नलियों को भी नियमित तौर पर बदलते रहें। अपने आसपास हमेशा सफाई बनाए रखें। दिन में कम से कम दो बार बीटाडिन माउथवाश से मुंह को साफ करें। मास्क पहनकर रखेंगे तो फफूंद के बीजाणुओं को नाक या गले तक पहुंचने से रोकना आसान होगा। जो रोगी दो सप्ताह या इससे अधिक अवधि से वेंटिलेटर के सहारे हैं उन्हें संक्रमण-रोधी गोलियां दी जानी चाहिए। यही बात कृत्रिम ऑक्सीजन और स्टेरॉयड्स ले रहे, मधुमेह से पीड़ित लोगों और कमजोर प्रतिरोधक क्षमता वाले रोगियों पर भी लागू होती है। बैक्टीरियल साइनिसाइटिस के पीड़ित अगर कोविड-19 का शिकार हैं तो उन्हें काले फफूंद के संक्रमण का अधिक खतरा रहता है। कृत्रिम ऑक्सीजन ले रहे रोगियों को नमक के पानी से बीच-बीच में अपने नाक को साफ करते रहना चाहिए।

लेखकों की अनुमति से पुनः प्रस्तुत किया गया। पहले से विज्ञान प्रसार ड्रीम 2047 जुलाई 2021 वोल्यूम 44 (हिंदी) में प्रकाशित हो चुका हैं।

डॉ एन.के. प्रसन्ना सीएसआईआर–राष्ट्रीय विज्ञान संचार एवं सूचना स्त्रोत संस्थान, नई दिल्ली में वैज्ञानिक हैं।
डॉ एस.के.वार्ष्णेय विज्ञान एवं तकनीक विभाग, नई दिल्ली के अंतरराष्ट्रीय सहयोग के अध्यक्ष हैं।
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फोटोग्रॉफी एवं पर्यावरण

फोटोग्रॉफी अभिव्यक्ति का एक सशक्त माध्यम है क्यों कि जब हम किसी भी दृश्य को देखते हैं तो उसकी सुंदर छवि हमारे मस्तिष्क में अनायास ही घर कर जाती है। व्यक्तिगत रूप से मुझे फोटोग्रॉफी का अच्छा खासा शौक है और मै। उसे सीखने के लिए भी सदैव तत्पर रहती हूँ। मुझे घूमने और दुनिया देखने का भी अवसर मिलता रहा है। मैं अपनी यात्राओं के दौरान फोटोज़ लेती रहती हूँ और यत्न से उन्हें सँजोकर अपनी अभिव्यक्ति का माध्यम बनाकर सोशल मीडिया व रचनात्मक कार्यो में समय–समय पर प्रयोग करती ही रहती हूँ।

इसीलिए इस संस्करण के लिए मैंने सोचा मिक यह एक बहुत ही विशेष अवसर है कि पिछले दो महीनों में 22 मार्च को ''विश्व जल दिवस'' और 22 अप्रैल को ''विश्व पृथ्वी दिवस'' हम सबने मनाया और हम उसके साक्षी बने। जबकि अभी तक वर्ष 2020 से 2021 में भी हम वैश्विक महामारी कोविड–19 से जूझ रहे हैं। ऐसे समय में ये फोटोज़ हम सब में एक नई ऊर्जा, उम्मीद और नव जीवन संचार कर सकते हैं।

इसी प्रसंग में कुछ फोटोज़ दिखाकर उनके विषय में बताना भी चाहती हूँ। नीचे पहली फोटो वह है जो मैंने पिछले महीने अपनी उदयपुर यात्रा के दौरान नाव में सवार होकर पिछौला झील से खींची थी। जिसमें सूर्यास्त के समय झील की लहरों और डूबते सूरज की परछाई का अद्‌भुत मिलन है। पृष्ठभूमि में राजस्थान के पहाड़ों और बादलों की छटा मन को मोह लती है। मैंने 22 मार्च ''विश्व जल दिवस'' के अवसर पर इस फोटो प्रदर्शित किया क्योंकि जल ही जीवन है। हमारे पंचभूतों में जल एक बहुत ही महत्वूपर्ण तत्व भी है। इसलिए यह फोटो मुझे अवसर ही अनुकूल लगी।

बाकी फोटोज़ मैंने 22 अप्रैल ''विश्व पृथ्वी दिवस'' के अवसर पर प्रदर्शित की क्योंकि धरती माँ ही हमारी

संरक्षक है, सभी प्राणियों का जीवन आधार है। जो पंचभूतों में सबसे महत्वपूर्ण तत्व भी है।, इसलिए यह फोटो मुझे अवसर के अनुकूल लगी।

ये फोटोज मैंने वर्ष 2021 में अपनी स्विट्जरलैंड यात्रा के दौरान खींची थी। सारी दुनियाँ को हँसाने वाले प्रसिद्ध अभिनेता चार्ली चैपलिन संग्रहालय का है। जिसमें वह दुनियाँ को खुशहाल देखकर उसे उछाल रहे हैं। उसके बाद सड़क के किनारे एक रेस्टोरेंट से ली गई फोटो है जिसमें हरे–भूरे अंगूर के पेड़ उसके गुच्छे, झील, पहाड़, बादलों का मनभावन दृश्य बरबस हमें आकर्षित करते हैं।

आशा करती हूँ आप सभी को मेरी यह प्रस्तुति पंसद आएगी।

श्रीमति तृप्ति श्रीवास्तवा
संपादिका – हिंदी एसटीई ई–न्यूजलेटर
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THE DAYS OBSERVED

July 3, International Plastic Bag Free Day - was chosen to encourage the use of eco-friendly products including paper and cloth bags and avoid the usage of single-use plastic bags.

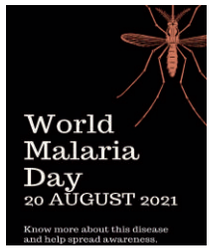
July 28 - World Nature Conservation Day

World Natural Conservation Day is celebrated every year on July 28 to raise awareness about the importance of working for a healthy environment. The day aims at promoting best practices to protect our environment.

July 29 - International Tiger Day

International Tiger Day is observed on July 29 every year to spread awareness about dangers and problems faced by tigers across the globe. The first International Tiger Day was observed in 2010.It is necessary as well as important to focus on the matter of tiger conservation as it plays a key role in protecting and maintaining a balanced ecosystem.

August 20-World Mosquito Day



World Mosquito Day is the annual event that aims at raising awareness about all the dangerous diseases that are spread by these. World Mosquito Day is observed every year on August 20 to raise awareness about dengue, malaria, chikungunya and other diseases that are spread by mosquitoes and what we can do to protect ourselves from these illnesses.

September 29 – World Heart Day was set up by the World Heart Federation (WHF) as an international campaign to spread awareness about cardiovascular diseases (CVD) and their prevention. Heart disease, along with strokes, is responsible for over half of all non-communicable diseases in the world today. This makes CVD the number one killer. World Heart Day observed on 29 September 2021 is aimed at bringing attention to cardiovascular disease and the range of associated health issues.

Contributed by: **Dr. Vaishali Mishra**
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&
STE AWARD FUNCTION, 2021
On 21-22 January, 2022

From the Editor's Desk

Dear Readers

I would like to welcome you to the **3rd** issue of **4th Volume of PRAKRITI SANRAKSHAN** quarterly newsletter of STE.

July-September 2021 issue highlights the celebration of World Ozone Day, Fortnightly Lecture Series on Upcycling, Environmental Sustainability, and Circular Economy"and Community Outreach Program – COVID-19 Vaccination Driveat Biswa Bangla Convention Centre, Kolkata on 4th July, 2021. This issue also contains articles and poems based on environmental issues. The important days observed from the month of July to September have been also included in this issue.

I express my sincere thanks to all the people who have contributed informative and inspirational articles to make this newsletter successful. I would like to express my profound gratitude to the President of STE Dr. Kshipra Misra, the editorial team and Mr. Gian Kashyap for designing this issue of **PRAKRITI SANRAKSHAN** and giving it the desirable shape.

Dr. Vaishali Mishra
Editor STE

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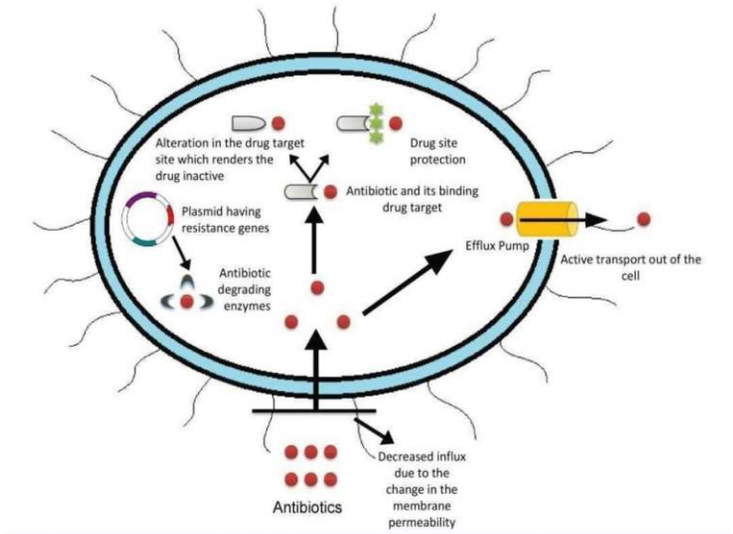
We are pleased to announce that the DOI prefix for International Journal of Environment and Health Sciences is now available from **Crossref, the official Digital Object Identifier (DOI)**. **The journal is now indexed in International Scientific Indexing (ISI).**



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or
visit our website:
www.stenvironment.org

STE Annual Awards 2021

(NOMINATION AND APPLICATIONS ARE INVITED)

LAST DATE 31st December, 2021

Annual Awards of STE are the tangible symbol to signify eminence of contributions made by a person or institution. This boosts the enthusiasm of the contributors who have contributed in different fields of science and social service with their excellence, expertise and approach towards achieving certain goals for the society. Recognition of such extraordinary activities is eventually very important to boost their confidence and to honour them for what they have done for the science and society. STE confers following categories of awards and honours to such eminent personalities.:

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STE Best Ideas/Innovations/Technology for Environment Awards

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