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SCIENCE & TECHNOLOGY

IIT Bombay researchers find a technique to measure degradation of iron coatings

The researchers combined two electrochemical techniques, hydrogen permeation-based potentiometry and electrochemical impedance spectroscopy, and efficiently measured the coating degradation rates on the industrially relevant metal.

A team of researchers at the Indian Institute of Technology (IIT) - Bombay have come up with a new technique that can measure the rate of iron coating degradation. This discovery claims to hold the potential of benefiting the steel industry. Metals corrode with time, and some metals corrode more than others, like iron rusts in days, while gold and silver take decades or centuries to deteriorate. According to a recent market analysis report by Grand View Research, the market for such corrosion inhibitors is a $8.93 billion market projected to grow at 3.6% annually from 2025 to 2030.

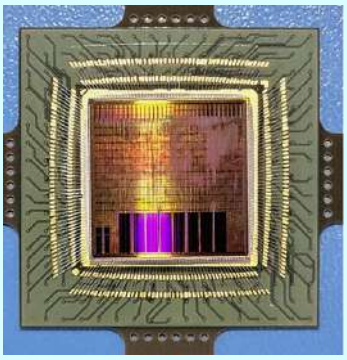
Metals often have a layer of protective coating, like the paint on cars, to prevent corrosion. A more efficient way of protecting metals is by coating them with organic coatings that are basically layers of carbon-based polymeric substances, natural or synthetic, applied in the form of paints and varnishes. However, the efficiency of organic coatings deteriorates with time because the coatings have pores and defects that allow water and oxygen to reach the underlying metal surface over time and corrode it. The coating wears with time because of a fundamental electrochemical process called oxygen reduction reaction (ORR), where molecular oxygen gets reduced to water or hydrogen peroxide or hydroxyl ions. This process occurs in various electrochemical devices, including fuel cells and metal-air batteries.

A couple of years ago, a team of researchers led by Professor Vijayshankar Dandapani at the Department of Metallurgical Engineering and Materials Science at IIT Bombay established an improved quantitative method to characterise the performance of organic coatings used for corrosion protection. The researchers combined hydrogen permeation-based potentiometry (HPP) with electrochemical impedance spectroscopy (EIS) and this technique allowed the researchers to quantify the degradation rates at the interface between the organic coating and the metal. While HPP gives a direct measure of hydrogen permeation, EIS provides insights into how hydrogen permeation corrodes the coated metal.

Source:https://www.thehindu.com/sci-tech/science/iit-bombay-researchers-find-a-technique-to-measure-degradation-of-iron-coatings/article69186948.ece
Dated: February 06, 2025, The Hindu

IIT Madras, ISRO develop indigenous aerospace micro processor to aid space technologies

According to the director of IIT Madras, the Indigenous RISCV Controller for Space Applications (IRIS) chip was developed from SHAKTI processor baseline.



Indian Institute of Technology (IIT) Madras and ISRO have developed an indigenous microprocessor for space applications which can be used in command and control systems and other critical functions in outer space.

The SHAKTI microprocessor project is led by IIT Madras Director V Kamakoti at Prathap Subrahmanyam Centre for Digital Intelligence and Secure Hardware Architecture (PSCDISHA) in Department of Computer Science and Engineering.

The SHAKTI class of systems are based on RISC-V, an open-source Instruction Set Architecture (ISA), for designing custom processors. "SHAKTI" is backed by the Ministry of Electronics and Information Technology under its 'Digital India RISC-V' initiative (DIRV). It aims to promote indigenous development of microprocessor based products that offer best-in-class security and visibility for users adopting RISC-V technology.

According to the director of IIT Madras, the Indigenous RISCV Controller for Space Applications (IRIS) chip was developed from SHAKTI processor baseline.

"It can be used in diverse domains from IoT and compute systems for strategic needs. This development was part of the effort to indigenise semiconductors used by ISRO for its applications, command and control systems and other critical functions aligning with its march towards 'Atmanirbhar Bharat' in space technologies," Kamakoti said.

The ISRO Inertial Systems Unit (IISU) in Thiruvananthapuram proposed the idea of a 64bit RISC-V-based Controller and collaborated with IIT Madras in defining the specifications and designing of the semiconductor chip. The chip configuration was arrived at addressing the common functional and computing requirements of existing sensors and systems used in ISRO missions. Fault-tolerant internal memories were interfaced to SHAKTI core, enhancing the reliability of the design.

Source:https://www.thehindu.com/education/iit-madras-isro-develop-indigenous-aerospace-micro-processor-to-aid-space-technologies/article69209899.ece
Dated: February 13, 2025, The Hindu

SCIENCE & TECHNOLOGY

Zeiss India sets up research lab for AI in eyecare at Indian Institute of Science in Bengaluru

The initiative aims to leverage AI to drive advancements in eyecare solutions and enable researchers at IISc to explore the technology's potential in facilitating early diagnosis, treatment personalisation, and accessibility in ophthalmology.

Attentive ophthalmologist examines a patient's eyes using specialized equipment during a comprehensive eye examination

Optics and optoelectronics technology company Zeiss India has collaborated with the Indian Institute of Science (IISc) to start a research lab for AI in eye care at the IISc campus. The initiative aims to leverage AI to drive advancements in eyecare solutions and enable researchers at IISc to explore the technology's potential in facilitating early diagnosis, treatment personalisation, and accessibility in ophthalmology.

Ashish Modi, Head of Centre of Application Research India (ZEISS India's R&D Division), told that the lab is being set up with high-end IT infrastructure for Master's and PhD students. "We will sponsor these students. As of now, we have two Master's students who have enrolled and we are looking for two PhD students," said Mr. Modi adding that the plan is to have around 8-10 researchers working in the lab over the next three years.

Creating database

The lab which is part of Zeiss India's CSR initiative would initially look at research on creating datasets for glaucoma, AI-enabled early screening of diabetic retinopathy and early identification of ageing-related cognitive impairment. On top of this, it would also look at building handheld devices that can be taken to remote areas, enabling AI to do large-scale screening, thereby reducing the load on healthcare workers, and working with hospitals to gather, standardise and annotate data to develop high quality data.

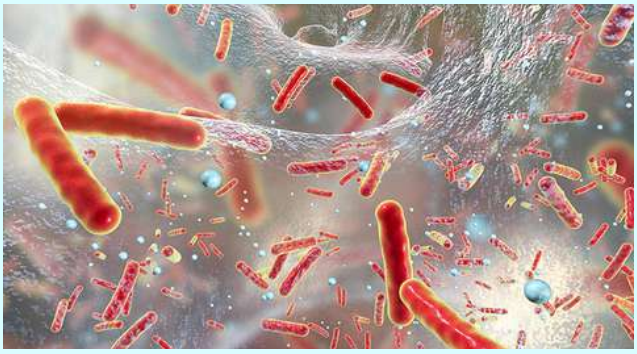
Intertwining two

Dr. Rajesh Sundaresan, Dean of Division (Electrical Electronics, and Computer Sciences Division), IISc, told that the lab fits well into the institute's plan of setting up a medical school and hospital. "Clinical research is somewhat separated from practice in India. Intertwining these two is important and the hospital at IISc is one such experiment.

Source:https://www.thehindu.com/news/cities/bangalore/zeiss-india-sets-up-research-lab-for-ai-in-eyecare-at-iisc/article69233824.ece
Dated: February 19, 2025, The Hindu

Harnessing AI to generate patterns of antibiotic resistance in real time

A new AI-driven tool, AMRSense, developed by a team of researchers, has been deployed to use routine data that is generated in hospitals to generate accurate and early insights on antimicrobial resistance at the global level, national level and hospital level



A team of researchers from IIIT- Delhi have come up with AI-powered data integration and predictive analytics tools, to understand the patterns of antibiotic resistance in real time, enabling various agencies to act on them speedily.

As part of a collaboration between Indraprastha Institute of Information Technology-Delhi, CHRI-PATH, Tata 1mg, and Indian Council of Medical Research scientists, the AI-driven tool AMRSense has been deployed to use routine data that is generated in hospitals to generate accurate and early insights on antimicrobial resistance counched in the global level, national level and hospital level.

In a paper,'Emerging trends in antimicrobial resistance in bloodstream infections: multicentric longitudinal study in India', published in The Lancet Regional Health - Southeast Asia, authors, Jasmine Kaur, Harpreet Singh, and Tavpritesh Sethi show results from analysing six-year data from 21 tertiary care centers in the Indian Council of Medical Research's AMR surveillance network retrospectively, establishing relationships between antibiotic pairs and the directional influence of resistance in community and hospital-acquired infections.

"There is a shared mechanism of resistance between antibiotics, we already know. Usually to do that, people use genomics, but that's an expensive proposition," explains Dr. Sethi. "We have proposed a way, which is inexpensive, because it uses these routine data sets from hospitals. We show that by using routine data effectively, we can discern relationships between different antibiotics pairs and the direction AMR is taking – whether it is rising or not. Say, for instance, if resistance to one specific antibiotic is going up, some months down the line, it is quite likely that resistance to an antibiotic pair might also shoot up. With these connections, we generated actionable pieces of evidence."

Source:https://www.thehindu.com/sci-tech/health/harnessing-ai-to-generate-patterns-of-antibiotic-resistance-in-real-time/article69239842.ece
Dated: February 21, 2025 The Hindu

ENVIRONMENT

Red flag over rhododendron tree in Nagaland valley

A study highlights endangered Rhododendron wattii in Nagaland, while new orchid species has been recorded for the first time in Manipur

Rhododendron wattii tree in Dzukou Valley, Nagpur that extends into the adjoining Manipur

One of the last trees of its kind standing in a popular trekking destination in Nagaland has made a silent statement — time may be running out for the Rhododendron wattii. A study published in the Journal of Threatened Taxa focussed on the flowering phenology of a Rhododendron wattii tree in the 27 sq. km. Dzukou Valley that extends into the adjoining Manipur. Phenology is the study of how plants and animals change seasonally.

The researchers noted that it was the lone tree of the species within a specified area at 2,600 metres above the mean sea level, far from the trekking route and caves that visitors frequent. The only other Rhododendron wattii reported during a field survey in 2012-13 in the Nagaland part of Dzukou Valley was felled by the locals for firewood.

Imtilila Jing and S.K. Chaturvedi of Nagaland University's Department of Botany are the authors of the study. Endemic to Manipur and Nagaland, the Rhododendron wattii was first collected by Sir George Watt from Nagaland's Japfu Hill range during his 1882-85 survey. It is a small tree attaining a maximum height of 25 feet.

"Flowering occurs from the end of February to April, and fruiting is observed from April to December. The flowers present in trusses of 18-25 flowers are pink with darker flecks and purplish basal blotches," the study said. "No reports on this species are available from Manipur. In Nagaland, it has been reported from two areas beyond Dzukou Valley," Ms. Jing told The Hindu.

Poor seedling survivability

There are more than 1,000 species of rhododendrons worldwide. The northeastern region has 129 of the 132 taxa recorded in India.

Source: https://www.thehindu.com/sci-tech/health/harnessing-ai-to-generate-patterns-of-antibiotic-resistance-in-real-time/article69239842.ece
Dated: February 06, 2025 , The Hindu

Arunachal Pradesh lost 110 glaciers in 32 years: Study

A glacial retreat rate of 16.94 sq. km per year threatens disastrous outburst floods, the study indicates.

A new study has revealed that a section of the eastern Himalayas in Arunachal Pradesh lost 110 glaciers in 32 years. The study by a quartet of researchers also found that these glaciers covering an area of 309.85 sq. km disappeared at a retreat rate of 16.94 sq. km during the study period from 1988 to 2020. The retreat exposed bedrock and created glacial lakes, threatening glacial lake outburst floods (GLOFs).

Glacial retreat, a key indicator of global climate change, is the process by which glaciers melt faster than new snow and ice can accumulate. The eastern Himalayas have been witness to a major GLOF – the 2023 Sikkim disaster that killed at least 55 people and destroyed a 1,200-megawatt hydropower project on the Teesta River.

Authored by Vimha Ritse, Amenuo Susan Kulnu, and Latonglila Jamir of Nagaland University's Department of Environmental Science, and Nabajit Hazarika of the Guwahati-based Cotton University's Department of Environmental Biology and Wildlife Sciences, the study was published in the Journal of Earth System Science.

The researchers used remote sensing and geographic information systems to map glacier boundaries, even in debris-covered areas, from Tawang to Lohit districts of Arunachal Pradesh through West Kameng, Kurung Kumey, Upper Siang, and Upper Dibang Valley districts. They also used the Randolph Glacier Inventory of Global Land Ice Measurements from Space as a reference.

They found that the number of glaciers decreased from 756 to 646 during the 32-year-long study period. The glacial cover during this period reduced by 309.85 sq. km from 585.23 sq. km, working out to a loss of a little more than 47%. Most of the glaciers studied lie at an elevation of 4,500-4,800 metres above mean sea level, are north-facing and confined between a slope of 15° and 35°.

Source:https://www.thehindu.com/sci-tech/energy-and-environment/arunachal-pradesh-lost-110-glaciers-in-32-years-study/article69176258.ece
Dated: February 05, 2025, The Hindu

ENVIRONMENT

Concerns arise over two dozen Olive Ridley sea turtle carcasses washing ashore along ECR

A total of 20 carcasses of the turtles were found on Nemmeli Kuppam beach, and eight on Injambakkam beach; officials say they may have drowned after getting trapped in fishing gear

At least 28 Olive Ridley sea turtle carcasses were discovered along the East Coast Road on January 12, 2024 following the death of nine turtles at Injambakkam the day before. Of the 28 carcasses, eight were found at Injambakkam, and appeared to be older remains. The remaining were spotted along a one-kilometre stretch near Nemmeli Kuppam, a concerning number according to conservationists. These turtles also seemed to have been dead for some time.

A wildlife enthusiast, who spotted the carcasses at Nemmeli on the mornings of January 11 and 12, reported seeing four near the groynes at the beach, with several others nearby, half-buried in the sand. The Forest Department was notified on January 12, 2024.

Nemmeli Kuppam beach has groynes designed to mitigate sea erosion caused by the breakwater at the Nemmeli Seawater Desalination Plant. However, it remains unclear whether these structures may have affected the sea turtles.

Manish Meena, Wildlife Warden of Chennai, suggested that the turtles may have drowned after becoming entangled in fishing gear. He added that the Forest Department is working to raise awareness among fishermen, with a sensitisation session planned for trawl fishermen next week.

Shravan Krishnan of the Besant Memorial Animal Dispensary, who has been involved in sea turtle conservation for years, pointed out the lack of information on the specific locations where turtles encounter trawl or gill nets. He noted that the recent deaths raise the possibility that multiple turtles may have been trapped in a single net. However, it remains unclear whether this occurred close to shore or at sea, potentially as far as 200 kilometers from where the carcasses washed up.

Mr. Meena explained that fishing gear could cause the turtles to enter a comatose state. As a result, even if fishermen remove the turtles and release them back into the sea, they may still die after a while. The turtles would then decompose, with their bodies eventually being consumed by other marine organisms, and eventually wash ashore.

Source:https://www.thehindu.com/news/cities/chennai/concerns-arise-over-two-dozen-olive-ridley-sea-turtle-carcasses-washing-ashore-along-ecr/article69092377.ece
Dated: January 13, 2025, The Hindu

Top climate scientist declares 2C climate goal 'dead'

An ambitious climate change scenario outlined by the UN's climate panel, which gives the planet a 50% chance of keeping warming under 2C by the year 2100, "is an implausible scenario," Hansen said.

The Eaton Fire destroys a structure, January 7, 2025, in Altadena, California.

Holding long-term global warming to two degrees Celsius -- the fallback target of the Paris climate accord -- is now "impossible," according to a stark new analysis published by leading scientists.

Led by renowned climatologist James Hansen, the paper appears in the journal Environment: Science and Policy for Sustainable Development and concludes that Earth's climate is more sensitive to rising greenhouse gas emissions than previously thought.

Compounding the crisis, Hansen and colleagues argued, is a recent decline in sunlight-blocking aerosol pollution from the shipping industry, which had been mitigating some of the warming.

An ambitious climate change scenario outlined by the UN's climate panel, which gives the planet a 50% chance of keeping warming under 2C by the year 2100, "is an implausible scenario," Hansen told.

"That scenario is now impossible," said Hansen, formerly a top NASA climate scientist who famously announced to the US Congress in 1988 that global warming was underway.

"The two degree target is dead."

Instead, he and co-authors argued, the amount of greenhouse gases already pumped into the atmosphere by burning fossil fuels meant increased warming is now guaranteed.

Temperatures will stay at or above 1.5 °C in the coming years -- devastating coral reefs and fueling more intense storms -- before rising to around 2.0 °C by 2045, they forecast. They estimated polar ice melt and freshwater injection into the North Atlantic will trigger the shutdown of the Atlantic Meridional Overturning Circulation (AMOC) within the next 20-30 years.

Source:https://www.thehindu.com/sci-tech/energy-and-environment/top-climate-scientist-declares-2c-climate-goal-dead/article69183680.ece
Dated: February 05, 2025, The Hindu

Environment

Conserving wetlands for the future

Providing habitats for a wide range of species, functioning as natural water filters, and assisting in alleviating the impacts of climate change—these are just some of the reasons for us to be conserving wetlands!

Wetland ecosystems directly and indirectly benefit millions of people, offering various goods and services.

Wetlands are regions of land that are generally saturated with water. However, when rain causes water to pool on land, it does not constitute a wetland. More specifically, wetlands are areas where water either covers the soil or is found at or near the soil surface year-round or for fluctuating periods throughout the year. These ecosystems encompass marshes, swamps, peatlands, lagoons, mangroves, and floodplains. Wetlands provide habitats for a wide range of species, function as natural water filters, and assist in alleviating the impacts of climate change.

What do wetlands do anyway?

Wetland ecosystems directly and indirectly benefit millions of people, offering various goods and services. They help regulate floods, inhibit coastal erosion, and lessen the impacts of natural disasters such as cyclones and tidal waves. They also have the ability to store water for extended durations.

Their capacity to hold excess flood water during heavy rains prevents flooding and supports a steady flow downstream, thus maintaining water quality and enhancing biological productivity for both aquatic organisms and local human populations. Flooded wetlands efficiently capture rainwater and serve as a key resource for replenishing groundwater aquifers. Many wading birds and waterfowl, including egrets, herons, and cranes, find breeding grounds in wetlands. Additionally, wetlands offer food and habitat for various mammals. They function as natural filtration systems, helping to eliminate a wide array of pollutants from water, including harmful viruses and heavy metals. Wetlands retain nutrients by sequestering excessive nitrogen and phosphorus in the subsoil, thereby reducing the likelihood of eutrophication. Mangrove forests are particularly valued for their production of fish and shellfish, livestock fodder, fuel, construction materials, traditional medicine, honey, and beeswax, although many mangrove areas have been replaced by other types of land use. Furthermore, significant socio-economic benefits such as a reliable supply of water, fisheries, firewood, medicinal plants, livestock grazing opportunities, agricultural resources, energy, wildlife, transportation, and recreation and tourism are notable.

Source:https://www.thehindu.com/sci-tech/energy-and-environment/conserving-wetlands-for-the-future/article69158893.ece
Dated: February 22, 2025, The Hindu

First breeding record of Blue-cheeked Bee-eater discovered in Peninsular India

The site was found during a study that was conducted along the Pazhayar basin covering Periyakulam, Manakudy Mangroves, Puthalam, and Andivilai regions from January 2022 to October 2023

The discovery of a new breeding ground of Blue-cheeked Bee-eater in Tamil Nadu marks the southernmost breeding range of the avian species in the Indian subcontinent.

The first breeding site of the Blue-Cheeked Bee-eater (merops persicus) in peninsular India has been discovered in the saltpans of Aandivilai near the Manakudy Mangroves in Kanniyakumari district. An article published in the international ornithological journal Ornis Hungarica in December, 2024, confirmed the breeding record of the Blue-cheeked Bee-eater in peninsular India. The research was conducted by a team comprising R. Kishore, researcher from Salim Ali Centre for Ornithology and Natural History along with Anand Shibu, Vinod Sadhasivan and Ajil Yesudhas of Kanniyakumari Nature Foundation.

Recognised by its shimmering green plumage, distinctive blue cheek patch, and graceful tail streamers, the Blue-cheeked Bee-eater was historically known as passage migrant and winter visitor in India. Its breeding was primarily recorded in regions such as Nile Delta, Pakistan, and Iran while its wintering grounds include parts of Africa.

The discovery of a new breeding ground in Tamil Nadu marks the southernmost breeding range of the avian species in the Indian subcontinent, shifting its status from seasonal visitor to a year round resident. The study was conducted along the Pazhayar Basin covering Periyakulam, Manakudy Mangroves, Puthalam, and Andivilai regions from January 2022 to October 2023. During one of the surveys, a flock of Blue-cheeked Bee-eaters was found. As the birds engaged in courtship, researchers located their nesting sites. Some breeding burrows of the bird were eventually found along the saltpans of Pazhayar river basin.

In the process, the bird's breeding behaviour was recorded at different times of the day and they were found at the nesting sites throughout the year, except in February. During the time of research, the breeding season began with 28 birds and by the end 48 individuals were observed, indicating successful breeding in the colony. Mr. Sadhasivan told that the breeding ground of these birds faced multiple threats, including habitat destruction, from developmental activities, and anthropogenic pressures.

Source:https://www.thehindu.com/sci-tech/energy-and-environment/first-breeding-record-of-blue-cheeked-bee-eater-discovered-in-peninsular-india/article69242534.ece
Dated: February 20, 2025, The Hindu

AGRICULTURE

Nano-urea led to decrease in yield, protein content of rice and wheat: Study

The application of nano-urea, in the manner prescribed by IFFCO, led to a decrease in the protein content in rice and wheat grains by 35% and 24%, respectively, the study found

A farmer spreading fertiliser at a wheat field.

One of the largest and most sustained trials analysing the impact of nano-urea on crop yields has concluded that its continued use could reduce yields of rice and wheat, which together constitute about 70% of India's annual foodgrains output. Promoted by the fertiliser company IFFCO, and extensively promoted by the government's Department of Fertilisers, the application of nano-urea, in the manner prescribed by the company, led to a decrease in the protein content in rice and wheat grains by 35% and 24%, respectively, the study found.

"Premature and long-term adoption of such nitrogen-management practice may lead to yield losses besides reduction in grain and straw-nitrogen content," the authors from the Punjab Agricultural University, Ludhiana, said in their peer-reviewed study in the journal Plant Soil this month, adding, "a rational understanding on the long-term impacts is required else it might inadvertently harm the economic benefits and livelihoods of the growers".

Urea, a solidified nitrogen fertiliser, is critical to India's agricultural economy. India needs about 350 lakh tonnes of urea annually, for which 40 lakh tonnes have to be imported. However, urea in India is heavily subsidised, with a 45-kg bag actually costing around ₹3,000 but sold at ₹242 to farmers. In 2023-24, the government spent ₹1.3 lakh crore on urea. A bag of urea provides about 20 kg of nitrogen in a form usable by plants.

Into this sector came a technological innovation called "nano-urea". A half-litre solution of nano urea contains 4% (w/v) N equivalent to 20g N, or about one-thousandth of the nitrogen in a bag. IFFCO, however, claims that one spray of a 500 ml solution of nano-urea can substitute more than 52 kg of N ha−1 as commercial urea in a number of crops, irrespective of soil and climatic conditions. This is because nano-urea is converted to nanoparticles, and therefore made more bio-available, and if applied in a prescribed manner at appropriate stages of rice and wheat plant development, can substitute the conventional bag.

Source:https://www.thehindu.com/sci-tech/agriculture/nano-urea-led-to-decrease-in-yield-protein-content-of-rice-and-wheat-study/article69140670.ece
Dated: January 25, 2025, The Hindu

China to develop gene-editing tools, new crop varieties in biotech initiative

Wheat crop ready for harvest in a farmer's field near Kindersley, Saskatchewan, Canada September 5, 2024.

China issued guidelines to promote biotech cultivation, focusing on gene-editing tools and developing new wheat, corn, and soybean varieties, as part of efforts to ensure food security and boost agriculture technology.

The 2024-2028 plan aims to achieve "independent and controllable" seed sources for key crops, with a focus to cultivate high-yield, multi-resistant wheat, corn and high-oil, high-yield soybean and rapeseed varieties.

The move comes as China intensifies efforts to boost domestic yields of key crops like soybeans to reduce reliance on imports from countries such as the United States amid a looming trade war.

The document pledged to research and develop precision gene-editing tools with independent intellectual property and enhance key cultivation technologies, it said in the statement.

Additionally, efforts will be made to breed high-performance livestock, including pigs with strong reproductive capacity and high feed conversion rate, and disease-resistant broiler chickens.

Source:https://www.thehindu.com/sci-tech/science/china-to-develop-gene-editing-tools-new-crop-varieties-in-biotech-initiative/article69225910.ece
Dated: February 16, 2025 , The Hindu

AGRICULTURE

Andhra Pradesh: Natural farming boosts strawberry harvests in Lambasingi

In Andhra Pradesh, Lambasingi's strawberry farms thrive due to natural farming techniques and multi-cropping to boost soil fertility and productivity.

A strawberry farm at Lambasingi (known as Andhra's Kashmir) in the Agency Area of Alluri Sitharama Raju district. The cool and dry climate of Lammasingi is suitable for strawberries.

As the narrow, winding ghat road meanders through the green hills of the Eastern Ghats, a journey to Lambasingi feels like an adventure. A winter morning drive to the region in the Chintapalli Mandal of Alluri Sitharama Raju district is a visual treat, with towering trees, occasional water-streams jutting out of the hills, and the crisp mountain air adding to the charm. A narrow diversion to the right from the Lothugedda Junction takes one to the interiors of Lambasingi. The bumpy road, flanked by patches of greens and scattered hamlets, leads one to the Andhra Strawberry Farm, one of the region's pioneering strawberry farms.

At an altitude of 1,000 metres above sea level, Lambasingi, blanketed by deciduous forests, is known for its single-digit temperatures and misty winter mornings. Over the last six years, Lambasingi has added a feather to its cap – strawberry farming. Despite challenges, this burgeoning industry is drawing tourists in large numbers and boosting local livelihoods.

Stepping into the Andhra Strawberry Farm, as the morning mist slowly begins to clear, we see neat rows of vibrant red strawberries glistening in the sun. The cool air carries the faint aroma of fresh strawberries. Visitors wander through the fields, hand-picking the juicy delights, as the farm bustles with activity.

Strawberry cultivation in Lambasingi gained momentum about four years ago, thanks to the region's cool climate and fertile soil. This January saw farms teeming with tourists eager to pick fresh strawberries amidst the winter chill. The season typically runs from December to March; but this year, unseasonal cyclonic rains in December disrupted the yield and delayed the harvest.

Farmers, however, are adapting. Many have diversified into multi-cropping, cultivating vegetables like brinjal, tomatoes, chillies, and carrots during off-seasons. They have also ventured into by-products like jams, milkshakes, and strawberry cream to offset losses.

Source: https://www.thehindu.com/life-and-style/travel/andhra-pradesh-natural-farming-boosts-strawberry-harvests-in-lambasingi/article69127305.ece
Dated: February 05, 2025, The Hindu

Glass fertilizer beads could be a sustained nutrient delivery system

Agricultural fertilizers are critical for feeding the world's population, restoring soil fertility and sustaining crops. Excessive and inefficient use of those resources can present an environmental threat, contaminating waterways and generating greenhouse gases such as nitrous oxide. Now, researchers reporting in ACS Agricultural Science & Technology have addressed those challenges with glass fertilizer beads. The beads control nutrient release, and the researchers say they're environmentally compatible.

"The results show that glass fertilizers can be tailored to plant needs, slowly and sustainably releasing nutrients to boost productivity without harming soil quality," says Danilo Manzani, a co-author of the study.

Over time, the use of agricultural chemicals has increased. In 2020, the Food and Agriculture Organization of the United Nations estimated that global demand for fertilizers would surpass 200 million metric tonnes. Fertilizers contain nitrogen, phosphorus and lower amounts of other elements like calcium. Unfortunately, the benefits of these nutrients are lost through leaching into groundwater and emissions into the air, necessitating frequent reapplication and creating downstream environmental problems like toxic algal blooms. A potential solution could come from tiny glass beads that previous researchers used to improve plant growth. To improve the efficiency of nutrient delivery, Manzani, Eduardo Ferreira and colleagues developed a water-soluble, multicomponent glass fertilizer designed for controlled nutrient release.

The researchers synthesized glass consisting of several micro- and macronutrients, such as phosphorus, potassium and calcium. They ground the glass into small (less than 0.85 millimeters wide) and large (0.85 to 2 millimeters wide) particles. In an initial test, the particles were added to either water or a buffer solution that mimicked soil conditions. They found that each nutrient released from both sizes of glass particles and diffused into the solutions steadily over 100 hours with minor fluctuations.

Source:https://phys.org/news/2025-02-glass-fertilizer-beads-sustained-nutrient.html
Dated: February 22, 2025, www.phys.org

AGRICULTURE

Timing matters: Early planting benefits soybean in unfertilized, low-fertility fields

Unfertilized soybean fields with lower soil fertility should be planted earlier than high fertility fields, according to a University of Illinois Urbana-Champaign study that re-evaluates longtime soil testing.

This result comes as a bit of a surprise, says Fred Below, senior author of the study published in Soil Science Society of America Journal.

"Our findings were somewhat counterintuitive. The expectation would have been that higher soil fertility is more important if you plant early and have a higher yield," said Below, professor in the Department of Crop Sciences in the College of Agricultural, Consumer and Environmental Sciences at Illinois.

In recent years, there has been a shift towards earlier soybean planting in Illinois. Earlier planting increases yield potential because a longer growing season gives plants more time to photosynthesize, leading to bigger plants with more branches, more nodes, more pods, and therefore, more seeds. However, with greater yields comes a greater need for soil nutrients.

"One of the reasons this is so important is that growers tend to not fertilize soybean. They usually fertilize corn, and then they rely on soil testing to decide whether to fertilize or let the soybean use the residual from the prior corn crop. So for economic reasons, there's a much greater tendency to rely on soil tests when it comes to producing soybean," said Below.

Soil tests are commonly used to measure the level of nutrients in the soil and gauge how easily the crop can access those nutrients. Farmers use soil test sufficiency values to help decide whether or not they should add fertilizer. However, soil test sufficiency values have not been regularly calibrated since the 1960s, when state universities handed off soil testing to commercial laboratories.

Source: https://phys.org/news/2025-02-early-benefits-soybean-unfertilized-fertility.html
Dated: February 5, 2025, The Hindu

How light affects citrus fruit coloration and the timing of peel and flesh ripening

Citrus fruit rind color has long been used as an indicator of ripeness, but for some fruits such as mandarin fruit in the Chongqing region of China, the peel and flesh do not ripen synchronously, with the flesh usually reaching maturity while the peel is still green.

This is a characteristic that seriously affects its commercial value. In new research published in the Journal of the Science of Food and Agriculture, investigators have discovered how red and blue LED light can stimulate color change in mandarin fruit.

Experiments showed that this light exposure causes fruit color change by promoting chlorophyll degradation and carotenoid synthesis. A **protein** called CcUNE10, which is part of the bHLH transcription factor family, played an important role by binding to and activating certain genes involved in chlorophyll degradation.

"The above results provide a theoretical basis for the further study of the postharvest coloration of mandarin fruit and enhance research on the bHLH transcription factor family's function," the authors wrote.

Source:https://phys.org/news/2025-02-glass-fertilizer-beads-sustained-nutrient.html
Dated: February 22, 2025, The Hindu

HEALTH

Indian Institute of Science researchers highlight India's need for national dementia policy with focus on cultural factors

The policy should integrate dementia care into both geriatric and mental health plans, stated the paper published in The Lancet Psychiatry

A recent paper by researchers from the Centre for Brain Research at the Indian Institute of Science (IISc) has highlighted the need for a comprehensive dementia policy in India to address the needs of the older population and their caregivers on a national scale.

This policy should prioritise effective dementia prevention strategies and equitable allocation of resources, incorporating evidence-based approaches. The policy should integrate dementia care into both geriatric and mental health plans, stated the paper published in The Lancet Psychiatry on January 23.

India is expected to have 340 million older adults (aged 60 and older) by 2050, of whom 5.3 million will have been living with dementia since 2020.

In the paper, the team of researchers from the Centre for Brain Research reviewed various reports that highlighted the disease's degenerative character, reducing memory, cognition, and the ability to perform daily living activities.

Need to expand healthcare infrastructure

Asserting the importance of early detection, awareness and effective care systems, Thomas Gregor Issac, associate professor at the centre, who is the corresponding author of the paper, told The Hindu that there is a need for expanded healthcare infrastructure, professional training, and a national dementia policy. This will help address India's growing dementia challenge, which includes early diagnosis and treatment gaps, he said.

Source: https://www.thehindu.com/news/cities/bangalore/lancet-paper-highlights-indias-need-for-national-dementia-policy-with-focus-on-cultural-factors/article69151424.ece
Dated: January 29, 2025, The Hindu

Researchers in India develop computer-based tool to help stroke survivors recover cognitive functions

The tool functions like a game, adapting in real-time to the patient's abilities. It targets critical cognitive skills such as memory, attention, and problem-solving through tailored exercises, one of the researchers said

Introducing a cutting-edge approach to neurorehabilitation, a team of psychologists from Indore, one of whom was formerly with NIMHANS, has developed an innovative tool to help stroke survivors recover cognitive functions.

Their study, published last month in Scientific Reports, a Nature journal, may offer new hope to stroke survivors. Cognitive impairment is a common consequence of stroke, characterised by deficits in cognitive functioning, language and functional abilities. Innovative technological approaches, such as computerised cognitive retraining, offer promising strategies for mitigating cognitive challenges. However, despite their potential, the impact of these interventions on neuropsychological function and daily living capabilities has poor outcomes.

To address these challenges, a team led by Amit Kumar Soni from Government MLB Girls PG College and Devi Ahilya University developed Computer-Adaptive Cognitive Training, a tool that provides personalised rehabilitation.

"The CACT tool functions like a game, adapting in real-time to the patient's abilities. It targets critical cognitive skills such as memory, attention, and problem-solving through tailored exercises. Unlike one-size-fits-all solutions, CACT ensures that patients are consistently challenged without feeling overwhelmed," explained Dr. Soni, who was formerly with NIMHANS.

Source:https://www.thehindu.com/sci-tech/health/researchers-develop-tool-to-help-stroke-survivors-recover-cognitive-functions/article69203402.ece
Dated: February 11, 2025 , The Hindu

HEALTH

For young people, a digital learning resource to help avoid cannabis use

The resource, developed by researchers at NIMHANS, Bengaluru, details the adverse health effects of cannabis, busts misconceptions on its use, gives updates on its legal status in India, and explains how young people can avoid it

A marijuana leaf on a plant.

A team of researchers from Bengaluru-based NIMHANS have developed 'Pre-CURB', a digital learning resource for young people on preventing cannabis use and promoting responsible behaviour.

This digital resource, released at a workshop conducted for college students by the Departments of Nursing and Mental Health Education on February 11, details the adverse health effects of cannabis, busts misconceptions with regard to its use, gives updates on the legal status of cannabis in India, and explains how young people can avoid cannabis use.

The rising use of cannabis and several of its products has become a global concern. According to the World Health Organization (WHO), this phenomenon has become more closely linked to youth culture, with the age of initiation usually being lower than that of other drugs.

In India, cannabis (known in the vernacular as ganja or bhang) holds cultural significance because of its use during festivals and rituals even though its use is illegal. Cannabis use rates ranging from 6.8% to 36% have been reported among college students in India, with poor academic performance, dropping-out, and cognitive impairment impacts, said Meena K.S. professor and head of the Department of Mental Health Education at NIMHANS.

In 2024, the same team of researchers at NIMHANS found that the risk perception about cannabis use among college students surveyed in Bengaluru was very low. The study, aimed at assessing college students' knowledge, attitude, and expectancies towards the use of cannabis, was published in the Indian Journal of Psychological Medicine.

Source:https://www.thehindu.com/sci-tech/health/nimhans-releases-pre-curb-a-digital-learning-resource-on-prevention-of-cannabis-use/article69211411.ece
Dated: February 14, 2025, The Hindu

About 55% truck drivers in India have compromised vision: Report

The report prepared by IIT Delhi further said that about 44.3% of drivers exhibited borderline or above body mass index (BMI), 57.4% had elevated blood pressure levels, and 18.4 per cent showed borderline or high blood sugar levels.

About 55.1% of truck drivers in India have compromised vision, while 53.3% require distance vision correction and 46.% need near-vision treatment, a new report released on Tuesday (January 28, 2025) revealed.

The report prepared by IIT Delhi further said that about 44.3% of drivers exhibited borderline or above body mass index (BMI), 57.4% had elevated blood pressure levels, and 18.4% showed borderline or high blood sugar levels. A total of 50,000 truck drivers in the States of Uttar Pradesh, Rajasthan, Madhya Pradesh, Maharashtra, Karnataka and Tamil Nadu were screened by IIT Delhi in collaboration with the Foresight Foundation.

According to the report, about 33.% of drivers reported moderate stress, while 2.9% were found to have high stress levels, emphasising the need for mental health support.
Releasing the report, Union Minister of Road and Transport Nitin Gadkari said, "With 70 per cent of traffic on roads and logistics costs soaring at 14-16 per cent, India faces significant challenges in transportation".

Mr. Gadkari further said a critical issue facing India's transportation sector is the shortage of drivers— there are only 75 drivers for every 100 trucks. "We are addressing this by focusing on driver training, wellbeing and we are committed to digitisation and app integration to improve their lives," he added. Trucks are the backbone of India's logistic sector, connecting regions across the country and bridging many modes of transport to complete the logistics cycle. Truck drivers in India endure many challenges and a difficult lifestyle. Key issues include long working hours, irregular shifts, extended periods away from family and various health concerns.

Source:https://www.thehindu.com/news/national/about-55-truck-drivers-in-india-have-compromised-vision-report/article69150985.ece
Dated: January 30, 2025, The Hindu

HEALTH

Bengaluru start-up Crispr Bits develops PathCrisp for early detection of antibiotic resistance

India has reported over a million AMR-associated deaths in 2019

Antimicrobial resistance (AMR) is a critical global health challenge, requiring early and accurate detection of resistance markers in hospital-acquired infections, particularly in ICU settings.

Bengaluru-based biotechnology start-up CrisprBits Private Limited has developed PathCrisp, a platform for early detection of antibiotic resistance in hospital-acquired infections.

Antimicrobial resistance (AMR) is a critical global health challenge, requiring early and accurate detection of resistance markers in hospital-acquired infections, particularly in ICU settings. A recent analysis in The Lancet found that AMR contributed to nearly 4.7 million deaths globally in 2021, with over a million directly caused by resistant infections. India alone has reported over a million AMR-associated deaths in 2019.

Carbapenems, a class of antibiotics, often serve as the last line of defence against multi-drug-resistant bacterial infections. However, New Delhi metallo-beta-lactamase(NDM) driven carbapenem resistance is a major concern in hospitals across India, contributing significantly to the antimicrobial resistance burden. This enzyme enables bacteria to break down carbapenems and other beta-lactam antibiotics, severely limiting treatment options and posing a significant challenge in clinical settings.

“Traditional diagnostic methods, such as bacterial culture and PCR-based testing, can take 24–72 hours, delaying critical treatment decisions. In this scenario, a rapid and highly accurate test like PathCrisp, developed by CrisprBits, can enable direct detection from clinical samples without expensive equipment or prolonged culture processes, ensuring early recognition and targeted therapy,” he said.

Source:
https://www.thehindu.com/news/cities/bangalore/bengaluru-start-up-crisprbits-develops-pathcrisp-for-early-detection-of-antibiotic-resistance/article69242255.ece
Dated: February 20, 2025, The Hindu

Rethinking menstrual care: are we sacrificing health for convenience?

Plastic-based pads retain heat and moisture, providing an ideal habitat for bacterial growth; chemical additives can irritate the skin, and with the knowledge that dioxins and phthalates (both found in synthetic materials) are recognised endocrine disruptors, the possibility of long-term hormonal effects has become a niggling doubt.

For years, women have relied on sanitary pads to take care of hygiene during menstruation without asking what these pads might contain. After all, if they are available on store shelves they must be safe, right? But here’s the ugly truth: standard sanitary pads include plastics, artificial perfumes and chemical residues that may be harmful to women’s health. With increased understanding, more women are opting for organic and ecological options. But do these newer products actually make a difference?

What’s really in a sanitary pad?

Most women are unaware that the sanitary pads they use are typically made of approximately 90% plastic. Yes, even that soft cottony textured part. The pad is a combination of synthetic fibres and chemical-laden materials intended for optimum absorption. But, at what cost does this come?

The bleaching process during manufacturing produces dioxins, which are hazardous substances associated with hormonal abnormalities and reproductive health difficulties. Perfumes and super-absorbent gels add a mixture of compounds in pads that may cause discomfort, allergies and even long-term health issues.

Paradoxically, women are choosing for their skin and hair, ‘paraben-free’ and ‘organic’ products these days, but do not give much thought to what is in their sanitary products, which come into contact with one of the most sensitive areas of female anatomy.

Source:https://www.thehindu.com/sci-tech/health/rethinking-menstrual-care-are-we-sacrificing-health-for-convenience/article69297943.ece
Dated: March 06, 2025, The Hindu

S&T COOPERATION FOR GLOBAL SOUTH

South-South Trust Funds: Powering Progress and Clean Energy Solutions

Installed solar panels in Bau Island as part of the Solarization of the Fiji State House project funded by the India-UN Development Partnership Fund.

The India-UN Development Partnership Fund, India, Brazil and South Africa Facility for Poverty and Hunger Alleviation (IBSA Fund), and Pérez-Guerrero Trust Fund, managed by the United Nations Office for South-South Cooperation (UNOSSC), have played a pivotal role in supporting clean energy interventions across the developing world, particularly in countries with limited access to renewable energy resources. These initiatives have demonstrated how South-South collaborative efforts can yield tangible results in addressing climate change and achieving Sustainable Development Goal 7 on affordable and clean energy.

A notable example supported by the India-UN Development Partnership Fund is the "Improving access to water through the installation of solar pumping systems" project in Haiti which expanded access to solar energy in rural and underserved communities. This project introduced solar pumping systems that provided reliable and sustainable access to water for agricultural and domestic use, benefiting over 40,000 people. By leveraging renewable energy, the initiative not only alleviated water scarcity but also enhanced the livelihoods of smallholder farmers, who were able to increase agricultural productivity and income. The project's innovative approach to integrating solar technology into water resource management serves as a replicable model for other nations facing similar challenges.

Implemented as part of a joint advocacy demonstration initiative involving 11 Pacific Island nations, Fiji introduced solar energy to power their State House thanks to India-UN Development Partnership Fund support. In 2023, an 18.25 kW solar generation system was launched at the State House, supplying approximately 20,000 units of clean electricity annually. This initiative not only reduces carbon emissions but also saves $3,198 in annual energy costs. During the launch, Fiji's Head of State, His Excellency President Ratu Wiliame Katonivere, highlighted multi-stakeholder collaboration among the United Nations Development Programme (UNDP), the Pacific Island Development Forum (PIDF), and the Indian Government, underscoring its contribution to Fiji's Nationally Determined Contributions (NDCs) and Sustainable Development Goal 7.

Source:https://unsouthsouth.org/2025/01/28/south-south-trust-funds-powering-progress-and-clean-energy-solutions/
Dated: January 28, 2025, https://unsouthsouth.org/

Leveraging South-South and Triangular Cooperation in Shaping Africa's Inclusive and Sustainable Digital Future

The year 2024 marked significant advancements in the Science, Technology, and Innovation (STI) and digitalization agendas globally. Key milestones included: adoption of the Global Digital Compact (GDC) at the 2024 UN Summit of the Future, the UN General Assembly's official proclamation of September 16 as the International Day of Science, Technology and Innovation for the South and, the adoption of Africa's Digital Compact by African Member States to harness digital technologies, foster innovation and ensure digital inclusivity. These initiatives build on ongoing efforts to harness STI for sustainable development, particularly in the Global South.

South-South and triangular cooperation are seen as catalysts and enablers for digital transformation within and among developing countries. The GDC for example recognizes the role of South-South and triangular cooperation in expanding inclusion in, and benefits from the digital economy. It also includes commitments to, among other things, encouraging cooperation among universities, research institutes and the private sector for accelerated digital knowledge development and access to research capacity. Member States have also called for enhanced demand-driven technology transfers, investments and capacity building through South-South and triangular cooperation, fostering knowledge exchanges that can cultivate a tech-savvy workforce to accelerate digital transformation for sustainable development in the Global South.

This enhanced digital transformation and greater access to digital technologies create more opportunities for cooperation, leveraging improved connectivity options and thus leading to increased South-South partnerships. In practice, South-South and triangular cooperation digital knowledge sharing platforms such as the UNOSSC's South-South Galaxy – that features a thematic database on Digital Transformation which includes digitalization good practices, local solutions and knowledge products – are important examples of how digital technologies are being harnessed to facilitate development cooperation in a cost-effective and far-reaching manner.

Source:https://unsouthsouth.org/2025/01/29/leveraging-south-south-and-triangular-cooperation-in-shaping-africas-inclusive-and-sustainable-digital-future/
Dated: January 29, 2025, https://unsouthsouth.org

Launching the UN's New E-Learning Platform: Mainstreaming South-South Cooperation

A new self-paced online e-learning module will help to mainstream South-South and triangular cooperation in plans and work of the UN at the Country and Regional levels, strengthening inter-agency collaboration and accelerating results.

Why This Matters Now

The timing couldn't be more critical. With 117 UN country teams already engaged in South-South and triangular cooperation initiatives this year, the need for standardized, accessible training has never been greater.
"Together with the Guidelines to integrate South-South and triangular cooperation in the work of the UN system at country and regional level, this E-module responds to the mandate given by Member States through the Second Committee resolutions over the last two years calling upon the UNDS to support in mainstreaming South-South cooperation in UN Sustainable Development Cooperation Frameworks and Regional Collaborative Frameworks," said UNOSSC Director Dima Al-Khatib during the launch of the E-Module on 10 February.

The E-Module was launched during a high-level event addressed by UN Development Coordination Office, UN Resident Coordinators, UN Country Teams, Regional Directors of UN Development Coordination Offices, UN Entities at the regional level, and Regional Commissions, E-Module UN collaborating partners, FAO, PAHO, UNFPA and WFP. It was attended by over 300 country- and regional-level UN personnel – from over 30 UN entities and 80 countries.

A Collaborative Achievement

The e-learning module represents a unique partnership between multiple UN agencies. This new E-module was developed under the coordination of the United Nations Office for South-South Cooperation, with the guidance of the United Nations Development Coordination Office (UNDCO) and a UN task team drawn from the UN Inter-Agency Mechanism for South-South and triangular cooperation. It aims at empowering UN professionals to realize the full potential of the UN development system support to South-South and triangular cooperation.

Source:https://unsouthsouth.org/2025/02/10/launch-of-a-new-learning-tool-to-mainstream-south-south-cooperation-in-planning-of-the-un-at-the-country-and-regional-levels/
Dated: February 10, 2025, https://unsouthsouth.org/

India-UN Fund: Transforming Lives Across the Global South

This project – involving the Tonga Ministry of Health and Medical Services, Health Department and WHO – supported the strengthening of the health sector by providing medical equipment, supplies and personal protective equipment

The India-UN Development Partnership Fund is a dedicated facility established in 2017 within United Nations Fund for South-South Cooperation. It is supported and led by the Government of the Republic of India, managed by UNOSSC, and implemented in collaboration with the United Nations system.

The India-UN Development Partnership Fund supports Southern-owned and led, demand-driven, and transformational sustainable development projects across the developing world, with a focus on least developed countries and small island developing states. United Nations agencies implement the Fund's projects in close collaboration with partnering governments.

2024 Impact Overview

In 2024, under the guidance of its Board of Directors, the India-UN Development Partnership Fund continued to support South-South cooperation through 28 projects, implemented by 8 UN agencies, in cooperation with national stakeholders in 30 countries. As a result of these projects, almost 2.9 million people (52% females) were supported in improving livelihoods and gaining knowledge and expertise.

The India-UN Fund projects contributed to all SDGs, with a special focus on gender equality, renewable energy, technology and digitalization for improved living conditions, health, education, and environmental protection.

For example, a project in Kyrgyzstan is improving maternal health services in five maternity hospitals through the introduction of obstetric surveillance systems, tele-networking, and tele-counseling. In Moldova, the second phase of a project focused on digitalization of national statistical systems, is bringing technology to critical national data systems. This is allowing for data-informed policy making and implementation in education, national insurance, gender surveys, and border management.

Source:https://unsouthsouth.org/2025/02/20/india-un-fund-impact-of-projects-across-sectors-3/
Dated: February 20, 2025, https://unsouthsouth.org/

OTHERS

Fungus that turns spiders into zombies named for Attenborough

Researchers from the United Kingdom and Denmark recently discovered a new fungus that turns a particular species of spiders into brain-dead creatures — and named it for David Attenborough, the host of various natural history programmes on BBC. The homage is sincere: the researchers have said Mr. Attenborough's work helped them discover the fungus. The team's findings were published in the journal Fungal Systematics and Evolution on January 24.

The new species, named Gibellula attenboroughii, affects cave-dwelling, orb-weaving spiders. According to the researchers, spiders that have been infected by the mycelium start behaving like zombie ants — which are regular carpenter ants that, when infected by a parasitic fungus, become erratic in their activities before dying. In the latter case, the fungus is Ophiocordyceps unilateralis, and it can control the host ants while possessing no brain or nervous system of its own. Scientists believe this is why the ants' resulting behaviour is zombie-like.

Broadly, Gibellula is a genus of parasitic fungi that attack spiders. In 2021, researchers first found a spider called Metellina merianae that had been infected by a fungus when filming BBC's show 'Winterwatch' in Northern Ireland. They had spotted the spider on the ceiling of an abandoned store that sold gunpowder. They were reminded of the ants that died after being infected by O. unilateralis.

M. merianae was previously known to live in places made by humans, like cellars and culverts, and that it wouldn't expose itself the way the spider did by walking around the ceiling. Researchers believe the arachnid's exposed position was the fungus's doing — to allow its parasitic spores to circulate more in the air currents. "In all instances, the infected spiders had moved from their concealed lairs or webs and died exposed on the cave roof or wall and the store ceiling," the team wrote in its paper.

Source:https://www.thehindu.com/newsletter/newsletter-science/fungus-that-turns-spiders-into-zombies-named-for-attenborough/article69210951.ece
Dated: February 13, 2025 , The Hindu

Missing some info? Check with the bonobos

The idiom "monkey see, monkey do" refers to someone copying an action without putting much thought into it. It literally lays the blame at a monkey's feet, but a new study shows that bonobos will point something out to you if they think you've missed it.

The study, published in Proceedings of the National Academy of Sciences and conducted by researchers at the Johns Hopkins University's Social and Cognitive Origins Group, describes an experiment with three bonobos, a species of ape that shares 98.7% of its DNA with humans.

During the experiment, the three bonobos, named Nyota (aged 25), Kanzi (43), and Teco (13), interacted with study coauthor Luke Townrow. One bonobo would sit across Townrow with a table in between, and watch as another person placed a treat under one of three cups. Sometimes Townrow could see where it was kept, sometimes he couldn't. Regardless of whether Townrow could see where the treat was kept, he would ask, "Where's the grape?" and wait for 10 seconds.

The researchers noticed that if Townrow had seen where the treat was put, the bonobo would sit still and wait for the treat. If Townrow couldn't see where the treat was hidden, the bonobo would point at the cup quite emphatically. "We predicted that if apes were really tracking ignorance, when their partners lacked knowledge, they would be pointing more often and more quickly, and that's exactly what they did," co-author Chris Krupenye said in a press release.

According to the researchers, the experiment offered the clearest evidence to date that bonobos, and by extension apes, could understand the concept of gaps in knowledge. "The ability to sense gaps in one another's knowledge is at the heart of our most sophisticated social behaviours, central to the ways we cooperate, communicate and work together strategically," Krupenye said.

Source:https://www.thehindu.com/sci-tech/science/science-for-all-missing-some-info-check-with-the-bonobos/article69187846.ece
Dated: February 10, 2025, The Hindu