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MAHA TO GET 1,500 HEALTH CENTRES WITH AYURVEDA DOCS: OFFICIAL

The Maharashtra government will set up 1,500 new sub-health centres across the state and appoint doctors with Bachelor of Ayurvedic Medicine and Surgery (BAMS) degrees to run them, Chief Secretary Sumit Mullick said.

He said that chief executive officers of Zilla Parishads had been authorised to appoint these doctors.

Speaking after holding a review meeting of departments such as Health, Women and Child Development and Tribal Development in Mantralaya today, he said that special attention would be given to the states 16 tribal-dominated districts.

He informed that a CT (computed tomography) scan machine had been approved for Nandurbar while Nutritional Rehabilitation Centres (NRC) would be set up at Karjat in Raigad, Churani and Chikhaldara in Amravati.

Mullick asked officials to seek aid from the Corporate Social Responsibility (CSR) funds of corporates to start a central kitchen in Melghat to provide nutritional food to people there.

VISITOR IN HARYANA HEALTH INSTITUTIONS TO DEPOSIT TOBACCO PRODUCTS ON ENTRANCE

Drop boxes will be installed at the entrance of health institutions in Haryana where visitors will have to deposit cigarettes or any tobacco products they carry before entering the premises.

Besides, drivers and conductors of Haryana Roadways buses would be imparted training and made conscious of the need to stop and check smoking in buses, a decision to this effect was taken at the state level coordination meeting and orientation workshop under the National Tobacco Control Programme (NTCP) chaired by the Additional Chief Secretary, Health Department, Amit Jha, here today.

Every health institution in the state would now have a transparent drop box at the entrance gate to enable the visitors and staff to keep their tobacco and related products before entering the premises. However, they can claim them back while leaving, an official said.

It was also decided that sign boards would be put up at public places and in roadways buses telling people that smoking is prohibited. These sign boards would carry number and address of the authorities concerned so that any complaint could be lodged with them.

VEDANTA RESOURCES TO INVEST USD 700 MN IN ZAMBIAN UNIT

NRI billionaire Anil Agarwal-led Vedanta Resources today said it will invest USD 700 million in Zambian subsidiary Konkola Copper Mines (KCM) to increase production level to 400,000 tonnes per annum.

“Vedanta is fully committed to supporting KCM’s plans to increase production to 400,000 metric tonnes per annum in the next few years,” Vedanta Resources said in a statement.

The growth will be driven by an injection of USD 700 million, following Vedanta’s previous injection of USD 3 billion, the statement said.

Under the expansion plan, KCM will construct a new cobalt refinery and a coal-fired power plant, and would also invest in local communities in areas of education, health, sport and poverty eradication and sustainable livelihoods, Agarwal, who was in the African country to attend the India-Zambia Business forum said.

“We are targeting strong growth for KCM in the years ahead. Agarwal said.

Zambia remains one of Africa’s preferred investment destinations and that further improvements to investment climate, stability in the tax regime and affordable power would attract still more foreign direct investment to the country

50 PC HIKE IN CIGARETTE PRICES WOULD ADD 450 MLN YEARS OF LIFE ACROSS 13 NATIONS: STUDY

A fifty per cent hike in cigarette prices would lead to about 450 million years of life gained across thirteen middle-income countries, including India, from smoking cessation, a new study has claimed.

The study published in the British Medical Journal (BMJ) also said that “India in particular, will gain about 45 million life years from this increase.”

For the study, researchers developed a simple compartmental model to assess health gains, financial protection, and tax gains for governments from a large increase in the market prices of cigarettes across income groups in these countries with a total of 500 million male smokers, the BMJ said in a statement today.

Researchers from the Global Tobacco Economics Consortium led by Professor Prabhat Jha from St. Michael’s Hospital under the University of Toronto, and Patricio Marquez, lead public health specialist from the World Bank, set out to predict the effect of a 50 per cent increase in cigarette prices.

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“Higher prices of cigarettes provide more health and financial gains to the poorest 20 per cent than to the richest 20 per cent of the population.

CHILDHOOD NEURODEVELOPMENTAL DISORDERS STARTED AT AIIMS

Union Minister of State for Health Anupriya Patel launched a round-the-clock toll-free helpline and tele-consultation service for people seeking help and advice on childhood neurodevelopmental disorders at AIIMS

The toll-free helpline 1800-11-7776 will be managed by four trained nurse counsellors and they will work under the supervision of resident doctors and faculty of the pediatric department. AIIMS will also provide tele-consultation services on the same number for those aged between 1 month and 18 years.

“Any parent or care giver of a child with any neurological problem can obtain free information or guidance by calling up the National Child Neurology helpline,” professor of Pediatric Neurology Sheffali Gulati said.

She said, “More than half of the patients seeking pediatric consultations have neurodevelopmental disorders. The interplay of multiple social and demographic factors in the developing world adversely influence childhood neurodevelopment.”

“This may get translated into impaired long-term neurocognitive outcome, significant losses to work force and impeded national development. These morbidities often get ignored as public health priorities because of lack of indigenous evidence,” Gulati said.

PM TO OPEN FIRST WELLNESS CENTRE UNDER AYUSHMAN BHARAT PLAN IN BIJAPUR ON APRIL14

Prime Minister Narendra Modi will visit one of the top performing aspirational districts Bijapur in Chhattisgarh and open the first health centre under Ayushman Bharat Scheme on April 14, the birth anniversary of B R Ambedkar, a top Niti Aayog official said on Thursday.

Modi will be the first prime minister to visit tribal district Bijapur, one of the most backward regions of the country but has started doing well on various development parameters, said Niti Aayog CEO Amitabh Kant in a press conference.

Bijapur along with Bahraich (Uttar Pradesh) and Mewat (Rajasthan) were among the 115 aspirational districts, which have shown noteworthy achievement in the last three months on three parameters - incremental performance, best action plan and best practices, he added.

“The prime minister would be interacting with people, local ‘Champions of Change’ including officials of the district administration, who despite all odds and being at the epicentre of Left Wing Extremism have performed very well, especially post the launch of Aspirational District programme on January 5, 2018,” the Niti Aayog CEO said.

FORTIS HEALTHCARE SHARES UP OVER 4% ON IHH BID BUZZ

Shares of Fortis Healthcare jumped over 4 per cent today amid reports that Malaysia’s IHH Healthcare Bhd is planning to bid for the company.

The stock gained 4.17 per cent to end at Rs 153.80 on BSE. Intraday, it rose by 4.63 per cent to Rs 154.50.

At NSE, shares of the company gained 4 per cent to close at Rs 153.90.

The company’s market valuation rose by Rs 319.95 crore to Rs 7,976.95 crore.

In terms of equity volume, 16.19 lakh shares of the company were traded on BSE and over one crore shares changed hands at NSE during the day.

Media reports said Malaysia’s IHH is planning to bid for Fortis Healthcare.

, Manipl Health Enterprises raised its offer for Fortis Healthcare Ltd (FHL) by valuing the hospital business higher at Rs 6,061 crore, according to a regulatory filing

STAY ON MAX HOSPITAL LICENCE CANCELLATION EXTENDED TILL MAY 17

An appellate body hearing the Max hospital twin baby death case today extended by a month the stay on a Delhi government order cancelling its licence in December, authorities said.

The stay will be in effect till May 17, the next date of hearing, they said.

Today’s hearing was the third in the case by the Financial Commissioner’s court, Delhi.

The licence cancellation case pertains to the birth of premature twins at the hospital in Shalimar Bagh on November 30 last year.

Both the babies were declared stillborn by the hospital, one of them wrongly, and handed over to the family allegedly in a polythene bag.

While the family was on its way to perform the final rites, they found that one of them (a baby boy) was still alive.

The case triggered an outrage, prompting the AAP government’s Directorate General of Health Services (DGHS) to cancel the hospital’s licence on December 8 for alleged of 1500

litre, has been installed on the institutes campus, it said, adding that any five people can use it every day.

“It (the project) furthers the Prime Ministers goal of providing people access to clean toilets,” Professor MM Ghangrekar, the lead researcher, said.

Indrasis Das, a PhD scholar, is “working hard to make the project user-friendly”, along with other researchers, he said.

The National Thermal Power Corporation (NTPC) has asked the scientists to set up a prototype of the self-sustainable toilet in rural Noida, the statement said.

The bioelectric toilet consists of a six-chambered reactor, in which the waste water will be rotated in clockwise and anti-clockwise directions for its reuse.

The water will also generate power and light up the toilet cabin at night, besides charging smart devices such as mobiles and tablets, Ghangrekar said.

“We should understand why toilets are not being used in many parts of the country, particularly at night.

INDIAN SCIENTISTS HAVE MADE VALUABLE CONTRIBUTIONS TO SOCIETY: VARDHAN

India’s traditional knowledge and its scientists have made valuable contributions to society but sometimes people “hesitate to feel” about the nation’s greatness and ancient wisdom, Union Science Minister Harsh Vardhan said.

He was speaking at the ‘National Conference on Bhumi Suposhan - approach and practises to enrich soil for sustainable agriculture’ organised by Eklavya Foundation and others here yesterday.

“...In our country, we sometimes hesitate to feel about our greatness and ancient wisdom,” he said and referred to a book written long ago about what foreigners had said about the greatness of India.

The minister recalled that a top official of the WHO, who was a doctor of modern system of medicine, had hailed the strength of India’s traditional medicine, Ayurveda, the country’s medicinal plants and their usefulness.

Patanjali Yoga was described as very effective way to achieve good health at the international level many years ago even before it attained its current popularity, he noted.

Marconi’s grandson had hailed renowned Indian scientist J C Bose for his pioneering work in wireless communication, he said.

Quoting from a handwritten letter written by Marconi’s grandson at the Bose centre in Kolkata, he said, “I don’t remember his (Marconi’s grandson) exact sentence, it is in English.”

But his opinion is that “I feel so happy to witness and come to this place, because it is a place dedicated to the memory of Acharya Jagadish Chandra Bose, who discovered wireless much before my grandfather Marconi did”.

Marconi was an Italian physicist and inventor, who in 1901 broadcast the first transatlantic radio signal.

MLAS FROM SAURASHTRA, VADODARA SQUABBLE OVER HOUSING AIIMS

It has been more than one year since the Centre sanctioned an AIIMS for Gujarat, but the project is yet to take off with two regions of the state fighting to house the premier medical institute.

The issue figured in the ongoing Gujarat Assembly session. Last Thursday, MLAs of Saurashtra were pitted in the House against those of Vadodara over which area should get the hospital.

Deputy Chief Minister Nitin Patel had to warn the two sides not to make it an issue of region as this may force the Centre to rethink on giving an AIIMS to Gujarat.

Setting up an AIIMS (All India Institutes of Medical Sciences) in the home state of Prime Minister Narendra Modi was announced by Finance Minister Arun Jaitley in the 2017-2018 budget.

On demand from Vadodara in central Gujarat and Rajkot in Saurashtra, the state government had identified potential sites near both cities and shown them to officials of the Union health department.

The question regarding the proposed AIIMS was raised by Congress MLA Shailesh Parmar during the Question Hour, who sought to know the progress of the project.

During a discussion on the issue, Congress MLA from Lathi Virji Thummar said the AIIMS should be set up in Rajkot as it will help the people of the entire Saurashtra region.

EMINENT SCIENTISTS SUPPORT MARCH FOR SCIENCE 2018

Over 200 eminent scientists from across India endorsed the call made by the All India Peoples Science Network (AIPSN) and other organisations to “March for Science” on April 14, in as many centres as possible.

The international “March for Science” call this year was issued to continue the movement started in 2017 in the wake of US President Donald Trump’s frontal attack on science, terming climate change a hoax and slashing funds for various environmental programmes and scientific agencies as well as cutting down funding for higher education and research in many other countries.

The AIPSN, in a statement, said in India, a similar pattern is visible too, but with several additional features specific to the country.

“Funding for science continues to remain abysmally low in India while all developed countries or those aspiring to reach

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that stage of development are, in keeping with requirements of the knowledge era, investing much higher proportions of GDP in science and technology research," it said.

In addition, there is a systematic attack on science and scientific attitudes, including those by influential leaders of the ruling dispensation in the form of questioning the theory of evolution, and positing bogus theories, fake history, unscientific claims of knowledge in ancient India, and advancing myths as historical fact, the organisation alleged.

INDO-US SCIENCE & TECHNOLOGY FORUM CELEBRATES 18TH FOUNDATION DAY;

The Indo-US Science and Technology Forum (IUSSTF) here today celebrated its 18th foundation day.

In his presidential address, Union Science and Technology minister Harsh Vardhan said the forum has contributed immensely in bringing both the countries closer.

"It has clearly demonstrated that cooperation in science and technology is driven by leveraging intellect, innovation and technological strength of both our countries that directly contributes to global knowledge economy of 21st century," he said.

The genesis of IUSSTF can be traced back to the year 2000.

The governments of India and the US had decided that it was time to create a more formal mechanism to take this long history of productive engagement to the next level.

This led to the formation of the bi-national Indo-US Science and Technology Forum.

"Such a pleasure to celebrate 18 years of #USIndiaScience & Technology cooperation at the Foundation Day event of the Indo-US Science & Technology Forum. I applaud India's innovation initiatives. Together, our #USIndia scientists & engineers can, and will, change the world. #STEM," Ken Juster, who was also present on the occasion, tweeted.

IUSSTF's mandate is to promote, catalyse and seed bilateral collaboration in science, technology, engineering and innovation through substantive interactions amongst government, academia and industry.

IIT-KGP PROGRAMME TO ENABLE PROFESSIONALS ENGAGE IN RESEARCH

The IIT Kharagpur announced a programme to enable professionals working in industry take up research work in their chosen fields, claiming it is the first in such programme in the country and possibly in Asia.

The programme will be open to professionals with doctoral degrees in the country and abroad, IIT KGP faculty in

change, Certificate of Excellence in Research, Sunando Dasgupta told a press meet here.

Each research project will be based on a proposal jointly prepared by the researcher concerned and a host faculty at the IIT-KGP and subsequently approved by the technical review committee of the institute.

"The non-residential certification can be availed even while the researcher continues with his professional commitments and can pursue research at the IIT-KGP on a distant mode," he said.

Facilities such as experimentation and computation labs and library will be made available to the researcher during his visit to the institute, Dasgupta said.

Dasgupta said from humanities to science, the programme will be open for research in all spheres and there will be no age limit.

One would have to spend Rs 6,000 for every semester of the research project and one can be involved in a project for a period of two to six years, he said.

'INDIA'S ANTIBIOTICS USAGE WITNESSED MAXIMUM RISE AMONG LMICS BETWEEN 2000- 2015'

India witnessed the highest increase in antibiotic consumption among Low and Middle Income Countries (LMICs) between 2000 and 2015, a study has said.

Following which, doctors and experts have warned that with the prolonged use of antibiotics, many patients have become anti-antibiotic that even the primary diseases have become difficult to treat and transforming into fatal diseases.

If such issues continue to progress, no antibiotics will be left even for the most simple infections by 2030, they said.

The new study in the Proceedings of the National Academy of Sciences (PNAS) said India, saw the highest increase - 103 per cent in antibiotic consumption followed by China and Pakistan between 2000 and 2015, reflecting on increasing access to antibiotics in both the public and private sectors and an increase in economic growth.

Antibiotic consumption was defined in Daily Defined Doses (DDD).

It said in 2015, the leading High Income Countries (HIC) consumers of antibiotics were the United States, France, and Italy, while the leading LMIC consumers were India, China, and Pakistan.

Whereas antibiotic consumption in the three leading HICs marginally increased, the highest-consuming LMICs saw large increases.

AIIMS NAMES LAB AFTER NURSE WHO DIED DUE TO NEGLIGENCE

For the first time, a laboratory at the All India Institute of Medical Sciences has been named after a nurse who died at the premier hospital due to alleged medical negligence.

The bronchoscopy laboratory was named after nurse Rajbir Kaur. The lab was opened in February, an AIIMS official said.

The AIIMS nursing union had written to the administration seeking that the laboratory be named after Kaur who worked in the bronchoscopy department.

Kaur was pregnant and was admitted to the hospital for a normal delivery on January 16.

As some complications developed, doctors decided to perform a cesarean section on Kaur. However, she lost her baby and was put on life support and eventually died.

AIIMS ordered a probe which revealed that no anaesthesiologist was present during the cesarean section and arrived late and the procedure was performed by a junior resident who didn't have enough training to deal with such cases.

According to a senior AIIMS official, Kaur was popular among colleagues and doctors and thus it was decided to name the laboratory after her.

Kaur's death had sparked off protests by the nursing union and led to suspension and termination of some doctors.

HRD MINISTRY TO SET UP INNOVATION CELL

The HRD ministry has decided to create an innovation cell headed by a scientist to brainstorm new ideas about promoting innovation in the country.

The decision was taken at a high-level meeting which deliberated upon the need for such a cell after India moved six ranks up the Global Innovation Index Ranking. The country stood at 66th position in 2016, whereas it ranked 60th in 2017, out of 127 countries.

"An innovation cell will be created by the Ministry of Human Resources Development (HRD) to further strengthen the spirit of innovation. It will be headed by a scientist and also include a senior official and young professionals who bring to the table new ideas in promoting innovation," Union HRD Minister Prakash Javadekar said after the meeting.

Under the Global Innovation Index 2017, India improved its standing in innovation inputs and efficiency.

According to HRD officials, the strongest points for the country happen to be a large number of science and engineering graduates, the increased investment by global research and development companies in India, the improved QS University

rankings and high rank in the highly cited research publication, global leadership in the IT service experts and leadership in export of creative goods.

NEWTON-BHABHA FUND FOR ARSENIC RESEARCH IN GANGA BASIN

An India-UK Joint Team has won the Newton-Bhabha Fund for a project on Groundwater Arsenic Research in Ganga River Basin, an IIT-KGP statement said.

The Department of Science and Technology has undertaken the project with the Natural Environment Research Council, UK, to find solutions to the water challenges faced in the pervasively arsenic-affected Ganga River Basin.

The Indian team comprises representatives of the IIT Kharagpur, the National Institute of Hydrology, the IIT Roorkee and the Mahavir Cancer Sansthan and Research Centre of Patna, the statement said. The UK team consists of representatives of the University of Manchester, the British Geological Survey, the University of Salford and the University of Birmingham.

The Newton Bhabha Fund, provided by the British Council, aims to bring together the UK and Indian scientific research and innovation sectors to find joint solutions to the challenges facing India in economic development and social welfare.

The team members involved with the project will try to assess how the problem of arsenic poisoning can get aggravated in the next 25 to 30 years and influence groundwater management practices and suggest water remedial technologies accordingly.

Prof Abhijit Mukherjee of IIT-KGPs Department of Geology and Geophysics and School of Environmental Science and Engineering is heading the project at IIT-KGP.

THINK OUT-OF-THE-BOX, VARDHAN ASKS SCIENTISTS:

Union Minister Harsh Vardhan today asked the scientists to "put a little more heart and soul into science" and think out-of-the-box to solve the problems the country was facing.

Addressing a gathering after releasing a book 'Indian Scientists - The saga of Inspired Minds' here, Vardhan said India's scientific accomplishments were not inferior to any other in the world.

The science and technology minister urged the "fraternity of scientists to put a little more heart and soul into science and think out-of-the-box to solve the unsolved problems facing the country," an official release said.

Vardhan also reiterated that the Environment and Science & Technology Ministries were working in close coordination so that "science benefits the cause of environment and environment in turn, benefits science".

POLLUTION HITS DANGEROUS LEVELS IN SRINAGAR DURING WINTERS: STUDY

In a surprising find, a study has revealed that pollution in Srinagar – the summer capital of Jammu and Kashmir – hits dangerous levels during winter months as the air carries five times more tiny particulate matter than the permissible limit, with the experts terming it a worrying development.

The study, jointly conducted by a team of scientists from Pune-based Indian Institute of Tropical Meteorology (IITM) and University of Kashmir, found that the air quality deteriorates significantly during the winters in the city, known as one of the world's major tourist destination and also for its pristine environment.

“Long term monitoring of fine particulate matter, PM2.5, responsible for deteriorating human health, has been done and the results indicate that air quality of the capital city Srinagar deteriorates significantly during the winter,” the study, conducted between May 2013 and April 2014 and the report of which was released recently, said.

It found that PM 2.5 levels in winter touched 348 micro-grams per cubic metre – five times higher than the national permissible limit of 60 micro-grams per cubic metre, mainly due to the use of coal for domestic purpose.

“The level of PM2.5 touches a peak value of 348 micro-grams per cubic metre against the Indian permissible limit of 60 micro-grams per cubic metre. The emissions due to domestic coal usage are found to be 1246.4 tons/year, which accounts for 84 per cent of the total annual emissions,” it said.

HEALTH EXPERTS, LEGAL FRATERNITY WELCOME EUTHANASIA VERDICT; CATHOLIC CHURCH CRITICISES

Health experts and the legal fraternity today welcomed the Supreme Court verdict upholding passive euthanasia as “long overdue” but it drew criticism from the catholic church which said the measure could be misused.

In its landmark judgement, the apex court permitted an individual to draft a living will, which is also called an advanced directive, specifying that they not be put on life support if they slip into an incurable coma in the future.

The verdict, which also put in place some strict guidelines, was also welcomed by human rights activist Pinki Virani, who had sought mercy killing for Aruna Shanbaug, a nurse who was in a vegetative state for 42 years after being brutally raped by a wardboy before she died in 2015. Shanbaug was the face of the debate on euthanasia in India.

The Indian Medical Association (IMA) said the judgement was long overdue and would pave the way in ensuring

that everybody is granted the “right to die with dignity”.

AIIMS’ assistant professor in the geriatrics department and founder president of Healthy Aging India, Dr Prasoon Chatterjee said recognising the concept of ‘living will’ would give an opportunity to the elderly to opt for ‘do not resuscitate (DNR)’, a concept already established in developed nations.

“It is a landmark decision in a resource-constraint country and would save a lot of salvageable patients by giving them opportunity to avail ventilatory support,” Dr Chatterjee, who is also joint editor of Indian Academy Geriatrics, said.

OVER 17,000 CORNEAL TRANSPLANTS DONE AT AIIMS TILL DATE: TITIYAL

Over 17,000 corneal transplant surgeries have been conducted at the AIIMS till date, out of which 1,285 were done last year, Chairman of the National Eye Bank Jeewan S Titiyal said today.

He was addressing a press conference at the Dr Rajendra Prasad Centre for Ophthalmic Sciences at the All India Institute of Medical Sciences here, to mark the foundation day of the centre.

The eye bank is situated in the over 50-year-old centre is housed in the AIIMS campus, and various programmes have been lined up to commemorate the occasion.

“We (AIIMS) have conducted 17,000-18,000 corneal transplant surgeries till date. Last year, we had corneas from 1,844 donors, out of which 1,285 were used for surgeries,” Titiyal said.

The senior doctor said about 27,000 corneas were collected altogether but not all are used for various reasons.

“After an eye is donated, only then we go for testing. And, if it found to be unhealthy or carrying infection, then we don’t use it,” he added.

The press conference was also addressed by the centre’s Chief and Professor of Ophthalmology Atul Kumar, and various other senior doctors of the centre.

“We first train our young doctors on goat’s eyes and then they perform simple surgeries in the presence of senior doctors before they graduate to a level of expertise,” Kumar said.

PM TO SCIENTISTS: EXTEND RESEARCH FROM LABS TO LAND

Prime Minister Narendra Modi today exhorted scientists to extend their research from “the labs to the land” for the greater benefit of the people and said time was ripe to redefine R&D as research for development of the nation.

Addressing the inaugural session of the 105th Indian Science Congress here, he said India has a rich tradition and a long history of both discovery and use of science and technology.

“It is time to reclaim our rightful place among the front-line nations in this field,” he said, calling upon the scientific community to extend its research from “the labs to the land”.

“The time is ripe to redefine R&D as Research for the Development of the nation. That is R&D in the real sense. Science is after all, a means to a far greater end – of making a difference in the lives of others, of furthering human progress and welfare,” he said.

Modi said the country has to be “future-ready” in implementing technology vital for the growth and prosperity of the nation.

“Technology will allow far greater penetration of services such as education, health care and banking to our citizens,” he said.

By 2020, the prime minister said, India should become a major player in developing technologies, devices, standards and manufacturing for 5-G broadband tele-communication networks.

“Together with Artificial Intelligence, Big Data Analytics, Machine Learning and cyber-physical systems, effective communication will be a major ingredient in our success in smart manufacturing, smart cities. Let us aim for India to be among the top 10 countries in the Global Innovation Index by 2030,” he added.

PAR PANEL PERTURBED OVER UNDERUTILISATION OF POLLUTION CONTROL FUND

A parliamentary panel has expressed its unhappiness over “unsatisfactory” utilisation of funds for pollution abatement by the environment ministry and asked it to “introspect” its performance and ensure optimal utilisation of funds and meeting of targets in future.

The panel noted that the “very grim” scenario of environmental pollution in the country has been affecting one and all.

The comments were made by the department related parliamentary standing committee on science and technology and environment and forest in its 313th report of Demands for Grants (2018-19) of the environment ministry.

“The committee is perturbed to observe the unsatisfactory trend of utilisation of funds for ‘Pollution Abatement’ during the last few years,” the committee, chaired by Congress leader Anand Sharma, said.

“As per the documents furnished by the Ministry, in 2016-17 too the BE (Budget Estimate) allocation of Rs 20.00 crore for this scheme was reduced to Rs.9.60 crore at RE (Revised Estimate) stage and the ministry could utilise only Rs.6.22 crore during the year,” it said.

The panel said the trend of reduction in allocation at RE stage and unsatisfactory utilisation of funds seems to reflect

that pollution abatement is “not among the priority areas” of the ministry.

PUNJAB MODEL TO CURE HEPATITIS C INFECTION

A decentralised care and the provision of free direct-acting antiviral agents (DAAs) can produce high rates of cure among people with hepatitis C virus (HCV) infection, according to a large-scale study conducted in India.

The research, presented today at The International Liver Congress in Paris, France, validated the efficacy and safety of generic all-oral DAA regimens delivered using a decentralised algorithm-based public health model.

“We have shown in our study that it is possible to cure more than 90 per cent of individuals with HCV infection in a highly dispersed population using well-trained teams in government medical colleges and district hospitals, and widely available DAAs,” said Professor Radha Krishan Dhiman from the Postgraduate Institute of Medical Education and Research in Chandigarh.

“We believe the Punjab Model could be applied to many different populations with the aim of eliminating HCV,” Dhiman said.

Hepatitis C virus (HCV) infection represents a major healthcare burden in India, with an estimated 12-18 million people infected.

THALASSEMIA IS PREVENTIVE, WE NEED MORE AWARENESS: JACKIE SHROFF

Bollywood star Jackie Shroff, who is the brand ambassador of Thalassemia India, feels there is a lack of awareness about the fact that the blood disorder is preventive.

The actor said when his wife Ayesha was pregnant with their daughter Krishna, his mother-in-law insisted that she get a thalassemia injection. They later found out that there was a chance she could have suffered from it.

“It is preventive and people can avoid it. I don’t know why we are not propagating this properly because it is preventive. Awareness might be generated but we need support from the health department to make sure machines are available to conduct the test and also there should be workshops,” Shroff said in an interview.

While the 61-year-old actor, believes cinema can be a great tool to promote awareness about thalassemia, what ultimately matters is the support of the health ministry.

“May be I’ll ask Aamir (Khan), the way he goes to villages for Paani Foundation, may be I’ll tell him, next time he goes to villages to take along doctors and propagate this as well,” the actor added.

UNDERTAKE STUDY ON ANIMALS' MOVEMENT: PAR PANEL ASKS ENV MIN:

A parliamentary panel has asked the environment ministry to undertake a study on movement of animals from their natural habitats to suitable alternate habitation which may lead to reducing the number of Man-animal conflicts.

Such conflicts are rising and remains an “area of concern”, parliamentary standing committee on science and technology and environment in its 313th report of demands for grants (2018-19) of the environment ministry said.

“The Committee is of the view that in spite of the steps initiated by the Ministry, the cases of man-animal conflict are rising and it still remains an area of concern.

“The Committee recommends that in addition to the steps initiated, the Ministry should undertake a scientific study on the possible movement of monkeys, elephants, tigers etc. from their natural habitat to suitable alternate habitation which may lead to reducing the number of human-animal conflicts,” the committee headed by Congress leader Anand Sharma said.

Man-animal conflict occurs when growing human population overlaps with established wildlife territory, creating reduction of resources or life to some people and or wild animals.

During the meeting of the Committee held on February 12, the panel drew attention of the Ministry to the rising cases of man-animal conflict, the report said.

The Committee cited instances of tigers spilling out of the national parks, walking into the agricultural fields, coming into conflict with people etc. It also pointed out that Nilgai, blue boars and wild boars were damaging farmer's crops too.

SCIENTISTS DISCOVER ANTIBIOTIC-PRODUCING BACTERIUM

A novel species of a bacterium that produces antibiotic has been discovered by a professor in the University of Hyderabad (UoH) and his researchers, the university said.

“Found in the Buffalo Lake on the UoH campus, the newly discovered bacterium, *Planctopirus hydrillae*, may provide a solution to the problem of diseases becoming resistant to a majority of known drugs,” UoH said in a release.

The new bacteria would also clean up ammonia waste, a growing environmental concern, it said.

The bacterium was discovered by Venkata Ramana, Professor and Head, Department of Plant Sciences, School of Life Sciences, UoH and his researchers, it said.

Scientists have been striving hard to find drugs to overcome the challenge of antimicrobial resistance in the wake of disease-causing germs failing to respond to even the most potent antibiotics, it said.

“In this scenario, the discovery of antibiotic-producing Planctomycete may help in the development of a new drug. The bacterium was isolated from aquatic plant *Hydrilla*,” the release said.

The discovery was published in the latest issue of the scientific publication, *Journal of Antibiotics*, it said.

“The new species reported by the researchers is a very uncommon bacterium belonging to the phylum Planctomycetes and was isolated from the university campus,” Ramana said.

PROGRAMME TO PROVIDE FREE HEPATITIS B DRUGS BEING DEVELOPED: NADDA

Union Health Minister J P Nadda said that a programme would be developed soon to provide free drugs for Hepatitis B.

The minister announced this at the 27th Annual Conference of the Asian-Pacific Association for the Study of the Liver (APASL).

The five-day event, which began on March 14, was organised by the Asia Pacific Association for Study of Liver and the Institute of Liver and Biliary Sciences (ILBS).

The minister spoke about the implementation of the Hepatitis C programme, and said availability of free drugs against the disease has been finalised and would be launched very soon across the country, according to a ILBS statement.

“A full programme on Hepatitis B will be soon developed with availability of free drugs against this deadly virus,” he said.

The minister also announced free vaccination against Hepatitis B for all health care workers across India.

Nadda also said liver diseases should be given greater significance and will be included in the non-communicable diseases programme in the near future.

One of the major highlights of the conference included treatment options for liver cancer, the second commonest cause of cancer deaths worldwide.

It is also one of the fastest growing cancers and the only viable treatment is liver transplantation, the statement said.

NEW BLOOD TEST CAN DIAGNOSE TB 2 YEARS IN ADVANCE

Scientists have found a new blood test that can accurately predict the development of tuberculosis (TB) up to two years before its onset in high-risk patients.

Those living with someone with active TB are at highest risk for developing the disease, yet only about 5-20 per cent of people infected with tuberculosis actually develop TB, according to a study published in the American Journal of Respiratory and Critical Care Medicine.

The researchers developed and validated a blood test that measures the expression levels of four genes that can more accurately predict the development of TB in high-risk patients.

“We found that this prediction (up to two years before the onset of the disease) is possible through measurements of a combination of a four-gene signature in the blood,” said Gerhard Walzl from Stellenbosch University in South Africa.

This signature, known as ‘RISK4,’ is a combination of four genes associated with inflammatory responses.

“The individual components of this signature may not be sufficient to deliver an accurate diagnosis of prediction, but a combination of these markers improves its accuracy,” said Walzl.

Focusing on people who lived with someone with active TB, the researchers enrolled 4,466 HIV-negative participants and took their blood samples.

DAIRY PRODUCTS MAY BE BENEFICIAL FOR BONES: STUDY

Higher intake of dairy products, including milk, yogurt and cheese, may improve bone mineral density and strengthen the spine, according to scientists, including one of Indian origin.

Dairy intake seems to be most beneficial for men over age 50, and continues to have positive associations irrespective of serum vitamin D status, the researchers said.

It is linked with higher volumetric bone mineral density and vertebral strength at the spine in men, they said.

“This study related dairy intake with quantitative computed tomography (QCT) - derived bone measures, which are unique because they provide information on bone geometry and compartment-specific bone density that are key determinants of bone strength,” said Shivani Sahni from Institute for Ageing Research in the US.

For the study, published in the Journal of Bone and Mineral Density, the researchers examined 1,522 men and 1,104 women aged 32-81 years.

Smartphone app may help women reduce period pain

Berlin, Apr 5 (PTI) A smartphone app can help women effectively reduce and cope with menstrual pain and cramps using self-acupressure, a study has found.

About 50 to 90 per cent of young women experience pain during their periods.

While this pain primarily manifests itself as lower abdominal cramping, other symptoms include headache, backache, nausea and diarrhea.

Acupressure is a technique derived from traditional Chinese medicine (TCM). In contrast to acupuncture, this technique can be used as a form of self-care and is suitable for use at home.

Rather than using needles, this technique involves massage or pressure being applied to specific points on the body.

Researchers from Charite - Universitätsmedizin Berlin in Germany wanted to evaluate whether in a group of women suffering from severe menstrual pain, aged between 18 and 34, self-acupressure would be more effective at achieving a sustained reduction in menstrual pain than usual care alone (eg pain medication and hormonal contraceptives).

NEW TECH TO MAKE SATELLITE LAUNCHES MORE ACCESSIBLE

A US startup is seeking to open up access to space for micro-satellite companies by modernising a launch technique first used in the 1950s.

Leo Aerospace LLC, a company affiliated to Purdue University in the US, plans to use “rockoons” or high-altitude balloons, that launch rockets into suborbital and orbital flights.

Suborbital launches are frequently used by researchers who need access to zero gravity or vacuums for experiment, while orbital flights are used by satellites.

The company will revolutionise the space industry by giving priority service to micro-satellite developers that now are secondary payloads for large rocket companies, officials at Leo Aerospace said in a statement.

Currently, developers have to wait to see if there is room left on large rockets carrying government payloads and often have to wait six months or more to find space on a rocket, a delay that can be quite costly.

TAXES ON ALCOHOL, TOBACCO WOULD BENEFIT THE POOR

Levying taxes on tobacco, alcohol, soft drinks and snacks will benefit poorer households the most, a Lancet study has found.

According to the researchers, taxes are a powerful response to rising rates of chronic diseases and an inescapable

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solution to tackling non-communicable diseases (NCDs).

While changing the price of unhealthy products alters consumption across the board, the impact differs due to socioeconomic status, they said.

The greatest health benefits from tax rises can be seen for people on a low income as they respond the most to price changes, and suffer disproportionately from chronic diseases.

The study published in *The Lancet* journal shows that whilst wealthier households may face a bigger overall increase in expenditure when prices change, the burden is greater on lower income households because it represents a greater share of their overall spending.

“No amount of money, however small, is trivial for low income households, especially in low income countries,” said Franco Sassi, professor at Imperial College Business School in the UK.

OVER 100 TINY PLASTIC BITS PRESENT IN EVERY MEAL: STUDY

We could be swallowing over 100 tiny plastic particles with every meal, according to a study which found that polymers from soft furnishings and synthetic fabrics get into household dust and settle on our plates.

Researchers from Heriot-Watt University in the UK made the discovery after putting Petri dishes containing sticky dust traps on the table next to dinner plates in three homes at meal times.

Up to 14 pieces of plastic were found in the Petri dishes at the end of a 20-minute meal - the equivalent of 114 plastic fibres falling on the average dinner plate given their much larger size.

The scientists, from Heriot-Watt University concluded that the average person swallows up to 68,415 potentially dangerous plastic fibres a year simply through sitting down to eat.

The researchers set out to compare plastic fibres found in mussels with the amount in the average household meal.

They found fewer than two microplastics in each mussel, which could be linked to the marine environment, and concluded that the average person can expect to consume 100 plastic particles a year through eating the shellfish.

However, they will ingest anything from 13,731 to 68,415 fibres in a year during meals because of household dust.

DINOSAURS WERE DYING OFF LONG BEFORE ASTEROID HIT: STUDY

Dinosaurs were in trouble long before the massive asteroid - believed to be the primary cause of their extinction - hit the Earth some 65 million years ago, a study suggests.

Researchers from the University at Albany in the US found that the emergence of toxic plants combined with dinosaurs' inability to associate the taste of certain dangerous foods had them already drastically decreasing in population.

“Learned taste aversion” is an evolutionary defence seen in many species, in which the animal learns to associate the consumption of a plant or other food with negative consequences, such as feeling ill, researchers said.

“A reason why most attempts to eliminate rats have not been successful is because they, like many other species, have evolved to cope with plant toxicity,” said Gordon Gallup, a professor at University at Albany.

YOUNG METAL FANS AT INCREASED RISK OF SUICIDE, SELF-HARM

Young people belonging to alternative subcultures - such as fans of heavy metal music and goths - are at a greater risk of self-harm and suicide, researchers have found.

Experts conducted a review of 12 English language papers published in the *British Journal of Clinical Psychology*.

The findings reflect the growing concerns over the risks of young people. Suicide is a leading cause of death in adolescents and the second leading cause of death in 15-29 year olds according to a 2017 report by the WHO.

“The belief that alternative subcultures may be at an increased risk of self-harm and suicide is considered by some to be a myth,” said Peter Taylor, a clinical psychologist from The University of Manchester.

“But the literature we reviewed does suggest that these individuals are indeed in greater danger,” Taylor said.

“However, this research requires interpretation within the wider context of public concern around alternative subcultures and their impact on the mental health of young people,” Taylor said.

SHRIMP-INSPIRED CAMERA MAY ALLOW UNDERWATER NAVIGATION

Scientists have developed a bio-inspired camera that mimics the eyes of a mantis shrimp, an advance that may open up new ways for people and robots to better navigate underwater.

The findings, published in the journal *Science Advances*, are the first to demonstrate passive underwater global positioning (GPS) using the polarisation properties of underwater light.

The technology developed by researchers at the University of Illinois in the US could open new possibilities for undersea navigation and understanding of the migratory behaviour of marine animals.

The camera, a variation of a polarisation imager named Mantis Cam after the shrimp that inspired it, takes advantage of

how light refracts, or bends, when it passes through the surface of water and bounces from particles and water molecules.

HUBBLE PRECISELY MEASURES DISTANCE TO ANCIENT STAR CLUSTER

Scientists using NASA's Hubble Space Telescope have for the first time precisely measured the distance to one of the oldest objects in the universe, a 13.4 billion-year-old cluster of stars born shortly after the Big Bang.

The refined distance yardstick provides an independent estimate for the age of the universe. It will also help astronomers improve models of stellar evolution.

Star clusters are the key ingredient in stellar models because the stars in each grouping are at the same distance, have the same age, and have the same chemical composition. They therefore constitute a single stellar population to study.

This stellar assembly, a globular star cluster called NGC 6397, is one of the closest such clusters to Earth. The new measurement sets the cluster's distance at 7,800 light-years away, with just a three per cent margin of error.

Until now, astronomers have estimated the distances to our galaxy's globular clusters by comparing the luminosities and colours of stars to theoretical models, and to the luminosities and colours of similar stars in the solar neighbourhood.

However, the accuracy of these estimates varies, with uncertainties hovering between 10 per cent and 20 per cent.

The new measurement uses straightforward trigonometry, the same method used by surveyors, and as old as ancient Greek science.

HEART OF MILKY WAY MAY HOST THOUSANDS OF BLACK HOLES: STUDY

There may be tens of thousands of blackholes at the centre of the Milky Way Galaxy, say scientists who have discovered a dozen of them, lending support to a decades-old prediction.

For over twenty years, researchers have searched unsuccessfully for evidence to support a theory that thousands of black holes surround supermassive black holes (SMBHs) at the centre of large galaxies.

Researchers have now discovered a dozen black holes gathered around Sagittarius A* (Sgr A*), the supermassive black hole in the centre of the Milky Way Galaxy.

From their observations, they conclude that there must be at least 10,000 isolated black holes in the area surrounding Sgr A*.

PROTEINS FROM NUTS, SEEDS GOOD FOR HEART HEALTH

Protein from nuts and seeds is beneficial for the heart, but consuming large amounts of meat protein can cause a sharp increase in the risk of cardiovascular diseases, a study has found.

Researchers from Loma Linda University in the US and Institut National de la Recherche Agronomique in France studied data from more than 81,000 participants.

The study, published in the International Journal of Epidemiology, found that people who consumed large amounts of meat protein experienced a 60 per cent increase in cardiovascular disease, while people who consumed large amounts of protein from nuts and seeds experienced a 40-percent reduction in cardiovascular disease.

3D MAP OF UNIVERSE HELPS FIND 4,000 EARLY GALAXIES

Astronomers have created one of the largest 3D maps of the infant universe, and discovered about 4,000 early galaxies, many of which may have evolved like the Milky Way.

Researchers led by David Sobral from Lancaster University in the UK made the chart using the Subaru telescope in Hawaii and the Isaac Newton telescope in the Canary Islands.

They looked back in time to 16 different epochs (period of time in history) between 11 and 13 billion years ago.

"These early galaxies seem to have gone through many more "bursts" when they formed stars, instead of forming them at a relatively steady rate like our own galaxy," said Sergio Santos, a PhD student at Lancaster.

"Additionally, they seem to have a population of young stars that is hotter, bluer and more metal-poor than those we see today," said Santos

ARTIFICIAL INTELLIGENCE MAY HELP PREDICT ALIEN LIFE: STUDY

Developments in artificial intelligence (AI) may help us to predict the probability of life on other planets, according to a study.

Researchers at Plymouth University in the UK used artificial neural networks (ANNs) to classify planets into five types, estimating a probability of life in each case, which could be used in future interstellar exploration missions.

ANNs are systems that attempt to replicate the way the human brain learns.

They are one of the main tools used in machine learning, and are particularly good at identifying patterns that are too complex for a biological brain to process.

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The team has trained the network to classify planets into five different types, based on whether they are most like the present-day Earth, the early Earth, Mars, Venus or Saturn's moon Titan.

RARE DINOSAUR FOOTPRINTS FOUND ON SCOTTISH ISLAND

Dozens of giant dinosaur footprints dating back 170 million years have been discovered on a Scottish island, which may shed light on an important period of dinosaur evolution, scientists said today.

The tracks were made in a muddy, shallow lagoon in what is now the north-east coast of the Isle of Skye in Scotland, according to researchers at the University of Edinburgh.

Most of the prints were made by long-necked sauropods - which stood up to two metres tall - and by similarly sized theropods, which were the older cousins of Tyrannosaurus rex.

"This tracksite is the second discovery of sauropod footprints on Skye," said Paige dePolo from the University of Edinburgh.

'INJECTABLE BANDAGE' CAN HEAL INTERNAL INJURIES

Scientists, including one of Indian-origin, have developed an 'injectable bandage' - a therapeutic gel that can heal potentially fatal internal injuries.

A penetrating injury from shrapnel is a serious obstacle in overcoming battlefield wounds that can ultimately lead to death.

Given the high mortality rates due to hemorrhaging, there is an unmet need to quickly self-administer materials that prevent fatality due to excessive blood loss.

With a gelling agent commonly used in preparing pastries, researchers from the Texas A&M University in the US have successfully fabricated an injectable bandage to stop bleeding and promote wound healing.

Researchers used kappa-carrageenan and nanosilicates to form injectable hydrogels to promote hemostasis (the process to stop bleeding) and facilitate wound healing via a controlled release of therapeutics.

"Injectable hydrogels are promising materials for achieving hemostasis in case of internal injuries and bleeding, as these biomaterials can be introduced into a wound site using minimally invasive approaches," said Akhilesh K Gaharwar, assistant professor at Texas A&M University.

STUBBLE BURNING DOUBLES DELHI POLLUTION: HARVARD STUDY

Agricultural fires are to blame for about half of the pollution experienced in Delhi in October and November, a peak stubble burning season in Punjab, a Harvard study has found using satellite data from NASA.

Many farmers in northwest India typically burn abundant crop residue on the fields after harvest season, to prepare their fields for subsequent planting.

To what extent the large quantity of smoke emitted by these fires contributes to the already severe pollution in New Delhi has remained a key question.

For the past few years, every autumn New Delhi - already plagued with thick pollution - gets engulfed choking smoke likened by many to a gas chamber.

While crop burning has been illegal for years, there has not been a large enough deterrent to effectively crack down on the practice, in part because it's been difficult to measure exactly how much smoke from the fires is making it downwind to the city.

Researchers from the Harvard University and NASA have now shown that in October and November, a peak burning season in Punjab, about half of all pollution in Delhi can be attributed to agricultural fires on some days

HUBBLE SPOTS FARTHEST STAR EVER SEEN: NASA

NASA's Hubble Space Telescope has discovered the farthest individual star ever seen - an enormous blue stellar body nicknamed Icarus located over halfway across the universe.

The star, harboured in a very distant spiral galaxy, is so far away that its light has taken nine billion years to reach Earth. It appears to us as it did when the universe was about 30 per cent of its current age.

Normally, the star would be too faint to view, even with the world's largest telescopes.

However, through a phenomenon called gravitational lensing that tremendously amplifies the star's feeble glow, astronomers were able to pinpoint this faraway star and set a new distance record.

INDIA AT RISK OF FOOD SHORTAGE DUE TO CLIMATE CHANGE: STUDY

India is among the countries which are at the greatest risk of food insecurity due to weather extremes caused by climate change, a global study suggests.

Researchers led by the University of Exeter in the UK examined how climate change could affect the vulnerability of different countries to food insecurity - when people lack access to a sufficient quantity of affordable, nutritious food.

The study, published in the journal *Philosophical Transactions of the Royal Society A*, looked at 122 developing and least-developed countries, mostly in Asia, Africa and South America.

NEW CANCER DRUG FOR CHILDREN SAFE, EFFECTIVE: STUDY

A first-of-its-kind drug targeting a fused gene found in many types of cancer has been found to be effective in 93 per cent of paediatric patients tested, scientists say.

Most cancer drugs are targeted to specific organs or locations in the body.

Larotrectinib is the first cancer drug to receive US Food and Drug Administration (FDA) breakthrough therapy designation for patients with a specific fusion of two genes in the cancer cell, no matter what cancer type.

“In some cancers, a part of the TRK gene has become attached to another gene, which is called a fusion,” said Ted Laetsch, an assistant professor at The University of Texas Southwestern Medical Center in the US.

“When this occurs, it leads to the TRK gene being turned on when it’s not supposed to be and that causes the cells to grow uncontrollably.

NEW DEVICE MAY GIVE HUMANS ‘CAT-LIKE HEARING’

Scientists are developing an atomically thin device that could receive and transmit signals across a radio frequency range far greater than what humans can hear.

The “drumhead” device being developed by researchers at Case Western Reserve University in the US is trillion times smaller in volume and 100,000 times thinner than the human eardrum.

The advance may lead to the next generation of ultra-low-power communications and sensory devices smaller and with greater detection and tuning ranges, researchers said.

Dynamic range is the ratio between the signal ceiling over the noise floor and is usually measured in decibels (dB).

Human eardrums normally have dynamic range of about 60 to 100dB in the range of 10Hz to 10kHz, and our hearing quickly decreases outside this frequency range

CLIMATE CHANGE COULD RAISE FOOD SHORTAGE GLOBALLY: STUDY

Weather extremes caused by climate change could raise the risk of food shortage globally, a study that looked at data from 122 countries suggests.

Researchers led by the University of Exeter in the UK examined how climate change could affect the vulnerability of different countries to food insecurity - when people lack access to a sufficient quantity of affordable, nutritious food.

The study, published in the journal *Philosophical Transactions of the Royal Society A*, looked at 122 developing and least-developed countries, mostly in Asia, Africa and South America.

“Climate change is expected to lead to more extremes of both heavy rainfall and drought, with different effects in different parts of the world,” said Richard Betts, a professor at the University of Exeter.

3D-PRINTED GLASS OPTICS SUCCESSFULLY DEVELOPED

In a first, scientists have successfully 3D-printed optical-quality glasses at par with commercial products currently available on the market.

In a study published in the journal *Advanced Materials Technologies*, scientists from Lawrence Livermore National Laboratory (LLNL) in the US described successfully printing small test pieces from lab-developed ink.

Since the refractive index of glass is sensitive to its thermal history, it can be difficult to ensure that glass printed from the molten phase will result in the desired optical performance, researchers said.

Depositing the LLNL-developed material in paste form and then heating the entire print to form the glass allows for a uniform refractive index, eliminating optical distortion that would degrade the optic’s function

MUSK’S IMPROVED ROCKET DESIGN COULD PROPEL HUMANITY TO MARS

SpaceX CEO Elon Musk has updated the design for a powerful rocket intended to propel a space vehicle that may help establish human presence on Mars.

The updated design for the Big Falcon Rocket (BFR) was described in an article published in the journal *New Space*.

Musk not only provides details on the BFR’s updated design but, importantly, presents a plan for how to pay for it.

He described the development of a huge carbon fibre tank that is capable of holding the cryogenic liquid oxygen needed

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to fuel the rocket, and the key to the SpaceX business case, how on orbit refuelling will take place.

FREEZING HUNGER-SIGNALLING NERVE MAY HELP PATIENTS LOSE WEIGHT: STUDY

Freezing the nerve that carries hunger signals to the brain may help patients with mild-to-moderate obesity lose weight, a study has found.

“We developed this treatment for patients with mild-to-moderate obesity to reduce the attrition that is common with weight-loss efforts,” said David Prologo from Emory University School of Medicine in the US.

During the procedure, researchers inserted a needle through the patient’s back and, guided by live images from a CT scan, used argon gas to freeze the nerve, known as the posterior vagal trunk.

This nerve, located at the base of the esophagus, is one of several mechanisms that tells the brain that the stomach is empty.

In the study, 10 subjects with a Body Mass Index (BMI) between 30 and 37 underwent the procedure and were followed for 90 days.

GUT MICROBES COULD PREDICT RISK OF HOSPITALISATION FOR PATIENTS WITH CIRRHOSIS

The gut microbiome - a collection of bacteria and other microbes in the gut - could be a highly accurate predictor of hospitalisations for patients with cirrhosis, according to scientists, including one of Indian origin.

The research, published in the journal JCI Insight, determined that analysis of microbial DNA and microbial RNA could be used alongside current clinical methods to more accurately predict 90-day hospitalisations.

Microbial DNA analysis identifies live and dead bacterial species, while microbial RNA analysis identifies the most metabolically active microbial species.

“The hospitalisations that take place with cirrhosis are exorbitantly expensive. Anything that helps us predict the likelihood of hospitalisation is better than the status quo,” said Jasmohan Bajaj from Virginia Commonwealth University.

OBESITY INCREASES RISK OF CANCER IN YOUNG ADULTS

Scientists have found that obesity increases risk of 13 different cancers in young adults.

The meta-analysis describes how obesity has shifted certain cancers to younger age groups, and intensified cellular

mechanisms promoting the diseases.

Cancer typically associated with older adults over 50 are now reported with increasing frequency in young adults, said the researchers at Case Western Reserve University in the US.

In 2016, nearly one in 10 new breast cancer cases, and one in four new thyroid cancer cases were in young people aged 20-44, according to the study published in the journal Obesity.

The new research integrates animal studies, clinical trials, and public health data to help explain rising cancer rates among young adults.

It describes how the childhood obesity “pandemic” promotes cancer. It also offers approaches to better track - and hopefully avert - this public health crisis.

Young people with body mass indexes (BMIs) over 30 are more likely to experience aggressive malignancies, said Nathan A Berger from Case Western Reserve University.

LADY GAGA ANNOUNCES MENTAL HEALTH AWARENESS FUNDRAISER

Pop diva Lady Gaga announced a mental health awareness fundraiser on the occasion of her 32nd birthday.

The “Joanne” singer, who celebrated her birthday on Wednesday, took to Facebook to share details of a charity fundraiser to help raise money for her NGO, the Born This Way Foundation, which aims to promote “mental wellness”.

“For my 32nd birthday, I’m asking for your help in creating a kinder and braver world. Born This Way Foundation works with young people to build a future that they deserve and we know is possible!

“Join us in promoting mental wellness and spreading love, kindness, and bravery. Help us achieve our goal raised in honor of BTWF’s sixth anniversary. (sic)” Gaga wrote.

The Grammy winner also shared the link of the NGO’s page. Around USD 32,527 have been raised by 1,287 people in two days. The goal set Gaga was USD 32,000.

SCIENTISTS DISCOVER PROMISING OFF-SWITCH FOR INFLAMMATION

Scientists have discovered a new metabolic process in the body that can switch off inflammation.

They found that ‘itaconate’ - a molecule derived from glucose - acts as a powerful off-switch for macrophages, which are the cells in the immune system that lie at the heart of many inflammatory diseases.

“It is well known that macrophages cause inflammation, but we have just found that they can be coaxed to make a biochemical called itaconate,” said Luke O’Neill from Trinity College, Dublin in Ireland.

“This functions as an important brake, or off-switch, on the macrophage, cooling the heat of inflammation in a process never before described,” O’Neill said.

OPIOID USE PREVALENT AMONG EDM PARTYGOERS: STUDY

Electronic dance music (EDM) party attendees are misusing opioids like heroin, a US study has found.

Opioid use has grown to epidemic proportions in the US and has been a main contributor to a resurgence of heroin use, as well as the spread of HIV and Hepatitis C, researchers said.

In 2016, about 11.5 million Americans had misused prescription opioids, with 1.8 million meeting criteria for dependence or abuse, according to the study.

“We’ve always known that electronic dance music party attendees are at high risk for use of club drugs such as ecstasy or Molly, but we wanted to know the extent of opioid use in this population,” said Joseph Palamar from New York University.

‘WHY IRON WORSENS MALARIA INFECTION FOUND’

Scientists have found a possible explanation for why iron can sometimes worsen malaria infection, an advance that may lead to better treatments for the disease.

By studying mice and samples from malaria patients, researchers found that extra iron interferes with ferroportin, a protein that prevents a toxic buildup of iron in red blood cells and helps protect these cells against malaria infection.

The researchers at the National Institutes of Health (NIH) in the US also found that a mutant form of ferroportin that occurs in African populations appears to protect against malaria.

The findings, published in the journal *Science*, may help researchers and healthcare officials develop strategies to prevent and treat malaria infections, which numbered nearly 216 million worldwide in 2016.

KIDS WITH AUTISM, ADHD AT HIGHER ANXIETY RISK: STUDY

Children with both autism spectrum disorder (ASD) and attention-deficit/hyperactivity disorder (ADHD) may be at an increased risk of developing anxiety and mood disorders, a study has found.

Researchers at Kennedy Krieger Institute in the US examined the data of a cross-sectional, network-based survey of children aged between 6 and 17 years with ASD.

Of the 3,319 children in the study, 1,503 had ADHD. The data was analysed for parent-reported diagnosis and/or treatment of ADHD, anxiety disorder, and mood disorders.

The children with ASD and ADHD had more than twice the risk of anxiety disorder, according to the results published in the journal *Pediatrics*.

NEW HUMAN ‘ORGAN’ THAT PROTECTS VITAL TISSUES IDENTIFIED

Scientists have identified a new human ‘organ’ consisting of a network of fluid-filled compartments that act like shock absorbers and protects tissues of vital organs from tearing.

The findings, published in the journal *Scientific Reports*, has implications for the function of all organs, most tissues and the mechanisms of most major diseases.

Researchers from the New York University in the US showed that layers of the body long thought to be dense, connective tissues - below the skin’s surface, lining the digestive tract, lungs and urinary systems, and surrounding arteries, veins, and the fascia between muscles - are instead interconnected, fluid-filled compartments.

This series of spaces, supported by a meshwork of strong (collagen) and flexible (elastin) connective tissue proteins, may act like shock absorbers that keep tissues from tearing as organs, muscles, and vessels squeeze, pump, and pulse as part of daily function.

NASA’S NEW PLANET HUNTING PROBE SET TO SEARCH FOR ALIEN LIFE

NASA’s Transiting Exoplanet Survey Satellite (TESS), which will hunt for planets that have the potential to harbour alien life, is set to launch on April 16 from the US.

The satellite is undergoing final preparations in Florida, US. For final launch preparations, the spacecraft will be fuelled and encapsulated within the payload fairing of its SpaceX Falcon 9 rocket.

“We expect TESS will discover a number of planets whose atmospheric compositions, which hold potential clues to the presence of life, could be precisely measured by future observers,” said George Ricker, TESS principal investigator.

On March 15, the spacecraft passed a review that confirmed it was ready for launch.

TESS will launch from Space Launch Complex 40 at Cape Canaveral Air Force Station in Florida.

With the help of a gravitational assist from the Moon, the spacecraft will settle into a 13.7-day orbit around Earth. Sixty days after launch, and following tests of its instruments, the satellite will begin its initial two-year mission

PAPER-THIN, FLEXIBLE LCD SCREENS DEVELOPED

Scientists from China and Hong Kong have designed a paper-thin LCD screen that is light and flexible, paving the way for smart daily newspapers that could be uploaded onto the display in real time.

Researchers from Donghua University in Shanghai and Hong Kong University of Science and Technology estimate that the technology would be cheap to produce, costing about USD 5 for a 5-inch screen.

The team focused on two key innovations for achieving highly flexible designs. The first is the recent development of optically rewritable LCDs.

Like conventional LCD displays, the display is structured like a sandwich, with a liquid crystal filling between two plates.

Unlike conventional liquid crystals where electrical

GENE TRIGGER TO HELP BRAIN HEAL FROM STROKE IDENTIFIED

Scientists have found a genetic trigger that may help the brain to heal from a range of debilitating conditions, such as strokes, concussions and spinal cord injuries.

Researchers from University of Texas Southwestern Medical Center in the US showed that turning on a gene inside cells called astrocytes results in a smaller scar and potentially more effective recovery from injury.

The research examined spinal injuries in mice but likely has implications for treating a number of brain conditions through gene therapy targeting astrocytes, said Mark Goldberg, from UT Southwestern.

“We’ve known that astrocytes can help the brain and spinal cord recover from injury, but we didn’t fully understand the trigger that activates these cells,” Goldberg said.

NOVEL BRAIN IMPLANTS MAY HELP BOOST MEMORY

Scientists have developed and successfully implanted brain prosthetics that can improve a person’s short term memory, an advance that may help manage neurodegenerative diseases such as Alzheimer’s.

Researchers at Wake Forest Baptist Medical Center and the University of Southern California (USC) in the US showed that the prosthetic system uses a person’s own memory patterns to facilitate the brain’s ability to encode and recall memory.

In the study published in the Journal of Neural Engineering, participants’ short-term memory performance showed a 35 to 37 per cent improvement over baseline measurements.

‘KEPLER SOLVES MYSTERY OF FAST AND FURIOUS EXPLOSIONS’

NASA’s planet-hunting Kepler Space Telescope has helped scientists to solve the mystery of the fast and furious explosions that have bewildered astronomers for a decade.

The universe is full of mysterious exploding phenomena that go boom in the dark.

One particular type of ephemeral event is called a Fast-Evolving Luminous Transient (FELT), which has a very brief duration.

Now, scientists have used Kepler to catch FELTs in the act and determine their nature.

CELL PHONE-BASED TECH TO ALLOW AT-HOME BLOOD TESTING

Scientists have developed a new cell phone-based blood testing technology that can provide immediate results in the comfort of one’s home or a doctor’s clinic.

Researchers at the University of South Florida in the US created a mobile version of the “Enzyme Linked Immunosorbent Assay” (ELISA), the gold standard technique used to detect the presence of an antibody or antigen.

Instead of sending patients to a laboratory, new cell phone-based technology allows for the very same test to be conducted in the doctor’s office, clinic or even in a remote area.

“ELISA is an important technology for biochemical analysis of proteins and hormones and is critical for the diagnosis of many diseases, such as HIV and Lyme Disease,” said Anna Pyayt, assistant professor at the University of South Florida.

‘AI TO HELP UNRAVEL MYSTERY OF HUMAN BRAIN’

Scientists are using emerging artificial intelligence (AI) networks to enhance their understanding of one of the most elusive intelligence systems: the human brain.

The researchers are learning much about the role of contextual clues in human image recognition.

By using “artificial neurons” - essentially lines of code, software - with neural network models, they can parse out the various elements that go into recognising a specific place or object.

“The fundamental questions cognitive neuroscientists and computer scientists seek to answer are similar,” said Aude

Oliva from the Massachusetts Institute of Technology (MIT) in the US.

“They have a complex system made of components - for one, it is called neurons and for the other, it is called units - and we are doing experiments to try to determine what those components calculate,” said Oliva, who presented the research at the annual meeting of the Cognitive Neuroscience Society (CNS).

In one study of over 10 million images, Oliva and colleagues taught an artificial network to recognise 350 different places, such as a kitchen, bedroom, park, living room, etc.

They expected the network to learn objects such as a bed associated with a bedroom.

ARCTIC SEA ICE EXTENT AMONG LOWEST ON RECORD: NASA

The Arctic sea-ice cover peaked at 14.48 million square kilometres this year, making it the second-lowest maximum on record, according to scientists at NASA.

Sea ice in the Arctic grew to its annual maximum extent on March 17, at about 60,000 square kilometres larger than the record low maximum reached on March 7, 2017.

“The Arctic sea ice cover continues to be in a decreasing trend and this is connected to the ongoing warming of the Arctic,” said Claire Parkinson, a senior climate scientist at NASA’s Goddard Space Flight Center in the US.

‘NOVEL DEVICE CAN HARVEST WATER FROM DESERT AIR’

Scientists, including one of Indian-origin, have developed a new device that can harvest drinkable water right out of the driest of desert air.

Even in the most arid places on Earth, there is some moisture in the air, and a practical way to extract that moisture could be a key to survival in such bone-dry locations.

Researchers, including Sameer Rao from Massachusetts Institute of Technology (MIT) in the US, have now proved that such an extraction system can work.

The device has been field-tested in the very dry air of Tempe, Arizona, confirming the potential of the new method, the researchers said.

FOOD SUPPLEMENTS MAY HELP TREAT PSYCHOSIS: STUDY

Some nutrients found in food may help reduce the symptoms of psychotic illness such as schizophrenia, when used in the early stages of treatment, a study claims.

Researchers, including those from the University of Manchester in the UK, examined if nutrient supplementation

could provide effective ‘add on’ treatment for young people with psychosis.

The team brought together data from eight independent clinical trials of nutrient supplementation in 457 young people in the early stages of psychotic illness, such as schizophrenia.

Researchers found that certain nutrient supplements, used alongside standard treatment, may improve mental health in young people with psychosis more than standard treatment alone.

HEARING PROBLEMS MAY UP INJURY RISK: STUDY

People who face hearing problems are at an increased risk of accidental injuries, researchers, including one of Indian origin, have found.

The team at Brigham and Women’s Hospital in the US found that an increased rate of accidental injuries are associated with self-reported, poorer hearing adults, with leisure-related injuries being most notable.

Those with “good” or “a little trouble” hearing were at a higher risk of work-related injuries.

“Our data suggests a strong relationship between poorer hearing and accidental injury, especially since the rate of injury increased steadily as the reported hearing worsened as well as the odds ratio for injury,” said Neil Bhattacharyya from Brigham and Women’s Hospital.

“Ultimately, hearing loss may be more consequential than one might think,” said Bhattacharyya, senior author of the paper published in the journal JAMA Otolaryngology.

ANXIETY MAY TRIGGER SMARTPHONE ADDICTION: STUDY

People who are less emotionally stable and suffer from anxiety are more likely to be addicted to their smartphones, according to a study.

Researchers from the University of Derby and Nottingham Trent University in the UK conducted an online study with 640 smartphone users, aged 13-69, to find out the association between smartphone use and personality traits.

They found that people who struggle with their mental health are more likely to intensively use their smartphone as a form of therapy.

The less conscientious the individuals are, the more likely they are to be addicted to their phones, researchers said.

The study also revealed that as anxiety levels increase in an individual, the more they use their smartphone.

“With 4.23 billion smartphones being used around the world, smartphone use has become a necessity in the lives of

many individuals,” said Zaheer Hussain, lecturer at the University of Derby.

DINOSAURS EVOLVED FRILLS, HORNS TO ATTRACT MATES: STUDY

The elaborate frills and horns of a group of dinosaurs may have evolved to attract mates, and not to help species to recognise each other, a study has found.

It has been suggested that different species that live in the same location may evolve features in order to distinguish one another to help avoid problems such as hybridisation, where two individuals of different species produce infertile or unfit offspring, researchers said.

The researchers at Queen Mary University of London examined patterns of diversity in the ornamentation of 46 species of ceratopsians, the horned dinosaurs.

They found no difference between species that lived together and those that lived separately.

Previous research found that the frill in one ceratopsian species, Protoceratops, may have evolved under sexual selection.

The new findings published in the journal *Proceedings of the Royal Society B*, appear to add evidence to this across the entire group.

CYANIDE MAY HAVE BEEN KEY TO ORIGIN OF LIFE: STUDY

It sounds odd, but cyanide may have been a key ingredient in the origin of life on early Earth, according to a study.

Researchers found that a mixture of cyanide and copper, when irradiated with ultraviolet (UV) light, could have produced simple sugars that formed the building blocks of life on our planet.

“One story for the origin of life is what we call the RNA world,” said Zoe Todd from the Harvard University in the US.

“In order to make something like an RNA nucleotide, you need these sugars. This shows that process was plausible on the early Earth,” said Todd, researcher in the study published in the journal *Royal Society of Chemistry*.

A key step in showing that the hypothesis was plausible came in 2012, when scientists in the UK demonstrated that the system could produce simple sugars such as glycolaldehyde and glyceraldehyde.

NEW ANTIBODY MAY HELP PREVENT MALARIA: STUDY

Scientists have found a human antibody that prevented malaria infection in mice by binding a protein found in almost all the strains of the parasite worldwide.

The human antibody was isolated from a protected subject who received an experimental vaccine containing whole, weakened malaria parasites (PfSPZ Vaccine-Sanaria).

The paired findings - of both the antibody and the site it targets on the surface protein - could open new pathways to malaria prevention, researchers at the National Institutes of Health in the US.

The study, published in the journal *Nature Medicine*, shows that the antibody, called CIS43, protects against malaria better than any antibody that has been described before.

If shown to be effective in humans, the antibody could be given to people directly and potentially protect them from malaria for up to six months, said Marie Pancera from Fred Hutchinson Cancer Research Center.

115,000-YEAR-OLD BONE TOOLS UNEARTHED IN CHINA

Researchers have discovered 115,000-year-old bone tools in China, which suggest that the toolmaking techniques mastered by prehistoric humans there were more sophisticated than previously thought.

Marks found on the excavated bone fragments show that humans living in China in the early Late Pleistocene were already familiar with the mechanical properties of bone and knew how to use them to make tools out of carved stone.

These humans were neither Neanderthals nor sapiens, according to the research published in the journal *PLOS ONE*.

“These artifacts represent the first instance of the use of bone as raw material to modify stone tools found at an East Asian early Late Pleistocene site,” said Luc Doyon from the University of Montreal in Canada.

“They’ve been found in the rest of Eurasia, Africa and the Levante, so their discovery in China is an opportunity for us to compare these artifacts on a global scale,” said Doyon.

The seven bone fragments analysed by researchers were excavated between 2005 and 2015 at the Lingjing site in central China’s Henan province

NEW LOW-COST MATERIAL TO REDUCE AIR, WATER POLLUTION

Scientists have developed a new low-cost and sustainable material that may displace activated carbon as the preferred choice

for reducing waste-water and air pollution.

The material, described in the journal *Frontiers in Chemistry*, is synthesised inexpensively from solid wastes and a naturally abundant polymer.

It could cut down pollutants in air and waste-water with more success than activated carbon, the current gold standard adsorbent, researchers said.

This paper shows the simple synthesis of a new porous hybrid material, obtained by using low cost and by-product materials," said Elza Bontempi from the University of Brescia in Italy. "The material was designed on the basis of The European Commission's request to develop an affordable, sustainable and innovative design-driven material solution that can reduce the concentration of particulate matter in urban areas," said Bontempi.

'MARS OCEANS FORMED MUCH EARLIER THAN THOUGHT'

Oceans on Mars formed several hundred million years earlier and were not as deep as once thought, according to a study.

Researchers at The University of California, Berkeley in the US have linked the existence of oceans early in the history of Mars to the rise of the solar system's largest volcanic system, Tharsis.

They also highlight the key role played by global warming in allowing liquid water to exist on Mars.

"Volcanoes may be important in creating the conditions for Mars to be wet," said Michael Manga, a professor at UC Berkeley.

Those claiming that Mars never had oceans of liquid water often point to the fact that estimates of the size of the oceans do not jibe with estimates of how much water could be hidden today as permafrost underground and how much could have escaped into space.

These are the main options, given that the polar ice caps do not contain enough water to fill an ocean.

US APPROVES FIRST AI-BASED DEVICE TO DETECT DIABETIC EYE DISEASE

The US Food and Drug Administration (FDA) has permitted marketing of the first artificial intelligence (AI)-based medical device to detect certain diabetes-related eye problems.

The device can detect more than mild level of the eye disease diabetic retinopathy in adults who have diabetes, FDA said in a statement.

Called IDx-DR, the device is a software programme that uses an artificial intelligence algorithm to analyse images of the eye taken with a retinal camera called the Topcon NW400.

Diabetic retinopathy occurs when high levels of blood sugar lead to damage in the blood vessels of the retina, the light-sensitive tissue in the back of the eye.

It is the most common cause of vision loss among the more than 30 million Americans living with diabetes and the leading cause of vision impairment and blindness among working-age adults, according to FDA.

"Early detection of retinopathy is an important part of managing care for the millions of people with diabetes, yet many patients with diabetes are not adequately screened for diabetic retinopathy since about 50 per cent of them do not see their eye doctor on a yearly basis," said Malvina Eydelman from FDA's Center for Devices and Radiological Health

SMARTPHONES WITH LONGER BATTERY LIFE IN THE OFFING

Scientists have developed a high-powered, environmentally-safe lithium-sulphur battery with a significantly longer life.

"Common lithium-ion batteries only have a certain capacity," said Kyeongjae Cho, a professor at The University of Texas at Dallas in the US.

"And most people want to use their phones for a longer time," said Cho.

Many smartphone users are familiar with the shelf life of lithium-ion batteries. Sometimes a charge can last roughly a day.

Cho, along with research associate Jeongwoon Hwang, worked with other regional scientists to improve lithium-sulphur batteries, long considered by many to be an evolution from lithium-ion batteries.

Lithium-sulphur batteries have important advantages over lithium-ion batteries.

According to Cho, they are less expensive to make, weigh less, store almost twice the energy of lithium-ion batteries and are better for the environment.

"A lithium-sulphur battery is what most of the research community thinks is the next generation of battery," Cho said.

"It has a capacity of about three to five times higher than lithium-ion batteries, meaning if you are used to a phone lasting for three hours, you can use it for nine to 15 hours with a lithium-sulphur battery," he said.

REFLECTING ON FAILURE CAN BOOST YOUR PERFORMANCE: STUDY

Writing about your past failure can help boost your future performance by reducing the levels of the stress hormone, cortisol, according to a study.

Globe Scan

The study, published in the journal *Frontiers in Behavioral Neuroscience*, is the first to show that writing and thinking deeply about a past failure improves the body's response to stress and enhances performance on a new task.

This technique may be useful in improving performance in many areas, including therapeutic settings, education and sports, researchers said.

"We didn't find that writing itself had a direct relationship on the body's stress responses," said Brynne DiMenichi, a doctoral candidate from Rutgers University-Newark in the US.

"Instead, our results suggest that, in a future stressful situation, having previously written about a past failure causes the body's stress response to look more similar to someone who is not exposed to stress at all," said DiMenichi.

People are often advised to "stay positive" when faced with a challenging task.

However, a vast body of research suggests that paying close attention to negative events or feelings - by either meditating or writing about them - can actually lead to positive outcomes.

The researchers, including those from the University of Pennsylvania and Duke University in the US, examined the effect of writing about past failures on future task performance in two groups of volunteers.

BEDSIDE CHART MAY EASE CANCER PATIENT'S PAIN: STUDY

Patients suffering from cancer could ease their pain levels by using a simple pen and paper bedside chart, a study suggests.

Researchers from the University of Edinburgh in the UK found that the chart works by encouraging doctors to ask the right questions and reflect on pain medications and side effects more frequently, before patients reach a crisis point.

The new approach, described in the *Journal of Clinical Oncology*, reduces pain levels compared with conventional care.

Pain affects half of all people with cancer and an estimated 80 per cent of those with advanced cancer, causing both physical and emotional impact on patients.

Researchers worked with doctors to develop the Edinburgh Pain Assessment and management Tool (EPAT) - a pen and paper chart which medical staff use to regularly record pain levels in a simple traffic light system.

Amber or red pain levels - indicating moderate or severe pain - prompt doctors to review medications and side effects and monitor pain more closely.

The trial looked at pain levels in almost 2,000 cancer patients over five days, following admission to regional cancer centres.

Patients whose care included use of the chart reported less pain during this time, compared with patients with standard

care, who did not show an improvement.

Importantly, use of the chart was not linked to higher medicine doses, researchers said.

NEW WAY TO STOP SPREAD OF RICE BLAST FOUND

In a breakthrough, scientists have found a way to stop the spread of rice blast, a fungus that destroys up to 30 per cent of the world's rice crop each year.

An international team led by the University of Exeter in the UK showed that chemical genetic inhibition of a single protein in the fungus stops it from spreading inside a rice leaf - leaving it trapped within a single plant cell.

The finding is a breakthrough in terms of understanding rice blast, a disease that is hugely important in terms of global food security, researchers said.

However, the scientists caution that this is a "fundamental" discovery - not a cure that can yet be applied outside the laboratory.

The research led by Wasin Sakulkoo, who received his PhD from Exeter, revealed how the fungus can manipulate and then squeeze through natural channels (called plasmodesmata) that exist between plant cells.

"This is an exciting breakthrough because we have discovered how the fungus is able to move stealthily between rice cells, evading recognition by the plant immune system," said Professor Nick Talbot of the University of Exeter.

'AI TO HELP UNRAVEL MYSTERY OF HUMAN BRAIN'

Scientists are using emerging artificial intelligence (AI) networks to enhance their understanding of one of the most elusive intelligence systems: the human brain.

The researchers are learning much about the role of contextual clues in human image recognition.

By using "artificial neurons" - essentially lines of code, software - with neural network models, they can parse out the various elements that go into recognising a specific place or object.

"The fundamental questions cognitive neuroscientists and computer scientists seek to answer are similar," said Aude Oliva from the Massachusetts Institute of Technology (MIT) in the US.

"They have a complex system made of components - for one, it is called neurons and for the other, it is called units - and we are doing experiments to try to determine what those components calculate," said Oliva, who presented the research at the annual meeting of the Cognitive Neuroscience Society (CNS).

In one study of over 10 million images, Oliva and colleagues taught an artificial network to recognise 350 different

places, such as a kitchen, bedroom, park, living room, etc.

They expected the network to learn objects such as a bed associated with a bedroom.

What they did not expect was that the network would learn to recognise people and animals, for example dogs at parks and cats in living rooms.

The machine intelligence programmes learn very quickly when given lots of data, which is what enables them to parse contextual learning at such a fine level, Oliva said.

While it is not possible to dissect human neurons at such a level, the computer model performing a similar task is entirely transparent.

'NOVEL ANTIBIOTIC MAY HELP FIGHT SUPERBUGS'

Indian-origin scientists have developed a novel “game changing” antibiotic which is capable of killing drug-resistant bacteria, and could lead to the first new class of antibiotic drug in 30 years.

The breakthrough is another major step towards developing a commercially viable drug version based on teixobactin - a natural antibiotic discovered by US scientists in soil samples in 2015 which has been heralded as a “gamechanger” in the battle against antibiotic resistant pathogens such as MRSA and VRE.

Scientists from the University of Lincoln in the UK successfully created a simplified, synthesised form of teixobactin which has been used to treat a bacterial infection in mice, demonstrating the first proof that such simplified versions of its real form could be used to treat real bacterial infection as the basis of a new drug.

They developed a library of synthetic versions of teixobactin by replacing key amino acids at specific points in the antibiotic's structure to make it easier to recreate.

After these simplified synthetic versions were shown to be highly potent against superbug-causing bacteria in vitro - or test tube - experiments, researchers from the Singapore Eye Research Institute (SERI) then used one of the synthetic versions to successfully treat a bacterial infection in mice.

As well as clearing the infection, the synthesised teixobactin also minimised the infection's severity, which was not the case for the clinically-used antibiotic, moxifloxacin, used as a control study, according to the finding published in the *Journal of Medicinal Chemistry*.

It has been predicted that by 2050 an additional 10 million people will succumb to drug resistant infections or superbugs each year, researchers said.

The development of new antibiotics which can be used as a last resort when other drugs are ineffective is therefore, a

crucial area of study for healthcare researchers around the world, they said.

'DEADLIEST STRAINS MAY HELP DESIGN MALARIA VACCINE'

Researchers have identified a ‘genetic fingerprint’ associated with the most deadly strains of malaria parasites, making these unique DNA regions potential targets for vaccine development.

Researchers led by the University of Melbourne in Australia found a small group of proteins was associated with the most severe strains of malarial infections.

These infections are often fatal in young children who have not yet had a chance to develop a strong immune response to the parasite.

“We know that the great burden of mortality for malaria is in children under five,” said Michael Duffy from the University of Melbourne.

“But why children are at such high risk of death by malaria, and why some children die while others survive, has frustrated clinicians and scientists for years,” said Duffy, senior author on the study.

“To better understand this difference, we compared the parasites causing the most severe malaria to parasites that cause uncomplicated or mild disease, which can be resolved by the immune system,” he said.

The researchers developed a ‘fingerprinting’ technique to identify different strains of malaria.

The technique uses the parasite's var genes as a unique identifier.

These genes code for different versions of the protein PfEMP1, which are expressed on the surface of red blood cells infected by malaria.

Each parasite has 60 of these genes that are different to other parasites and each gene is a mosaic of parts that can be shuffled to create new genes.

The parasite also shuffles through the genes it uses like a pack of cards, thus appearing like different strains able to hide from our immune system.

Duffy and his colleagues used RNA sequencing to sample parasites isolated from the blood of 44 adults in a location in which malaria is endemic in the state of Papua, Indonesia.

Twenty-three of these people had severe malaria. The researchers then compared 4,662 pieces of var genes that were being expressed in severe cases, against those expressed in mild cases.

This is the first time anyone has taken the parasite genes that are expressed in the blood of patients and sequenced everything that is there.

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