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20th June, 2016, Page: 1

NBRI team strikes gold, green way

CSIR-NBRI

The cost of gold in your facial or medicines could come down considerably, thanks to the latest work done by scientists at NBRI.

Using a non-chemical approach, scientists from the National Botanical Research Institute (NBRI) have developed an eco-friendly way to create nano particles of gold in just one minute.

"Gold nano particles can be developed by chemical methods but we have found a green way to create nanotised gold using Trichoderma viride - a fungus. Quick synthesis of nano particles was possible by the use of the fungi," said scientist Aradhana Mishra, the head of the four-member team which conducted the study. The study was published recently in an international journal called Scientific Reports.

Scientists said that the quick synthesis of gold nanoparticles by using Trichoderma viride will not only be an eco-friendly but also a cost-effective method as it would reduce the quantity of gold required significantly. Nanotised gold is used in less amount giving the same effectiveness and quality.

Sharma explained how in any field, if any material is nanotised, it would be utilised in very little quantity as compared to the quantity otherwise. For example, if a cosmetic or medicine uses 1 kg of gold normally, it would only use 1gm in nanotised form.

Nanotised gold is being used for various industrial purposes such as in medicine, cosmetics, and pharmaceuticals, Mishra added.

"Gold has been used in medicine in ayurveda over a period of time as Swarnabhasma. The cost of the medicines in which gold is used would be significantly reduced with the use of nanotised gold," she added.
As many as 300 fungi were screened and experimented by the scientists for the creation of nano particles of gold. Different shapes and sizes of gold nanoparticles were synthesised by the biological method. Trichoderma resulted in the quick synthesis of gold.

http://timesofindia.indiatimes.com/city/lucknow/NBRI-team-strikes-gold-green-way/articleshow/52824847.cms

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One more reason to avoid consanguineous marriages

CSIR-CCMB

A ring chromosome was seen in a 2-year-old child of a first-cousin marriage. Murthy Kanakavalli (right) is a co-author of the paper.

A body of evidence shows that children born out of consanguineous marriages suffer from several congenital problems. This is particularly so in the case of children born out of union involving first cousins. The problem in close relative marriages surfaces when a person carries a defect in any of the genes associated with some form of disease and marries a person from the same kindred who also shares the defect. The child inherits two copies of this faulty gene, and thus has the disease.

Now, a study published recently in the journal Cytogenetic and Genome Research reports the presence of a ring chromosome in a two-year-old child of a first-cousin marriage. The child died when he was seven years old.

Ring chromosomes are rare unbalanced chromosomal abnormalities that occur in about 1 in 50,000 foetuses, says the paper. Ring chromosomes occur when the tips of the chromosome are broken at both ends followed by fusion of these ends or telomere-telomere fusion of the chromosome without the loss of genetic material.

"In this case, the telomere was intact but the telomeric repeats may have got lost during the formation of the ring chromosome," says Dr. Lakshmi R. Kandukuri from the Centre for Cellular and Molecular Biology, Hyderabad. One of the chromosomes of the chromosome 9 pair exhibited the ring structure.

As a result of the ring chromosome 9, the child had developmental delay. "The two-year milestones were not reached on time but were delayed," she says. The child also had facial dysmorphic features including low-set ears and upward slanting eyes, microcephaly, suffered from seizures and had mild spasticity.

Karyotyping revealed that different chromosomal abnormalities were present in differing proportions. The anomalies comprised of a ring chromosome 9, two ring chromosomes, a large ring chromosome 9 with two centromeres and finally absence of the ring chromosome itself.

Detailed study of the ring chromosome 9 revealed gene loss due to deletion of a particular segment of the chromosome. However, the loss was seen in only one arm of the abnormal chromosome. Chromosomal microarray analysis revealed a 15.7 Mb deletion in one arm of the chromosome 9. "This region is crucial as it carries genes associated with seizure disorder, speech impairment and intellectual disability," says Dr. Kandukuri.

Though the observable characteristics of the child could be attributed to the loss of genes encompassed in this region, in-depth studies including molecular characterization of the genes involved are required to elucidate the contributory mechanism and to thus correlate the different features such as developmental delay, facial characteristics, seizure and microcephaly to the genotype, she stressed.

Ring chromosomes are rare unbalanced chromosomal abnormalities that occur in about 1 in 50,000 foetuses

http://www.thehindu.com/todays-paper/tp-features/tp-educationplus/one-more-reason-to-avoid-consanguineous-marriages/article8749273.ece

R. PRASAD|June 20, 2016

Cycle tracks, bus lanes to make Dwarka commuter friendly soon

CSIR-CRRI

Dwarka sub-city will soon be a commuter friendly space with levelled footpaths, cycle tracks, and colour-coded bus lanes.

The redevelopment plan initiated by Delhi Development Authority's Unified Traffic and Transportation Infrastructure (Planning and Engineering) Centre (UTTIPEC) along with Central Road Research Institute (CRRI) and Centre for Green Mobility (CGM) promises to change the face of Dwarka.

The project will start from September this year.

Sources in DDA said the project will include several road design improvements such as installation of roundabouts at traffic heavy intersections. Along with separate tracks for cycles and cycle rickshaws, colour-coded bus priority lanes will also be made.

"The idea is to redesign the sub-city to make it well connected. The design will also make people rely more on public transport, because the bus lanes will ensure uninterrupted passage for buses. With better infrastructure the traffic problems of the area will improve," said a senior DDA official.

The official said that at present, no traffic signal in the city has a separate crossing for cycle users. The new design has the provision of a designated crossing for cyclists, which make the roads safer.
Apart from this, keeping in mind Dwarka's cycle-sharing scheme, which is in the pipeline, space will be left near market areas on both sides of the road, for cycle stands.

Footpath levelling

Sources from CRRI said that special focus is being laid on the safety and convenience of pedestrians in the project. Extra street lights will be installed all around the area, to ensure safety, and all the footpaths will be redesigned with a common height, as per the Street Design Guidelines (SDG). Currently, the footpaths in the sub-city are of uneven heights.

http://www.hindustantimes.com/delhi/cycle-tracks-bus-lanes-to-make-dwarka-commuter-friendly-soon/story-btI4zesL39CxyCeZTwphOL.html

Soumya Pillai | Hindustan Times | New Delhi

MoU on climate research, green growth

CSIR-NISTAD

Recognising the importance of knowledge and cooperation in addressing issues of public importance pertaining to climate change and sustainable development, the Interdisciplinary Climate Research Centre (ICRC), Cotton College and CSIR-NISTAD (Council of Scientific and Industrial Research-National Institute of Science, Technology and Development Studies) signed an MoU today.

The two institutes will work together to promote research and development, including policy analysis in the areas of green growth, climate change, sustainable energy, natural resource management, capacity building, knowledge exchange and knowledge co-production.

Dr Prashant Goswami, Director NISTAD said, "This kind of research cooperation is a win-win situation. ICRC Cotton College is an institution we rely on for enhancement of the many areas already mentioned. The signing of this document formally establishes a new strategic partnership between our two organisations."

Dr Goswami further said, "Whether it is raising public awareness of the threat posed by dangerous climate change we are trying to eliminate, or encouraging participation in a community scheme to foster social inclusion, we need to share our message of sustainable development and encourage participation as widely as we can. And finally, one of the big questions that countries around the world have to answer is how we can make technology work for us, and not against us – especially when it comes to solving urgent challenges like climate change. And I am certain that ICRC, working in close collaboration with NISTAD, will be at the forefront of that challenge in this region. It is through partnerships such as the one we are launching with ICRC Cotton College today that we can share this message."

Dr Nirada Devi, Principal Cotton College in her welcome speech, emphasised the importance of the signing of the MoU with NISTAD as it is crucial that colleges join forces with one another and with national inter-disciplinary institutes for sequencing from academic to development work.

Dr Rahul Mahanta, chief coordinator ICRC, while talking to the media later, said that through the memorandum of understanding new opportunities and possibilities would come up for collaboration in terms of information sharing and management.

The MoU signing ceremony was moderated by Dr Sangeeta Barthakur, Associate Professor of statistics, Cotton College, said a press communiqué.

Highlighting the endeavour of ICRC to reduce vulnerability of society to current climate variability and potential climate change through a participatory approach, she urged faculty members and students of schools and colleges of Assam to cooperate with the activities of the centre.

http://www.assamtribune.com/scripts/detailsnew.asp?id=jun1916/city054

Staff Reporter | GUWAHATI| June 18 2016

20th June, 2016, Page: 9

Airport gets sharper Drishti

CSIR-NAL

Flight operations at Patna's Jayaprakash Narayan International Airport will now be safer even when the visibility is poor.

India Meteorological Department (IMD) has installed Drishti - an indigenously developed transmissometer that will record exact visibility readings for pilots even when visibility is less than 2,000m.

The system started functioning at Patna airport from last week.

A transmissometer helps the pilot to land and take-off safely, especially when visibility is poor. Visibility condition at the Patna airport has always been a concern because of the short stretch of the runway. It did not have any digital machinery to measure readings
before 'Drishti'.

"A transmissometer has been installed adjacent to the runway near the touchdown point for flights," said airport assistant general manager (air traffic management) Santosh Kumar. "It has three components - a sensor, a receiver and a transmitter. There is a gap of 30m between the receiver and transmitter. The censor records visibility readings and the data is continuously sent to the air-traffic controller."

Senior officials at Patna airport said the runway visibility range was three to five kilometres but it reduced considerably in case of dense cloud cover during monsoon or fog in winter. This leads to cancellation and diversion of flights.

Sources said two transmissometers were initially proposed to be installed at the airport - one at each end of the runway. "Considering the short stretch of the runway at Patna airport, one transmissometer was considered sufficient to serve the purpose," said Ashish Sen, director of Patna meteorological centre.

Council of Scientific and Industrial Research-National Aerospace Laboratories (CSIR-NAL) designed Drishti for the India Meteorological Department. They signed an agreement on May 20, 2014 for the joint production of Drishti. Sources said it costs just one-third the price of an imported transmissometer and gives more accurate readings. Transmissometers have been made mandatory at all airports according to International Civil Aviation Organisation (ICAO) and World Meteorological Organisation guidelines.

Twenty-seven airports across the country will be equipped with Drishti transmissiometers. Patna airport features in the first phase among eight.

Aviation experts were happy with the technology. They said such advanced equipment will ensure safe operation of flights. "The present system where we take rough readings to assess visibility is not accurate," said an aviation scientist in the city who is settled in the US at present. "The modern day aviation industry needs a better system to record visibility. The practice is unsafe because majority of the accidents in the aviation sector are linked to bad weather."

Every airport in the country has an airport meteorological office that provides it with weather related information. This includes visibility condition and forecast required for flight planning and operations to the air-traffic controller. The controller then conveys information to other locations.

According to the guidelines of ICAO, equipment such as transmissometers and instrument landing system (ILS) are used to ascertain the visibility.

Patna airport's ILS lacks a transmissometer. The meteorological office issues rough visibility readings and a detailed scientific map to the airport.

http://www.telegraphindia.com/1160620/jsp/bihar/story_92124.jsp#.V2dwIiREmUl

Piyush Kumar Tripathi| Jun 20, 2016

20th June, 2016, Page: 12

Butterfly Garden, Rock Sculptures To Be Highlights

CSIR-NEERI

The biodiversity park coming up on a 5.26 hectare plot of dumping ground between Thane jail and Saket complex, running along the Kalwa creek, is nearly complete. Almost 80% of plantation activities have been finished.
Earlier this year, the social forestry department, in collaboration with the then collector, Ashwini Joshi, inaugurated the project in order to beautify dumping spots and provide citizens with an avenue for recreation and environmental education. The aim is also to influence Thaneites to conserve the Thane creek.
The project has seen a few glitches, including delayed rains and widening of drainage mouths near the creek, but officials from the social forestry department have assured Thaneites that the park will be functional in two months.

"A major part of the project is the plantation drive which includes the butterfly garden, mangrove walkway, cactus garden, medicinal garden and plant nursery. We are planting around 35 species of plants and have already kept around 1,000 saplings in the green house set up in the first phase. We have also dug pits to plant these saplings. This turned out to be a challenge as we had to dig out the waste plastic embedded in the ground and fill it with fresh soil. We have been waiting for the rains so that these saplings have a healthy growth. A plantation drive will be held on July 1,"said S Phale, deputy director at the social forestry department.

The PWD department has got the required permissions and will be starting the construction soon," he added.
The Phytorid technology set up by National Environmental Engineering Research Institute (NEERI) to utilise sewage water for watering plants in the park will be functional in a months' time. " "We will be adding some bio-culture to fasten the process," said Pranay Pawar, manager at Aleknanda Technology Pvt Ltd, a licensing agency of NEERI.

The project, which costs around Rs.2.5 crore is funded by the SFD department and the collector, and should be completed by September-end.

http://timesofindia.indiatimes.com/city/thane/Butterfly-Garden-Rock-Sculptures-To-Be-Highlights/articleshow/52822208.cms

Freny Fernandes | TNN | Jun 20, 2016