

समाचार पत्रों से चयित अंश Newspapers Clippings

दैनिक सामयिक अभिज्ञता सेवा

A Daily Current Awareness Service



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NASA missions on solar system

A new mission to Saturn's moons Titan or Enceladus to find signs of life beyond Earth cannot be ruled out as NASA says it is reviewing 12 proposals for future unmanned solar system mission to be launched in the mid-2020s. The proposed missions of discovery — submitted under NASA's New Frontiers programme — will undergo scientific and technical review over the next seven months, the US space agency said in a statement on Friday. Selection of one or more concepts for Phase A study will be announced in November. At the conclusion of Phase A concept studies, it is planned that one New Frontiers investigation will be selected to continue into subsequent mission phases.

Investigations for this announcement of opportunity were limited to six mission themes — comet surface sample return; lunar South Pole-Aitken basin sample return; ocean worlds (Titan and/or Enceladus); Saturn probe; Trojan tour and rendezvous; and Venus *in situ* explorer

“New Frontiers is about answering the biggest questions in our solar system today, building on previous missions to continue to push the frontiers of exploration,” said Thomas Zurbuchen, Associate Administrator for NASA's Science Mission Directorate in Washington.

“We're looking forward to reviewing these exciting investigations and moving forward with our next bold mission of discovery,” Zurbuchen said.

The New Frontiers Programme conducts principal investigator (PI)-led space science investigations under a development cost cap of approximately \$1 billion.

This would be the fourth mission in the New Frontiers portfolio. Its predecessors are the New Horizons mission to Pluto, the Juno mission to Jupiter, and OSIRIS-Rex.

IIT-M makes white light from pomegranate, turmeric extracts

By R. Prasad

This could be used in applications such as tunable laser, LEDs and white light display

Dr. Vikram Singh, former research scholar in the Department of Chemistry, IIT Madras won the BIRAC Gandhian Young Technological Innovation (GYTI) Award 2017 for his work on producing white light emission using natural extracts.

Dr. Singh and Prof. Ashok Mishra from the Department of Chemistry, IIT Madras used a mixture of two natural extracts — red pomegranate and turmeric — to produce white light emission. The researchers used a simple and environment-friendly procedure to extract dyes from pomegranate and turmeric.

While polyphenols and anthocyanins present in red pomegranate emit at blue and orange-red regions of the wavelength respectively, curcumin from turmeric emit at the green region of the wavelength. White light emission is produced when red, blue and green mix together. This is probably the first time white light emission has been generated using low-cost, edible natural dyes. The results were published in the journal *Scientific Reports*.

“We had to mix the two extracts in a particular ratio to get white light,” says Dr. Singh, the first author of the paper; he is currently at Lucknow's CSIR-Central Drug Research Institute (CDRI). By changing the concentration of the two extracts the researchers were able to get different colour temperature (tunability).

“When we mix the two extracts and irradiate it with UV radiation at 380 nm, we observed energy transfer (FRET mechanism) taking place from polyphenols to curcumin to anthocyanins, which helps to get perfect white light emission,” says Dr. Singh. For FRET mechanism to take place there must be spectral overlap between the donor and acceptor.

Energy transfer

In this case, there is a perfect overlap of emission of polyphenols with absorption by curcumin so the energy from polyphenols is transferred to curcumin. Since there is also a perfect overlap of emission of curcumin with absorption by anthocyanin, the energy of curcumin is transferred to anthocyanin.

As a result of this energy transfer from one dye to the other, when the extract is irradiated with UV light at 380 nm (blue region of the wavelength), the polyphenols emit in the blue region of the wavelength and transfers its energy to curcumin. The excited curcumin emits in the green region of the wavelength and transfers its energy to anthocyanin, which emits light in the red region of the wavelength.

“Because of the energy transfer, even if you excite in the blue wavelength we were able to get appropriate intensity distribution across the visual wavelength,” says Prof. Mishra, who is the corresponding author of the paper.

Without turmeric

Taking the work further, the duo produced carbon nanoparticles using pomegranate and to their surprise it was producing fairly green emission. So instead of using turmeric to get green wavelength, the researchers used carbon nanoparticles made from pomegranate extract. “We could get white emission, though it is not as white as when we use turmeric. It’s slightly bluish but well within the white zone,” says Prof. Mishra. “It is an attractive to use a single plant source to create white light emission.” The principle by which the pomegranate extract and carbon nanoparticles made from the extract is the same as in the case when pomegranate and turmeric extracts were used. The results were published in the *Journal of Materials Chemistry C*.

Though this natural mixture of dyes can be used in a wide variety of applications such as tunable laser, LEDs, white light display, much work needs to be done in terms of photostability and chemical stability before it becomes ready for translation. Biosystems have an inherent tendency to breakdown and so this has to be addressed.

दैनिक जागरण

Sun, 07 May, 2017

तीन भारतवंशी वैज्ञानिकों को यूके रॉयल सोसाइटी फेलोशिप

लंदन, प्रेटर : विज्ञान के क्षेत्र में उत्कृष्ट योगदान देने वाले भारतीय मूल के तीन वैज्ञानिकों को यूके रॉयल सोसाइटी फेलोशिप के लिए चुना गया है। दुनिया के बहुत से प्रतिष्ठित वैज्ञानिक यूके रॉयल सोसाइटी फेलोशिप के लिए चुने जा चुके हैं।

कैम्ब्रिज यूनिवर्सिटी के कृष्ण चटर्जी, न्यूयॉर्क यूनिवर्सिटी के सुभाष खोट और ऑक्सफोर्ड यूनिवर्सिटी के यदुविंदर मलाही दुनिया की उन 50 प्रतिष्ठित शख्सियतों में शामिल हैं, जिन्हें रॉयल सोसाइटी ने 2017 की फेलोशिप के लिए चुना है।

कृष्ण चटर्जी को थायरॉयड ग्रंथि निर्माण, हार्मोन सिंथिसिस (संकलन) और हार्मोन क्रियाशीलता के जेनेटिक डिसऑर्डर (आनुवांशिक विकारों) के लिए जाना जाता है। सुभाष खोट एक थ्योरेटिकल कंप्यूटर वैज्ञानिक हैं। उन्हें कंप्यूटेशनल (अभिकलनात्मक) जटिलता के क्षेत्र की अनसुलझी समस्याओं की पहचान करने का श्रेय दिया जाता है।

रॉयल सोसाइटी के पहले भारतवंशी अध्यक्ष वेंकटरमन रामाकृष्णन ने

नवीनतम बैच के साथियों का स्वागत किया है। नोबेल पुरस्कार विजेता वैज्ञानिक रामाकृष्णन ने शुक्रवार को जारी एक बयान में कहा, ‘विज्ञान मानव उपलब्धि की एक महान सफलता है। इसका हमारी दुनिया की समृद्धि और स्वास्थ्य में बेहद योगदान रहा है।’

Shift depot to another location: Parents

By Krittika Sharma

The students of Rani Jhansi Sarvodaya Kanya Vidyalaya had started their day like any other, eager to see their parents later in the morning at a PTM. But on entering the classroom on Saturday morning, they found something odd about the air.

GAS CLOUD THAT CHOKED 500 PEOPLE

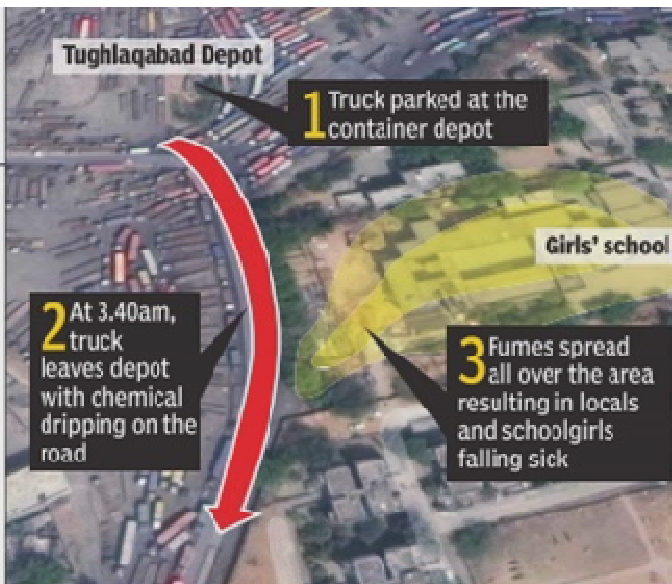
3.40am A container truck carrying chemicals leaves the Tughlaqabad depot



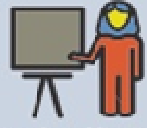
7am Students at Rani Jhansi Secondary School, adjoining the depot, complain about irritation in the eye

7.30am Police and fire department informed about an "LPG leak"; students sent home

8am Some of the girls complain about nausea and stomachache; admitted to hospital. Education minister informed about the incident. NDRF and fire service personnel cordon off the area. CATS ambulances rush to spot

2pm NDRF and fire officers clear the area after diluting the liquid



 Chemical compound: 2-Chloro-5-chloro-methylpyridine, used for making pesticides	 Number of girls affected 415	 Local residents and teachers 72
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“I entered the class and laughed after seeing all the girls `crying'. When I enquired, they seemed confused about the whole matter,” said Anita, a Class VI student. Little did she know that her eyes too would start itching, she would have watery eyes and she would spend the rest of the day in a hospital for being exposed to the toxic fumes emanating from the container depot adjacent to her school. Mamta, a parent of two girls from the same school, said she was getting ready for the PTM when the school van driver came back to inform her of the incident. “I thought it was a cylinder blast and rushed to the school. There, I saw many other parents who told me it was some sort of a gas leak,” she told Mamta said her eldest daughter, Shivangi, whose classroom is located very close to the depot boundary, realised her sister and cousins in lower classes could be suffering from the

HEALTH RISKS

- It causes eye and skin burns
- Can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion
- The material can cause respiratory irritation if inhaled

TREATMENT

- Immediately flush eyes with plenty of water for at least 15 minutes, in case of direct contact
- Wash skin with plenty of water
- Get medical aid immediately
- If victim is fully conscious, make the person drink water
- In case of inhalation, remove the person immediately from the contaminated area and allow him to get fresh air. Give him oxygen support, if needed

same itching of eyes and throat and she rushed to get them out. “These girls and their classmates came out of the school and told us they were not feeling well. Most of them complained of watery eyes as well,” added Mamta.

Zeenat, a Class IX student, said an ambulance was brought to the school and she and her friends were taken to a hospital. “Teachers and the principal personally called us to inform about the gas leak. They said we must take our children home immediately and bring them to the hospital if they complain of any kind of discomfort,” said Rajwati, another parent.

Parents whose wards were admitted in the hospital said this must be the wake-up call for the government and demanded that depot be shifted to another location for the safety of the students. “We don't know what kind of material they bring in those containers. What if there is a bigger incident next time? They must move it to another location before things get out of hand,” said Kiran, a parent.

Principal Manisha Vaish said they had little idea about the state of affairs inside the depot. “The entrance to the depot is around 4km from the school, and we can only see the trucks from the top-most classroom of the building. We have no idea what comes in those containers. We share a common boundary wall,” she said.