# CSIR in Media

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## A Daily News Bulletin

## 26th – 31st July 2017

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CSIR

30th July 2017

# संसद भवन में विज्ञान प्रदर्शनी

■ एजेंसियां : उप राष्ट्रपति हामिद अंसारी ने संसद भवन में वैज्ञानिक आविष्कारों की प्रदर्शनी का उद्घाटन किया। इस प्रदर्शनी का आयोजन सीएसआईआर द्वारा किया गया है जिसमें कई महकमों के शोधों को प्रदर्शित किया गया है। प्रदर्शनी विशेष रूप से सांसदों को विज्ञान की खोजों से अवगत कराने के लिए आयोजित की गई है। इस प्रदर्शनी में मुख्य आकर्षण का केंद्र सीएसआईआर द्वारा विकसित मधुमेह रोधी दवा बीजीआर-34, दूध की जांच की किफायती मशीन, जैव प्रौद्योगिकी विभाग द्वारा विकसित दवाएं व टीके, परमाणु ऊर्जा विभाग के संस्थानों द्वारा विकसित की गई तकनीकें हैं।

बता दें कि बीजीआर-34 को कुछ समय पूर्व बाजार में लाया गया था जो बेहद सफल दवा साबित हुई है, जबकि क्षीर स्कैनर जल्द बाजार में आने वाला है। प्रदर्शनी संसद सत्र के आखिरी दिन 11 अगस्त तक चलेगी।

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**Published in:**

Sunday Navbharat Times, Page 15

# Science Fair at IICT Hyderabad from Saturday

CSIR-IICT

28th July 2017

A Science Fair on 'Chemistry – It's Applications', a programme for school children, particularly those of Classes 9 and 10, will be organised from Saturday at the CSIR- Indian Institute of Chemical Technology, Tarnaka.

The CSIR-IICT is organising the event in association with the Royal Society of Chemistry (London) — India Deccan Local Section, CSIR-IICT Science India Portal and White Board, Hyderabad.

About 50 schools from the twin cities as well as from neighbouring districts will participate in the event, which will be from 10 am onwards.

The vision of the Science Fair, according to an IICT release here, is to inculcate scientific curiosity, to promote creativity and inspire students in all aspects related to chemistry applications.

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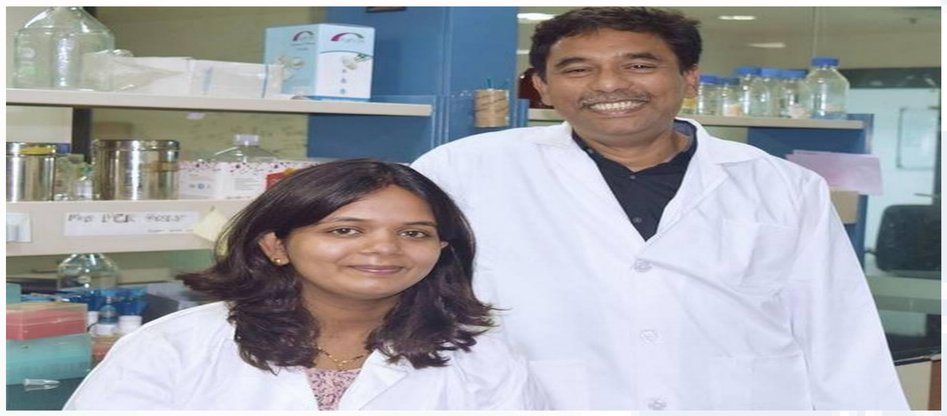
**Published in:**

Telangana Today

# IGIB researchers rein in cancer cells

CSIR-IGIB

29th July 2017



Researchers at Delhi's CSIR-Institute of Genomics and Integrative Biology (CSIR-IGIB) have found the mechanism by which controlling the levels of telomerase can help in reining in the growth of cancer cells and probably prevent cancer metastasis. The results were published in the Journal of Biological Chemistry.

Unlike normal cells, most cancer cells have high levels of telomerase and this leads to more than normal length of the telomere. Telomeres protect chromosome ends somewhat like the plastic clips at the end of shoelaces that prevent fraying of the ends. While cells die when the telomere becomes shorter beyond a certain limit, in the case of cancer cells the length of the telomere is maintained thereby ensuring extended life span of the cells.

In normal cells the telomerase is kept under tight control. But in about 85% of all cancers the telomerase levels are more than normal leading to malignant transformation and aggressive metastasis in many cases. "It is not clearly understood how telomerase is kept under tight control in normal cells and how the telomerase levels gets increased in cancerous cells," says Dr. Shantanu Chowdhury from the Genomics and Molecular Medicine Unit at IGIB and the corresponding author of the paper.

It is already known that when the amount of a particular protein that suppresses the spread of cancer (metastasis) called nonmetastatic 2 (NME2) is high the tendency of the cancer to spread is low. But what came as a surprise is the role of this protein in controlling the telomerase levels as well. "How NME2 controls metastasis is not clearly understood. But surprisingly we found that NME2 controls the levels of telomerase," Dr. Chowdhury says.

**The mechanism**

The researchers found that NME2 binds to a DNA structure (G-quadrauplex) found in the telomerase promoter. Once bound, the NME2 facilitates a well known suppressor of gene expression (REST complex) to bind to the telomerase promoter and control the production of telomerase.

"Experiments show that if you don't have NME2 then the REST suppressor cannot bind to the telomerase promoter and control the production of telomerase," says Dhurjhoti Saha from IGIB and one of the first authors of the paper.

"We used proteomics approach to study the protein-protein interactions. We could identify protein members of the REST complex that interact with NME2. The IGIB team then confirmed the role of the REST complex and its function," says Dr. Ramesh Ummanni, from the Centre for Chemical Biology at the CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad and a co-author of the paper.

## Drug target

"We established that the DNA structure (G-quadrauplex) could be a possible drug target once we understood the mechanism of NME2 binding to the promoter followed by the REST suppressor complex," Dr. Chowdhury says. The involvement of a DNA structural architecture allowed the team to use small molecules that recognised the specific structure.

Since the amount of NME2 is low in many metastatic cancerous cells, the researchers used small molecules that were able to function like NME2 by recognising and binding to the DNA structure. "We screened 20 molecules and 11 were able to bring down the telomerase level in fibrosarcoma cancer cells," Dr. Chowdhury says.

Based on the initial lead from the small molecules, the researchers are planning to synthesise new molecules to optimise for drug-like characteristics for therapeutic use. The molecules will then be tested on animals.

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**Published in:**

The Hindu  Journos Diary  Total News Express

# MNPS students get exposures of Research Environment at CSIR-NML

CSIR-NML 29th July 2017

A group of 54 students from Motilal Nehru Public School, Sakchi accompanied by one teacher visited at CSIR-National Metallurgical Laboratory, Jamshedpur and interacted with scientists and research scholars this morning under the aegis of CSIR-NML-School Interactive programme. The students were thrilled to visit the laboratory and interact with working group.

The programme was scheduled for two and half hours, Dr. P.N. Mishra, Principal Scientist, started the programme with welcome address, introduced students with the members of SNIP programme, and further discussed about CSIR-NML R&D activities and programme.

Dr. S.K. Mandal, Chief Scientist and coordinator of the programme discussed about fundamentals of science and its various branches to inculcate interest towards science among students and request to pursue science as carrier for further study. Manas Samanta proposed the vote of thanks.

After brief up, a programme was organized to visit the different division of the laboratory.

Dr. P.N. Mishra, S.N.Hembram and Dr. A.K.Sahu, Senior Technical Officer leads three groups separately and arrange to interact with scientists and research scholars. The students expressed their desire and feeling, asked numbers of question, and clarify doubt with working scientists.
Students visited creep testing units of MST Division and knew about fatigue, creep, fractures prevailing in different types of industrial components.

They get exposure of different machine like Servo Hydro Testing Machine, Servo Electrical Machine and furnace. A live demonstration was arranged at analytical chemistry division with conventional as well as non-conventional methods applied in chemical analysis.

Students asked question and sort it out by deputed research scholars. Students shown keen interest in the Electronice Waste Unit and acquainted about the extraction of metals from electronic waste and another product developed by waste like fly ash and other materials were also observed at the Geopolymer units. They further visited at Mechanical Testing Unit and know about forging, shaping and rolling machine, wire Drawing Machine, Trolly furnace chamber operated at 1200o centigrade.

Students were surprised to observe the 66 years' history of NML at museum and they asked different question based on sample and poster pertaining to minerals based product and facilities.

"The session was very enriching and I will now like to pursue higher education in the field with what NML has to offer" said, Santosh Kumar of XII B. Teacher and students requested for their next visit to the laboratory for gain deeper knowledge. Teacher expressed their view and was satisfied to know about the consistent effort and research emphasis in various sectors for the ultimate development of India.

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**Published in:**

Avenue Mail

# CSIR-IITR to organise international seminar on Environmental Pollution: Challenges and Strategies

CSIR-IITR 30th July 2017

Council of Scientific and Industrial Research - Indian Institute of Toxicology Research (CSIR-IITR) along with Nagar Rajbhasha Karyavan Samiti here will organise an international seminar on "Environmental Pollution: Challenges and Strategies" from October 11 to 13 to create awareness towards "Clean India and Healthy India" campaign. Director IITR, Professor Alok Dhawan, told UNI that the institution has organised many national and international science seminars on topics related to the commonman.

He said that renowned scientists not only from India but also from various parts of the world will attend this seminar. Prof Dhawan told us that scientists across the world regularly send their letters and show their concern about environmental pollution and keep us informed about the circumstances. All the countries are concerned about the deteriorating condition of our environment and its pollution and the Paris pact on climate change is a fine example of that, he said. "We should understand that government's efforts alone are not sufficient to tackle the problem of pollution rather social awareness and contribution from everyone is equally important," he said.

Prof Dhawan said that many renowned scientists around the world will join the seminar through video conferencing.

"This will save their precious time as they can use video calling app like Skype to deliver their lectures", he added. In order to promote the usage of Hindi language in an elite community like scientists, IITR organises seminars and conferences at regular intervals. "All lectures in the seminar will be in Hindi. Even scientists of Indian origin and settled abroad will present their papers in Hindi", said the professor. Prof Dhawan told us that 'Environmental Pollution and Human Health', 'Food Security and Better Nutrition', 'Energy from waste materials', 'Air pollution and remedies', 'Availability of Clean water', Development and future of continuous energy', 'Waste management techniques', 'Recycling and management of e-waste and plastic', 'Techniques and equipments of pollution control' and 'Side effects of climate change' will be the topics of seminar.

CSIR-IITR is the only institute of India in the field of Toxicology which is working with a motto of 'Safety to Environment and Health and Service to Industry' to address problems critical to human health and environment. The institution has its important role in Indian government's projects Namami Gange, Clean India, Healthy India, Skilled India, Smart City, Digital India and Make in India.

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**Published in:**

News now  UNI  Green Eco System

# Maruti 800 engine to power airboats

CSIR-NAL

26th July 2017

Owning a Maruti 800 was a dream for the middle class in the 80s and 90s. Its fuel-efficient and powerful engine made it the most-sought-after car for most Indians then. When the economy opened up, an avalanche of cars flooded our market, and gradually, Maruti 800s started fading away. Now, its powerful engines are being used for an altogether different purpose — to operate airboats.

The National Aerospace Laboratories (NAL), involved in making airboats for inland waterways applications and clearing the weeds from water bodies, is developing one which will be powered with a modified engine of Maruti 800. "Initially, the idea was to develop airboats which will have an air propulsion system that can push the boat forward in the water to clear weeds. But now we have decided to use car engines instead to power the boat," said NAL sources.

"We found that the Maruti 800 engine to be more cost-effective compared with small aircraft engines. Besides they are much more versatile. Using this engine, the boat can also be reversed something which could not be done using the other engine," sources said. The boat, with the modified engine, is currently being integrated to the boat and about 80 per cent of the work has been completed. NAL plans to test the boat in Ulsoor Lake in a couple of weeks. Airboats' task is to easily push forward the floating weeds and plants to a corner of the lake from where it be bundled and lifted out of the lake. "To begin with, NAL will use the Maruti 800 engines and then shift over to more powerful engines," sources said.

"The modified Maruti 800 engines can generate about 40 hp on water bodies. In the next phase, we would look to opt for more powerful ones like the multi-point fuel injection (MPFI) engines which can zoom into different locations and complete its task," sources added. The city-based laboratory, which has developed airboats, has been approached by corporates as well.

It's learnt Biocon has shown interest in airboats to be used for its CRS initiatives.

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**Published in:**

TOI

# Delhi doctor to find how bad air hurts lungs

CSIR-IGIB

27th July 2017

In about seven years, Indians would know to what extent air pollution may be impacting their lung function. Dr Anurag Agrawal, principal scientist at CSIR Institute of Genomics and Integrative Biology (IGIB), would start work next month on one of the first long-term studies involving children (10-18 years) from across the study.

Agrawal is among lakhs of Delhiites directly affected by severe air pollution. He's an asthmatic, but believes air pollution is only one of the several factors affecting lung function. "Indians have 30% lower lung function than a white European of the same height, weight, age and gender. In the very famous Framinghan heart study (US based National Heart Institute started the study in 1948) they found if you have a low lung function, your risk of an early cardiac death increases. We know Indians die much faster of cardiac issues. We have drugs to treat cholesterol but no good drugs to treat lung function. Poor lung function is probably only a marker and not a cause of death. I think that the same things that make people die of cardiac problems, also cause them to have smaller lungs—one of which could be air pollution. We don't know yet. This study area is relatively new to our lab," Dr Agrawal said.

His team plans to measure lung function of children in classes VI, IX and XII in different parts of the country through a network of schools. "We hope to see what the biggest causes of reduced lung function are. The team will complete its first round or the baseline in the next couple of years. Two types of tests will be conducted: a lung capacity test where a child has to breathe in and breathe out; another in which multi-frequency pressure waves are fed into the lungs and the flow measured. A portable device called pulmoscan is being built for such testing and a working prototype is ready. The study will help researchers understand whether lung function starts reducing very early in childhood or much later," Agrawal said.

"By Class VI (10 years old) alveolar development is mostly done. We have to see from then if the problem becomes worse. AIIMS data suggests Indians have smaller lungs throughout their lives, but it's proportionate to their body size in early life. What I am looking for is reduction in lung size disproportionate to their body size in early life," he said.

In the 1950s, the British looked at lung function of Indians. They covered Rajput cavalrymen, South Indian civil servants and Gorkha fighters. Only Gorkhas had lungs comparable to or better than the British. They thought probably it had got to do with exercise.

But Agrawal points out another dimension of the problem: that of poor nutrition of girls and mothers. "Nutrition of mothers highlighted in the DOHaD (Developmental Origin of Health and Disease) study found that most diseases can be tracked back to the early fetal periods. Risk of diabetes comes from poor nutrition of mothers. It basically said if you want to change society, take care of the girlchild. DOHaD hypothesis is very compelling. Even with lung function, my personal bias is towards the DOHaD hypothesis," he said.

The team plans to include children in corporation schools. "Delhi's air never becomes good because there is also a lot of natural dust. It is almost certain to be bad for health but we need local research to understand better. Look at the dust near the Rani Jhansi flyover. It will be interesting to study children from civic schools in these locations," Agrawal said.

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**Published in:**

TOI

# 'Evolve innovative eco-system'

CSIR-CECRI

26th July 2017

Anil Kakodkar, former chairman of the Atomic Energy Commission, has said India should evolve and nurture an innovative eco-system and respond to technology demands.

Addressing the 70th anniversary of the Central Electrochemical Research Institute (CECRI) here on Tuesday, he said creating such an eco-system needed a change in mindset across all domains of society and breaking out from silo mentality.

On technology vision for India 2035, he said the new vision betted on emerging technologies to overcome challenges in ensuring inclusive growth and improved quality of life.

"Such a technology leap must take advantage of India's democratic dividend," he suggested. The vision statement envisioned India's technology future modes comparing it to four gaits of a horse: galloping, cantering, trotting and walking, he said.

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**Published in:**

The Hindu

# India ranks 5th in global research publication output: report

CSIR-NISTADS

27th July 2017

India ranks 5th in global research publication output where countries from North America, the European and Pacific dominate both in terms of quantitative and qualitative research, a joint study by Council of Scientific & Industrial Research—National Institute of Science Technology and Development Studies (CSIR-NISTADS) and Indian Institute of Science Education and Research (IISER) revealed.

The US emerges as the top most productive country in health tourism research. Countries among the top 10 most productive in 2007-16 were UK (12.59% share), Canada (7.45%), Australia (7.10%), India (3.45%) and Germany (3.38%), Italy, Spain, France and Netherlands (from 2.53% to 2.95%) during 2007-16.

The 10 most productive countries in health tourism research accounted for a 68.92% global publication share during 2007-16, which declined from 70.61% to 67.71% from 2007-11 to 2012-16.

With an objective to study the performance of global medical tourism research in last 10 years, researchers retrieved and downloaded 10-year publication data on world output in health tourism from the Scopus database, covering the period 2007-2016. Scopus is the largest abstract and citation database of peer-reviewed literature—scientific journals, books and conference proceedings.

"The total research output of the world in field of health tourism cumulated to 1,422 publications during 2007-16, with annual output increased from 68 in the year 2007 to 89 publications in the year 2016, registering 7.26% growth per annum," said Dr. B.M. Gupta, from CSIR-NISTADS.

"India ranks second as medical tourism destination in the world after Thailand and India hosts about 150,000 medical tourists annually, and this number is expected to grow 15% every year. For enabling counties like India to perform better in qualitative terms in future, it is desirable that the stakeholders in India should strive to give high priority to research in this area and also promote international collaborative research," he said.

The Indian Council of Medical Research (ICMR), the apex Indian research body in 2016 admitted that biomedical research projects being conducted in all the 32 scientific organisations of the ICMR spread across the country had been affected owing to the resource crunch. Because the body received 50% of the sought funds, the research has been stalled in the country.

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**Published in:**

Live Mint

# सीडीआरआई अब इथोपिया के औषधीय पौधों पर शोध करेगा

CSIR-CDRI

24th July 2017

इथोपिया में पारंपरिक औषधीय पौधों पर वैज्ञानिक शोध से मिल सकती हैं कई गंभीर रोगों की दवाएं लखनऊ। प्रमुख संवाददाता केन्द्रीय औषधीय अनुसंधान संस्थान (सीडीआरआई) अब इथोपिया में पारंपरिक औषधीय पौधों पर शोध करेगा। दोनों देशों में द्विवक्षीय सहयोग से कई गंभीर रोगों की कारगर दवाएं मिल सकती हैं। इथोपिया में देश के राजदूत अनुराग श्रीवास्तव ने सोमवार को सीडीआरआई का भ्रमण किया। वैज्ञानिकों से वहां की जैव विविधताओं पर चर्चा की और फार्मास्युटिकल रिसर्च सेक्टर की भविष्य की संभावनाओं को तलाशाने की कोशिश की। अफ्रीकी देश व भारत के मध्य पारस्परिक लाभ के लिए मजबूत व दीर्घकालिक सहयोग पर प्रधानमंत्री नरेन्द्र मोदीजी का विशेष ध्यान है। इथोपिया में भारत के राजदूत अनुराग श्रीवास्तव के सीडीआरआई दौरे का मुख्य उद्देश्य वैज्ञानिक व औद्योगिक अनुसंधान के संदर्भ में दोनों देशों के बीच द्विपक्षीय सहयोग से दवाओं के शोध पर ध्यान केंद्रित करना था। सीएसआईआर और मेटल इंडस्ट्रीज डेवलपमेंट इंस्टीट्यूट (एमआईडीआई) इथोपिया के बीच पिछले महीने में एमओयू पर हुए हस्ताक्षर भी हो चुका है। इसका उल्लेख करते हुए भारतीय राजदूत ने वैज्ञानिकों के पैनल को बताया कि इथोपिया में अच्छी जैव विविधता है। कई पारंपरिक औषधीय पौधों को वैज्ञानिक रूप से जांचने की जरूरत है। इथियोपिया में 35 से अधिक सार्वजनिक विश्वविद्यालय में 200 से अधिक भारतीय शिक्षक विज्ञान और तकनीकी शिक्षा के उत्थान में योगदान दे रहे हैं। इथोपिया में फार्मास्युटिकल रिसर्च सेक्टर के विकास में सीडीआरआई एक महत्वपूर्ण भूमिका निभा सकता है।

राजदूत ने संस्थान की विभिन्न प्रयोगशालाओं व प्रमुख सुविधाओं का निरीक्षण किया और प्रयोगशालाओं में संबंधित वैज्ञानिकों बात भी की। सीडीआरआई की निदेशक डा. मधु दीक्षित व सीनियर प्रिंसिपल साइंटिस्ट डा. समन हबीब ने संस्थान की गतिविधियों और उपलब्धियों की जानकारी दी। डा. दीक्षित ने कहा कि इथोपिया में सीडीआरआई फार्मास्युटिकल रिसर्च में मानव संसाधन विकास, कौशल विकास, विशेष प्रशिक्षण, औषधि अनुसंधान में अपनी विशेषज्ञता के माध्यम से इथोपिया में उत्कृष्टता केंद्र की स्थापना, सहयोगात्मक अनुसंधान के माध्यम से इथोपिया के वनस्पतियों और जीवों के चिकित्सकीय गुणो की खोज, तत्संबंधी सामग्री की जांच में योगदान, फार्मा सेक्टर एवं औषधि विकास व अनुसंधान कार्यक्रमों के उत्थान में पूरा योगदान दे सकता है।

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**Published in:**

Hindustan

Nav Bharat Times, Dainik Jagran

# ‘State govt should act on need to map estuarine mangroves’

CSIR-NIO

25th July 2017

Goa's rich mangrove forest cover along its estuaries need to be mapped to ensure their protection, executive secretary of the mangrove society of India (MSI), A G Untawale said, adding that the government must take up this initiative.

Mangrove cover has been mapped along the coast but not along the estuaries, he pointed out, and that MSI has proposed that the government take up the initiative.

"Mangroves have several advantages for our society. If not protected, mangroves will badly impact our ecology. They protect our land from erosion. A lot of land would be lost if it weren't for mangroves,“

professor Sunil Kumar Singh said. He has recently been appointed as director CSIR-National institute of Oceanography (NIO), Dona Paula.

He also announced a two-day national conference on mangrove ecosystems at NIO-Goa from July 26, which marks the silver jubilee anniversary of MSI. The day is celebrated as World Mangrove Day.

During the conference, MSI will sign an MoU with CSIR-NIO to work jointly on mangrove research.
Various traditions connected with mangrove ecosystems, including that of the 'Mannge Thapnee', where villagers in Ponda attempt to pacify the sea by worshipping crocodiles, will be part of a biodiversity exhibition.

The MSI will present awards to six experts from across the country, who have contributed to conservation and management of mangrove through their life, and will also felicitate few unsung heroes.

"The mangrove ecosystem has huge potential for adventure, education, research, recreation and social activities," Untawale said, adding that the first phase; of creating awareness about mangroves of the proposed mangrove park at Patto has been complete. A booklet on Mangal Yatra, the destinations for mangrove tourism will be released at the conference.

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**Published in:**

TOI

# THIS YEAR, GANESH IDOLS TO COME WITH IMMERSION KITS

CSIR-NCL

26th July 2017

With exactly a month left for Ganesh Chaturthi, the Pune Municipal Corporation (PMC) is sparing no efforts to make this year's festival greener. The civic body has even decided to provide ammonium bicarbonate to Ganesh idol retailers early on to promote an eco-friendly visarjan of idols. Last year, PMC began the initiative with the help of the National Chemical Laboratory (NCL), which has a proven technique of dissolving idols in ammonium bicarbonate."

Suresh Jagtap, head of PMC's solid waste management department, told Mirror, "Last year, we got complaints from people about undissolved solid parts of idols, like the head and trunk, as we mentioned in the pamphlet. So, we had convened a meeting of NCL officials, where we requested them to make proper experiments with idols of different sizes, so that we can tell people about the exact proportion of the chemical compound to be used. We found that excluding solid parts, all other components of idols dissolve in ammonium bicarbonate. We will make packets of ammonium bicarbonate, mentioning the proper proportion of water and material for immersion. These packets will be given to Ganesh idols sellers in the city to distribute to devotees, along with the idols."

Ganesh idol retailers and manufacturers warmed up to the move, but asked the civic body to give out proper instructions. Babasaheb Deshmukh, from Shree Natraj manufacturers and retailers, shared, "PMC needs to mention the details of the proportion of water and the compound to be used. Last year, it had distributed ammonium bicarbonate without proper instructions, which is why many people found it difficult to dissolve the idols in water. We are ready to give the packets to customers." Ganesh Khedekar, proprietor of Anupriya Arts, added, "We don't have any problem giving out packets to customers. After all, PMC is doing this for the environment. But, its use depends on the individual."

On Tuesday, the standing committee members passed a proposal to purchase 100 tonnes of ammonium bicarbonate from Raigad-based Rashtriya Chemicals and Fertilisers Limited (RCF) for this year's Ganesh festival. Last year, PMC distributed around 85 tonnes of bicarbonate in societies and individual households that were celebrating the festival, also putting the compound in different Ganesh idol immersion tanks. The civic body claimed that around 25,000 idols were immersed and dissolved in ammonium bicarbonate.

NCL had completed all the tests and it has been proven that idols dissolve in ammonium bicarbonate water within two days. According to NCL, dissolving a 1kg idol requires the same amount of the compound to be stirred well in five litres of water. The proportion is 1:1. As the idol weight increases, the quantity of bicarbonate also does. One needs to stir the water four to five times in intervals for the idol to dissolve, which takes a maximum of two days.

The residue can be used as a fertiliser. Dr Subhangi Umbarkar, a senior scientist from NCL, said, "We will speak to PMC about the undissolved parts of Ganesh idols. The head and trunk are the solid parts. The remaining parts are hollow and dissolve easily, as we mentioned in our experiment. This time, we are going to give our email address to PMC for queries."

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