

CSIR in Media



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Blooming problem for jasmine — it smells bad

CSIR-CIMAP

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Ever wondered why women who love to deck up their hair with jasmine choose just-opened buds over the fully-bloomed flowers? A team of researchers from a lab in Lucknow may have some answers.

Scientists from the Central Institute of Medicinal and Aromatic Plants (CIMAP) in Lucknow have found that buds of jasmine emanate a sweeter smell.

But this fragrance turns more pungent because of chemical changes that a volatile chemical compound — predominantly responsible for the fragrance — undergo.

In a work published early this week in the journal *Phytochemistry*, CIMAP scientists led by Ajit Shasany and

Chandan Chanotiya, painstakingly recorded chemical changes that take place as these buds bloom.

To their surprise, they found that linalool, an aromatic compound responsible for the sweet smell not just in jasmine but in many other flowers, makes a switch from one form to another during flowering.

Linalool, an industrially important aroma molecule used in flavour and fragrance compositions, is naturally found in two forms — R-linalool and S-linalool. While they have same chemical composition, there is a subtle change in the way different molecules are stacked in them.

“Structurally, they are mirror image of the each other,” said Pragadheesh V Shanmugam, who was the first author of the paper. Shanmugam, who completed his doctorate under Chanotiya, hails from a village in Erode district. While R-linalool has the fragrance of lavender, S-linalool smells like coriander, said Shanmugam.

Switch happening

“What was interesting to note was that there was a switch happening from R-linalool to S-linalool as the bud transforms into a fully-bloomed flower. As the flower blooms the levels of R-linalool go down, while that of S-linalool increase,” said Chanotiya. The relatively higher presence of S-linalool in the bloomed flower explains why people do not like it so much, he said.

“We have been able to isolate the gene responsible for the production of R-linalool in jasmine plant and are in the process of identifying the one that expresses S-linalool,” said Shasany.

The scientists hope that once this gene is isolated, they might be able to silence this gene, helping them to develop better-smelling jasmine varieties. Besides, this can also aid in producing better quality natural fragrant products, said Chanotiya.

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[Hindu Business Line](#)

The Bamboo Museum in Palampur Opens Our Eyes to the Amazing Potential of This Wonder Grass

CSIR-IHBT

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Bamboo is a tribe of flowering perennial evergreen plants belonging to the grass family. It is one of the most versatile grasses found on Earth. This amazing grass, which grows very fast and in clumps, can be grown anywhere. Bamboo grows naturally in the Northeastern and Southern parts of India, where the geographical conditions have always been suitable for it to grow in abundance.



For centuries now, the local people have been using bamboo for almost everything from food to construction. The best place to learn more about this 'woody grass' is at India's one and only Bamboo Museum, found in the premises of the Institute of Himalayan Bio-resource Technology, one of the many research laboratories of the Council of Scientific and Industrial Research of India, based in Palampur, in Himachal Pradesh.

The walls, the floor, the ceiling, the entire exterior, the doors and even the furniture inside are made using bamboo alone. Numerous handicrafts made out of bamboo are displayed in the museum. Seeds of bamboo as well as sweetmeats and pickles made out of bamboo are available for visitors to see and taste. To add to the beauty of the structure, along the exterior walls, varieties of bamboo are planted in pots.

“The Bamboo Museum was first open to public on the September 30, 2011. The residents of Palampur and many tourists get to visit this interesting place and learn about this ‘super’ grass. The museum was the brain child of Dr Anil Sood and a few of his scientist colleagues, who have done decades of research on this plant family,” says Dr Sanjay Kumar, Director of CSIR-IHBT.

The aim behind establishing a museum like this is to educate all the visitors on how just one family of grass, with over a thousand species, can take care of all our requirements.



Bamboo panels for the walls of the museum with lots of bamboo artifacts on display

There are about 125 species of this perennial evergreen plant found in India and around 50 of them are grown in the institute at Palampur. Bamboo comes in various colors, sizes and girth, is stronger than steel, earthquake-proof and an extremely effective erosion control agent. There is a strong and thorny variety of bamboo that can be grown along the international borders of the country, making a natural fence that is sturdy and very difficult to get across.

“Bamboo can be used as a wood substitute for construction work as well as for making strong and sturdy furniture. Bamboo as activated charcoal can be used in water filtration plants and in wineries. We can make paper, handicraft items, weapons and musical instruments from bamboo,” continues Dr. Sanjay.

Bamboo shoots and other tender parts of the grass are used to make pickles and other food items. Bamboo candy, as discovered in this laboratory, is rich in vitamins, proteins and fiber and is said to have the capacity to reduce cholesterol if consumed regularly. The food and nutrition department at the institute has been working on introducing into the market bamboo noodles, bamboo nuggets and many other snacks made of bamboo.

All these qualities of the various species of bamboo are showcased at the Bamboo Museum at Palampur.



Different species of bamboo in pots add to the external beauty of the museum

After reading all the information provided at the museum about the ‘Green Gold of the Forest,’ one realizes that bamboo is one of those grasses that will alleviate the problem of food, clothing and housing in the entire country. Bamboo can be grown anywhere and since it grows very fast, it can be harvested and put to use within four years of it being planted.

“There is no requirement to destroy bamboo forests for industrial requirements. All that is required to be done is to grow this grass on barren land, which will help create afforestation and reduce soil erosion. In a clump, the older shoots are found on the inside, while the younger shoots are found on the periphery. If the shoots are cut systematically for human and animal consumption, the clump will never be lost”, adds the director of IHBT

The IHBT laboratory specializes in plants found in the Himalayas and though Bamboo is not a natural grass found in these mountains, the scientists here promote the research on this plant family and are doing their best to spread information about this grass tribe. These scientists hope that the government and the citizens of this country will understand the importance of growing bamboo extensively and making the best use of it.

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[BetterIndia](https://www.betterindia.com)

Scientist urges people to become eco-friendly

CSIR-NEERI

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Eminent scientist and Director of CSIR-National Geophysical Research Institute NEERI, Dr Rakesh Kumar, called upon people from all walks of life to render their bit to achieve and sustain eco-balance. This was despite the pioneering measures being initiated by the government of the day that pertained to climate change and making environment livelier for future generations.

Dr Kumar made this observation while delivering a lecture on 'climate, health, and water' in the city. He underscored the importance of climate, water and health that could impact every living being. Projecting a damaging picture because of the

abuse of nature's bountiful by vested interests, he said that felling of trees in the name of urbanisation was the biggest bane across the globe.

Warning that deforestation could trigger a devastation all over, he cited the example of the massive deforestation in Nepal that led to floods in Bihar. Erosion of soil and air pollution were the prime cause for prevalence of pollution. He said that India still suffers from lack of pure potable water. This could be addressed if contaminated water is recycled in a scientific manner so that it could be purified and used for domestic purposes.

Meanwhile, he appreciated the efforts being taken by the government to ensure water conservation, although there was a compelling need to spread awareness in order to ensure that people also join in this mission. This would also make events like Earth Day celebrations more meaningful, he said while adding, “It is all in our hands.”

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[Hans India](#)

Cidco to issue Ulwe hill cutting work order today

CSIR-CIMFR

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Cidco will issue the work order for Ulwe hill blasting and cutting to the premier Central Institute of Mining and Fuel Research (CIMFR), a constituent laboratory of Council of Scientific and Industrial Research (CSIR), on Friday.

The institute will provide expert technical advice on the blasting and cutting the Ulwe hill, and the diversion of the eponymous river to make way for the Navi Mumbai international airport (NMIA).

Bhushan Gagrani, MD, Cidco, led a team of engineers on Wednesday at the airport site for inspection and early execution of work.

The board had already approved the appointment of the Jharkhand-based tech institute on April 27.

"We will issue the work order on Friday and start work at the earliest," said a Cidco official. Attempts will be made to work even during the rainy months that start from June.

Chief engineer overseeing the pre-development airport works Sanjay Chaudhary said, "The entire operation will be videographed. It could be displayed later at the airport terminal for passengers to see how the airport was developed."

The completion of the hill operation, the major part of the pre-development airport work, will take around 18-24 months in view of the difficult terrain.

Cidco has claimed that no airport development work in India or elsewhere could have involved hill-cutting, land-filling with hill debris as well as river diversion operations.

There are instances of sea being filled up for airport as in Hong Kong, but not any prominent airport site where both hill was cut and land filling done, said officials.

Besides, the land operations of the upcoming Navi Mumbai International Airport (NMIA) involve river diversion too (see box).

In view of the gargantuan task ahead, the Centre also extended the deadline of the first take off from 2019 December-end to 2020 on April 28 after Union minister of state for civil aviation Jayant Sinha did an aerial survey of the site.

CIMFR, an autonomous government body and India's largest research and development organisation, has been associated with premier infra projects such as the Koyna dam, nuclear power plants and road infra works in hilly areas of Jammu and Kashmir, Cidco said.

Central Water and Power Research Station, Pune, a central government body, was also roped in by Cidco to study the level of the airport from mean sea level, rise in the water level and rainfall.

Published in:

[TOI](#)

Noise-mapping at every airport to check noise pollution

CSIR-NPL

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Taking serious note of noise pollution from aircraft during its take off and landing and also during its movements at airports, the National Physical Laboratory of the Council of Scientific and Industrial Research (CSIR) has decided to assist the Delhi International Airport Ltd (DIAL) and the Airport Authority of India for 'noise mapping' of all airports across the country and suggest suitable mitigation measures to minimize its impact.

Noise-mapping is a scientific method to understand existing and projected noise levels in a particular area. The mapping, usually done by calculating noise levels in different scenario, help in making action plan for mitigation measures.

The seriousness of the issue was

discussed during a workshop on noise pollution at the National Physical Laboratory (NPL) last week where the Central Pollution Control Board (CPCB) and the DIAL requested the Laboratory to conduct training programs for noise measurements for their staff and assist them for 'noise mapping'.

Explaining the impact of continuous high-intensity sound on the health of human being, the CSIR-NPL director, D K Aswal, said the continuous exposure to noise above 85 decibels was harmful to hearing as per guideline of OSHA (Occupational Safety and Health Administration). "Documented research has found that noise does not have to be that loud to lead to physiological changes in blood pressure, sleep, digestion and other stress-related disorders," said Aswal

The environment ministry has fixed noise standards within the boundary for various airports as the ones applicable for 'industrial areas' -- 75 dbA (decibels) during day time (6 AM to 10 PM) and 70 dBA (decibels) during night time (10 PM to 6 AM) -- as an airport is also an industry. The specified limit, however, excludes aircraft landing and take-off noise.

The issue of noise pollution around airports had earlier been flagged by the National Green Tribunal (NGT) in January when it heard pleas filed by the residents of Vasant Kunj and Bijwasan in South Delhi. Both these residential areas are very close to the Indira Gandhi International Airport (IGIA) in the Capital.

Aviation regulator DGCA had, however, then told the NGT that all aircraft operating from India were compliant with noise standard requirements laid down by International Civil Aviation Organisation (ICAO) in order to operate globally.

"Nevertheless, the problem of noise pollution persists not only in areas around IGIA but also in the areas around many airports in the country. The 'noise mapping' will help the authorities to take remedial measures", said a CPCB official who attend ..

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[Economic Times](#)

Capital city too noisy, says study

CSIR-CRRI

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Noise pollution in the capital city has reached unprecedented levels, according to a noise mapping study conducted in Thiruvananthapuram city. The study conducted by CSIR-Central Road Research Institute (CRRI) for the pollution control board is a first of its kind study covering an entire city in the country.

The report accessed by TOI through RTI reveals that the ambient noise standards have been violated at every location during day and night. The rising noise levels in the city do not spare even the silent zones like schools and hospitals. The silent areas experienced more noise levels than prescribed limits. In every place, it has

noise levels equivalent to residential and commercial areas, the report notes.

The study was conducted in the wake of growing concerns on alarming levels of noise pollution in the city. The research team conducted study on traffic volume and noise mapping in 19 major junctions of the city. The detailed report, which recorded hourly noise levels during day and night at various stretches and junctions in the city, also carries projected noise levels in the city for 2030. It warns that there will be an alarming situation after 2025 in Thiruvananthapuram city due to extreme noise pollution.

"It's for the first time in the country that an entire city has been noise-mapped. There had been previous instances where selected areas in some cities would be mapped for noise and traffic volume. The high noise levels in Thiruvananthapuram are directly related to behaviour of honking horns and increase in traffic volume in major stretches in the city. It is high time that remedial measures be effected in the city," said Purnima Parida, senior principal scientist, CSIR-CRRI, who was part of the study team.

The report takes special note of Bakery and Thakaraparambu flyovers and Kesavadasapuram and Pattom in terms of noise levels. Noise levels near all flyovers were found to be higher because of heavy traffic on and under the flyovers. Noise mapping at Kesavadasapuram also reflects the heavy traffic situation on the circular intersection indicating the trend of vehicular movement. Noise mapping near Pattom reflected the trend that noise levels are high owing to the intersection and maximum traffic with honking noise.

Dr N Sulphi, ENT surgeon and secretary (Elect) of IMA says that increasing noise levels in the city has led to growing incidence of presbycusis (age-related hearing loss) among people of younger age. "Usually in presbycusis a loss of hearing occurs gradually with old age. But these days we come across cases where the patients are mostly in their 40s or less. It is one of the systemic effects of constant exposure to high decibel levels," said Sulphi. He added that anything above 70db is dangerous for human ears.

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