



NEWS BULLETIN

# Plants and Pollution

## ENVIS RP-NBRI

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Vol. 05, May 2019

## Plantation to Beat Pollution

CSIR-NATIONAL BOTANICAL RESEARCH INSTITUTE, LUCKNOW

### 130,000 trees to be planted in English cities and towns

[The Guardian, 19 May 2019](#)

More than 130,000 trees are to be planted in English towns and cities over the next two years as part of the nation's battle against global heating.

The environment secretary, Michael Gove, will announce on Sunday that grants for the plantings will be made available through the Urban Tree Challenge Fund.

The scheme, which will be administered by the Forestry Commission, will be open to individuals, local authorities, charities and NGOs. Grants will be given to pay for the planting of trees and for the first three years of their care in order to ensure they flourish.

"This will allow us to plant more trees much closer to where people live and work and where the benefits of trees make the most difference," said the Forestry Commission chair Sir Harry Studholme.

Trees play a crucial role in the fight against global heating – caused by burning fossil fuels that release carbon dioxide – because they store carbon. Trees in cities and towns also absorb noise, reduce flood risk, provide shade in summer and are associated with general good health and wellbeing.

"We need trees lining our streets, not only to green and shade them but to ensure we remain connected to the wonders of the natural world, which is why we must go further and faster to increase planting rates," added Gove.

A grant for planting a tree will be delivered as a challenge fund, which means that it will require matched funding from those who.....[Read More...](#)

### New Filipino Law Requires All Graduates To Plant 10 Trees

[The VICE, 27 May 2019](#)

Across Asia, various efforts to improve the dire global issue of pollution have been making headlines. Take when Thai and Vietnamese supermarkets started using banana leaves instead of plastic as an example, or when the Philippines did the same. Seeing these changes restores our faith in humanity, and only more are happening throughout the region.

On top of throwing hats in the air and going out for post-celebration food, planting trees is officially becoming a part of the Filipino graduation tradition.

This has happened since a bill was passed by the House of Representatives requiring elementary, high school and college students to plant 10 trees before being able to graduate, the CNN reports.

The "Graduation Legacy for the Environment Act," was passed on May 15th by Gay Alejano, MADGALO representative, and Strike Revilla, Cavite 2nd District representative. On top of having an immediate positive impact on the environment, the bill will also instil a new set of environmentally friendly values in young kids. Over generations, it is hoped that kids with this mindset will go on to take more far-reaching environmental actions for long-lasting change.

Explaining the motive behind the bill, Alejano said: "With over 12..... [Read More...](#)



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Plant as Pollutant Traper

CSIR-NATIONAL BOTANICAL RESEARCH INSTITUTE, LUCKNOW

### The thin green line: grow your own barrier against pollution

The Times, 17 May 2019

The thin green line should be the new front line when it comes to defeating air pollution, scientists have said.

The judicious use of hedges can provide a significant barrier to particulate pollution, according to recent research.

Plant biologists say, however, that when it comes to improving air quality not all hedges are equal — and the humble privet may not be the best.

The Royal Horticultural Society has conducted an investigation into the pollution-limiting abilities of hedges after finding that increasing numbers of people are looking to plant them to dampen the effects of busy roads.

Emily Steadman and her children Imogen, 5, and Beatrice, 7, with the hedge they have planted at Torridon Primary School in southeast London to keep traffic fumes away from the playground.

“We believe that by partnering with the University of Sheffield’s BREATHE project in this research, we can help other schools find workable solutions and be part of real change for children locally, nationally and even.

“Suddenly everyone wants to know, and is waking up to this problem,” said Tijana Blanusa, principal horticultural scientist at.....[Read More...](#)

### Trees Tested as Pollutant Traps

The Scientist, 28 May 2019

Breathing in traffic fumes is accepted as unhealthy, but whether landscaping with vegetation can protect people is a matter of debate. Modeling studies generally suggest that trees do not have a substantial beneficial impact on pollution levels, and may even worsen a situation by trapping pollutants in certain areas.

Now, a study finds that certain tree species are surprisingly efficient in scrubbing toxic particles from the air. Wind tunnel experiments demonstrate that leaves trap considerable numbers of particles with a diameter less than 100 nanometers. The group put nine tree species through their paces, with three clear winners in the top tier, the study, published May 16 in Environmental Science & Technology, finds.

Birch, the best-performing tree, removed 79 percent of these ultrafine particles from the air, while yew and elder each captured around 70 percent. Such trees could be planted at pollution hotspots to quickly improve air quality, the scientists suggest.

“I was pleasantly surprised at what a great job these species are doing at removing some of the finest particles,” says Barbara Maher at Lancaster University in the UK, with silver birch excelling in trapping particles even less than 30 nanometres across. She suggests that the ideal particulate traps would be tree species maintained as hedges,..... [Read More...](#)





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## Innovative Way to Make Air Pollution Free

CSIR-NATIONAL BOTANICAL RESEARCH INSTITUTE, LUCKNOW

### Business unusual: four innovations to clear the air

UN Environment, 28 May 2019

As a global movement to tackle air pollution gathers pace, innovators are rising to the challenge, unveiling products and technologies that remove some of the dangerous toxins that are seeping into our lungs and accelerating climate change.

According to the World Health Organization (WHO), every year around 7 million premature deaths are caused by air pollution. That's 800 people dying every hour. But the good news is that there is a growing public understanding that action must be taken.

Here are four innovative businesses and their cutting-edge technologies to beat air pollution:

Special paint gives Mexican murals super powers  
Mexico City may be infamous for its smog but it's also renowned for its murals, and now the two have come together in a startlingly innovative way. The Absolut Street Trees initiative involves artists painting giant murals in the city using Air-lite paint, which purifies polluted air in a process similar to photosynthesis.

The BioSolar Leaf that will do the work of 100 trees

Scientists at Imperial College, London are collaborating with start-up Arborea on the world's first BioSolar Leaf—large panels covered with tiny plants that mop up carbon dioxide and release oxygen at a rate equivalent to 100 trees from the surface area of a single tree.....[Read More...](#)

### Bengaluru Driver Turns Bus into Mini-garden, Leaves Netizens Rooting For Him

NEWS18, 07 May 2019

A bus driver from Karnataka is drawing praise for his efforts to spread awareness among people about the importance of keeping the environment green.

Bangalore Metropolitan Transport Corporation's (BMTC) driver Narayanappa has kept plants in the bus he drives between Kaval Bylasandraa and Yeswanthpur in the city, news agency ANI reported.

Narayanappa said that he started the green drive a few years ago to create awareness about the environment.

"I have been doing it for last 3-4 yrs to create awareness about keeping the environment green." Many were inspired by the bus driver's efforts for a green environment.

"When each citizen does his bit we will see a visible change. Congratulations!!" wrote Ratna Prabha, former Chief Secretary of Karnataka.

"Good example of keeping environment green," read one of the many comments hailing the bus driver.

In Bengaluru, PM2.5 levels are routinely measured above the Central Pollution Control Board (CPCB) standard for India – 60 µg/m<sup>3</sup> over 24 hours.

The city is, in fact, classified as one of India's 100 'non-attainment cities', meaning it does not meet the CPCB's National Ambient Air Quality Standards....[Read More...](#)



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### Microbes and Plants

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#### Plastic pollution harms the bacteria that help produce the oxygen we breathe

Science Daily, 14 May 2019

"We found that exposure to chemicals leaching from plastic pollution interfered with the growth, photosynthesis and oxygen production of Prochlorococcus, the ocean's most abundant photosynthetic bacteria," says lead author and Macquarie University researcher Dr Sasha Tetu.

"Now we'd like to explore if plastic pollution is having the same impact on these microbes in the ocean."

Plastic pollution has been estimated to cause more than US\$13 billion in economic damage to marine ecosystems each year, and the problem is only getting worse with marine plastic pollution estimated to outweigh fish by 2050.

"This pollution can leach a variety of chemical additives into marine environments, but unlike the threats posed by animals ingesting or getting entangled in plastic debris the threat these leachates pose to marine life has received relatively little attention," says Dr Lisa Moore, a co-author on the paper. In the first study of its kind, the researchers looked at the effects these chemicals have on the smallest life in our oceans, photosynthetic marine bacteria.

"We looked at a group of tiny, green bacteria called Prochlorococcus which is the most abundant photosynthetic organism on Earth, with a global population of around three octillion (~10<sup>27</sup>) individuals," says Sasha.

These microbes are heavy lifters when it comes to carbohydrate and oxygen production in the ocean via photosynthesis.....

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#### Mapping microbial symbioses in forests

Science Daily, 15 May 2019

Stanford University researchers worked alongside a team of over 200 scientists to generate these maps, published May 16 in Nature. From the work, they revealed a new biological rule, which the team named Read's Rule after pioneer in symbiosis research Sir David Read.

In one example of how they could apply this research, the group used their map to predict how symbioses might change by 2070 if carbon emissions continue unabated. This scenario resulted in a 10 percent reduction in the biomass of tree species that associate with a type of fungi found primarily in cooler regions. The researchers cautioned that such a loss could lead to more carbon in the atmosphere because these fungi tend to increase the amount of carbon stored in soil.

"There's only so many different symbiotic types and we're showing that they obey clear rules," said Brian Steidinger, a postdoctoral researcher at Stanford and lead author of the paper. "Our models predict massive changes to the symbiotic state of the world's forests -- changes that could affect the kind of climate your grandchildren are going to live in."

Hidden to most observers, these inter-kingdom collaborations between microbes and trees are highly diverse. The researchers focused on mapping three of the most common types of symbioses: arbuscular mycorrhizal fungi, ectomycorrhizal fungi and.....

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