Plants and Pollution
ENVIS RP-NBRI
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Improve Air Quality through Plantation
CSIR-NATIONAL BOTANICAL RESEARCH INSTITUTE, LUCKNOW

Gurgaon civic body planting anti-pollution and flowering plants to combat pollution

The Times of India, 08 November 2020

The Municipal Corporation of Gurugram (MCG) has identified a dozen spots in the Millennium City where the civic body has been planting anti-pollution and flowering plants to not just combat the growing air pollution but also beautify the city landscape.

The MCG has been consulting philanthropic flower farmer and horticulturist Dr Ramji Jaimal for the project, who has suggested 52 varieties of plants that can be planted across the city.

Since being engaged by the MCG last month, Dr Jaimal took help of nurseries in several parts of Gurgaon to begin planting seeds of these 52 varieties in places like Sheetla Mata Mandir Road, Sector 4, Sector 46 Park, Golf Course Road and NH-48 near Delhi-Gurgaon border.

Now that the plants have begun to grow, residents and environmentalists in various parts of the city have pledged to help the MCG in looking after and maintaining them.

According to the civic body, the plant varieties and species have been chosen keeping in mind their impact on the environment, efficacy in curbing air pollution, and also the aesthetic value.

A report named Gurgaon as the most polluted city in the world last year and this year too, the air quality index in the city has frequently breached the 500 mark (as opposed to a safe value of 60).

Over the years, the MCG and city-based activists and organisations have tried several measures to curb air pollution including a ban on construction and waste burning, installing vertical gardens, etc.

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Plants protect themselves against self-induced air pollutants

PHYS.ORG, 04 November 2020

Trees and other plants release isoprene into the atmosphere. Oxidation processes result in compounds that are harmful to plants. Researchers at the University of Innsbruck have now uncovered a mechanism by which plants protect themselves from these compounds, and have thus discovered an important biogenic source of oxidized volatile organic compounds in the atmosphere.

Plants release large quantities of the hydrocarbon isoprene into the atmosphere, about 600 million metric tons per year, half of which comes from tropical forests. This corresponds approximately to the annual emission of methane on earth. "It is believed that trees release isoprene to protect themselves from oxidative stress," explains Armin Hansel from the Department of Ion Physics and Applied Physics at the University of Innsbruck. Together with scientists from Germany, Finland and the U.S., his research group has now investigated this interaction between the atmosphere and the plant world more closely.

Plants neutralize Isoprene photooxidation products

In the atmosphere, isoprene released by plants is very quickly converted by photo-oxidation into compounds that are harmful to plants. The Innsbruck scientists exposed young poplars to small doses of these compounds in the laboratory and studied the gas exchange under controlled conditions. For the measurements, the researchers used a specially developed mass spectrometer that can detect even the smallest concentrations of these chemical compounds in air. Similar instruments are distributed by the Innsbruck-based technology company Ionicon Analytik. Such devices were also used on measuring towers in forests…….. Read More...

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Crop residue used to raise Miyawaki forest in Lucknow

The Times of India, 18 November 2020

LUCKNOW: The Miyawaki forest coming up in Kukrail is being raised with crop residue.

Under the process, a layer of residue is laid on the ground after plantation, called mulching, this prevents weed growth and retains moisture, thus cutting down the need for frequent irrigation.

Miyawaki is a Japanese technique named after botanist Akira Miyawaki.

These forests help cut down air pollution.

At least three saplings are planted every sq metre in this technique in layers: first the shrubs, then sub-trees and trees and then trees with dense canopies.

The technique is suitable for cities where space is short.
Miyawaki forests are being planted in 16 non-attainment cities of UP including Lucknow under the National Clean Air Programme.

The plantation had started in Chaandan block of Kukrail forest on November 3.

Trees are being planted in three spaces of 0.44 hectare, 0.24 hectare and 0.18 hectare.

A total of 430 quintal of crop residue has been purchased from farmers at the rate of Rs 200 per quintal.

It is also helping bamboo growers as bamboo sticks are being used to support the plants.

The forest department is also reclaiming a naturally existing pond in the vicinity through desilting.
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More green spaces can help boost air quality, reduce heart disease deaths

Science Daily, 09 November 2020

"We found that both increased greenness and increased air quality were associated with fewer deaths from heart disease," said William Aitken, M.D., a cardiology fellow with the University of Miami Miller School of Medicine and UM/Jackson Memorial Hospital in Miami, Florida.

Greenness is a measure of vegetative presence (trees, shrubs, grass) often assessed by NASA imaging of the Earth and other methods.

Here, researchers used the Normalized Difference Vegetative Index (NDVI), which measures wavelengths of visible and near-infrared sunlight reflected from the Earth's surface via NASA satellite imagery.

A higher index corresponds to more healthy vegetation, as chlorophyll typically absorbs visible light and reflects near-infrared light.

In this cross-sectional study conducted using national air quality, greenness, CVD and census data from 2014-2015, researchers measured greenness by county across the United States and compared it to national disease death rates from the Centers for Disease Control and Prevention's Interactive Atlas of Heart Disease.

They also overlaid data from the Environmental Protection Agency's air quality measurements of particulate matter for each county and the Census Bureau's information on age, race, education and income by county.

For every 0.10 unit increase in greenness, deaths from heart diseases decreased by 13 deaths per 100,000 adults……...…… **Read More…**