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Smokeless crackers this Diwali? First prototype made in Mohali

HT had reported on January 16 that Union minister for science and technology Harsh Vardhan had asked scientists from government-backed research institutes to develop e-firecrackers to control post-Diwali pollution.

INDIA (HTTPS://WWW.HINDUSTANTIMES.COM/INDIA-NEWS/)

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Joydeep Thakur (https://www.hindustantimes.com/columns/joydeep-thakur)
Hindustan Times



Professor Samrat Ghosh and his students show the prototype of 'smokeless smart crackers' in Mohali on Sunday.(Ravi Kumar/HT Photo)

The aim to create pollution-free firecrackers in time for Diwali this year has got a major boost, with the Indian Institutes of Science Education and Research (IISER), Mohali developing a prototype in which there is light and sound, but no smoke, scientists said on Sunday.

Further testing can pave the way for the mass production of crackers that significantly reduce the harmful after-effects of Diwali, particularly in Delhi and other north Indian cities.

“The prototype that we have developed, produces only sound and dazzling light. There is no smoke. Unlike a traditional firecracker, which produces a range of noxious gases that add to air pollution, this firecracker produces droplets of water on combustion. It is also reusable,” said Samrat Ghosh, assistant professor of chemical sciences at IISER, Mohali who led the team that developed the prototype.

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Scientist develop smokeless firecrackers for Diwali



Last year, the Supreme Court had banned the sale of firecrackers in the National Capital Region, where poor air quality has forced authorities to declare public health emergencies for the last three winters.

The IISER, Mohali prototype is made up of a plastic bottle loaded with a combustible gas. It is mounted on a handheld device, which is basically an improvised gas lighter. When triggered, the lighter produces a spark and the gas is ignited. It produces a dazzling light and loud bang. Unlike traditional firecrackers, it can also be fired when it is raining, scientists said.

The prototype has a second version that can be fired from a ground-based launcher,

akin to the traditional 'rocket' firecracker.

"We have not decided on the price yet. But as the bottles can be refueled, just like your LPG-gas cylinder. We are sure that it won't cost much," said Ghosh, adding that the IISER team has initiated talks with some entrepreneurs to go for mass production.

Meanwhile, researchers at the Council of Scientific and Industrial Research (CSIR) are also working on smokeless prototypes, which are expected to be ready in the six months with the aim that they will be on the market before Diwali this year.

"The one which has been developed by scientists at IISER, Mohali appears to be based on some chemicals, which need to be ignited. We are developing a different type, which will actually be an electronic firecracker," said Santanu Chaudhury, director of CSIR's Central Electronics Engineering Research Institute (CEERI) in Pilani, Rajasthan.

Traditional firecrackers are highly polluting because manufacturers use a range of compounds that use metals such as barium, antimony, copper and lithium, which emit toxic fumes.

Delhi suffered its worst smog in 17 years after Diwali in 2016. In 2017, despite the Supreme Court ban on the sale of crackers, there was again a spike in pollution levels, triggered by crackers procured from outside the region, experts said.

"It is a welcome move. All kinds of innovations in the field of developing smokeless firecrackers are invited. Efforts are also on to make smokeless and electronic firecrackers. We are expecting some results in the next two to three months," said Rakesh Kumar, director of the National Environmental Engineering Research Institute.

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