



CSIR IN MEDIA

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CSIR-NPL

IT ALMOST looks unreal when you see this experiment. By just pouring water at room temperature on a contraption that looks like an improvised solar panel mounted on a thin plate resembling terracotta, one can produce electricity enough to run an array of tiny LEDs or a small table fan.

It is indeed water sprinkled at room temperature, but what happens on the cell is a matter of high science and a remarkable new technology developed at National Physical Laboratory in New Delhi. Dr Ravinder Kumar Kotnala and his colleague Dr Jyoti Shah have developed a hydroelectric cell that uses water to produce electricity.

The cell consists of magnesium ferrite pellets, zinc anode and silver cathode. When water is sprinkled on it, water molecules disintegrate into hydrogen and hydroxide ions, due to nanoporous ferrite. In the elec-

A revolutionary invention

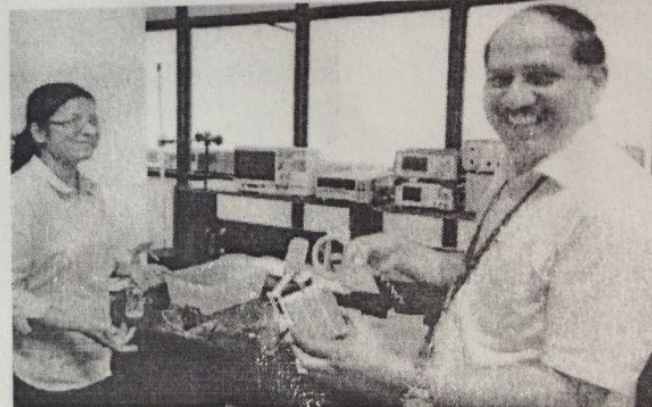
PHOTO: D C SHARMA

trochemical reaction that follows, zinc hydroxide gets deposited at the anode and hydrogen gas is produced at the silver electrode.

Hydronium ions trapped in nanopores develop electric field.

Hydroelectric cell forms electricity with water

"Our cell can produce electricity by using a combination of material properties, electrode chemistry and water at room temperature," explained Kotnala, who is the chief scientist at NPL and has been engaged in this research for the past 15 years.



Dr RK Kotnala and his colleague, Dr Jyoti Shah, in their lab.

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Fireworks leave plants high and dry

CSIR-NBRI

To maintain the bloom in the garden, it is advisable to avoid bursting crackers near plants and trees. Atmospheric toxicity increases because of fireworks, affecting growth of the plant and its productivity.

"Toxic gases and chemicals emitted during bursting of crackers affects the rate at which carbon dioxide enters, or water vapour emanates through leaves," said Aradhana Mishra, senior scientist at National Botanical Research Institute (NBRI).

Moreover, transportation system of plants is disturbed and minerals, food and water don't reach leaves and stems of the plant leaving them dry. The metabolic rate of the plant is also disturbed affecting its growth, she added.

Mishra said bursting of crackers near edible plants like curry, coriander, tulsi and others should be avoided as the dust particles and chemicals emitted from crackers will lead to health hazard on consumption of such plants.

Covering of plants during is not at all advisable as it will affect the Carbon dioxide concentration of the plants affecting the process of photosynthesis, she added.

Another senior scientist of NBRI Vivek Pandey said stomata of leaves are closed at night but in the morning the harmful chemical enters affecting the plant health.

Oct 28, 2016

Source: timesofindia.indiatimes.com/city/lucknow/Fireworks-leave-plants-high-and-dry/articleshow/55103140.cms

Don't let smoke, sound, burns spoil festive fun

CSIR-IITR

People suffering from asthma, bronchitis and other chronic obstructive pulmonary diseases (COPD) should take extra care of themselves during Diwali as experts say their medical condition can aggravate around the festival.

Last year around Diwali, the tiniest form of suspended air pollutant - PM 2.5- had seen an increase of 152% from the previous year, according to the ambient air quality report of Lucknow by Indian Institute of Toxicology Research Centre (IITR). Being small in size, PM 2.5 travels easily through the respiratory tract, sticking to the lungs, causing short term effects such as eye, nose, throat and lung irritation, coughing, sneezing, runny nose and shortness of breath, apart from worsening asthmatic and heart conditions.

Long term exposure causes increased rate of chronic bronchitis and reduced lung function. Heart patients should also take prevention.

"Season change with smoke in the air creates additional problems when the pollen and pollutants in air combine. Patients should not overdose or under-dose their medication and take expert help if breathing issues worsen," said Dr Ved Prakash of respiratory department of King George's Medical University (KGMU). Not just respiratory issues, ear, nose and throat (ENT) are also under threat from the high decibels of sound and air pollution. "Every year, there is an influx of 2-2.5% patients of acoustic trauma post-Diwali. Sound levels should be maintained around 80-85 decibels and with cracker noise at around 130 decibels, buzzing, irritation, dizziness, long term hearing impairment and other ear problems start. If not treated early, some might even become irreversible," cautioned ENT surgeon Dr Rakesh Srivastava.

Air pollution due to Diwali crackers also causes nasal problems like breathing difficulties and collection of fluid behind the ear that may lead to hearing loss. With respiratory issues, the heart is also at a higher risk and irritability, blood pressure and blood sugar rise.

"Night coughing is a phenomenon that increases during Diwali. Smoke adds to it and it is advisable to take an anti-allergic seven days prior and post-Diwali. If problem persists, nebulisers and inhalers should be used on prescription," added Dr Srivastava.

Oct 28, 2016

Source: timesofindia.indiatimes.com/city/lucknow/Dont-let-smoke-sound-burns-spoil-festive-fun/articleshow/55103128.cms



मंडी : सी.एस.आई.आर. टीम द्वारा जंगली गेंदे के पौधे से निकाला गया तेल व मौजूद किसान। (व्यूरे)

जंगली गेंदे से तेल निकालना सिखाया

सी.एस.आई.आर. की टीम ने द्रमण गांव में दी जानकारी

मंडी, 25 अक्टूबर (सकलानी): जोगिन्द्रनगर क्षेत्र की नोहली पंचायत की बजरंग किसान विकास समिति द्रमण ने सी.एस.आई.आर. पालमपुर व आई.आई.टी. मंडी से प्रशिक्षण लेकर जंगली गेंदे से तेल निकालना सीखा है।

मंगलवार को सी.एस.आई.आर. पालमपुर की टीम ने द्रमण गांव में आकर मशीन से जंगली गेंदे से तेल निकाल कर किसानों को जानकारी दी।

टीम में टैक्रीशियन विकास कुमार व लैब अटेंडेंट मौजूद रहे। इस पौधे से निकलने वाले तेल की मार्केट में करीब 15 हजार

रुपए प्रति लीटर कीमत है जबकि जंगली गेंदे के पौधे की कीमत भी 1200 से 1500 रुपए प्रति क्विंटल है।

बजरंग किसान विकास समिति के प्रधान अनिल राणा ने कहा कि समिति के सदस्यों ने इस संबंध में आई.आई.टी. मंडी स्थित कमांड व सी.एस.आई.आर. पालमपुर में प्रशिक्षण लेकर अपने खेतों में जंगली गेंदे की फसल को बिजाई की है।

उन्होंने सरकार से मांग उठाई है कि जंगली गेंदे के तेल को किसानों की आजीविका का माध्यम बनाने सहित इसकी मार्केटिंग को लेकर कदम उठाए जाएं। इस मौके पर किसान भाल चंद भारद्वाज, चमारु राम, भवानी दत्त, शमशेर सिंह, लेखराज व खेम सिंह सहित अनेक किसान मौजूद रहे।