Embassy of India, Berne

# INDIA SCIENCE AND INNOVATION WEEKLY

08 August 2022

*Ask the right questions, and nature will open the door to her secrets*
*- Dr. C.V. Raman, The Nobel Prize in Physics 1930*

## MoES is Establishing an Ocean Thermal Energy Conversion Plant in Kavaratti

The National Institute of Ocean Technology (NIOT), an autonomous institute under the Ministry of Earth Sciences (MoES) is establishing an Ocean Thermal Energy Conversion plant with a capacity of 65kW in Kavaratti, the capital of Lakshadweep islands. MoES also informed that the plant would power the 1 lakh litre per day low temperature thermal desalination plant, which converts seawater into potable water. Further, MoES is developing technologies for mining deep sea resources like polymetallic nodules from the Central Indian Ocean at a water depth of 5500 metre and was working on introducing Ocean Climate Change Advisory Services for climate risk assessment due to sea level rise; cyclone intensity and frequency etc.

## Courses on R&D in Drone Sector

In last few years, Drone sector has become a shining example of significant growth of innovation and start-ups as many acclaimed institutional institutes has launched and started educational degrees and opportunities to promote quality research and development in the drone sector. The institutes which have started R&D in Drone sectors are:

- Indian Institute of Science (IISc) Bangalore
- Indian Institutes of Technology (IIT) Bombay
- IIT Kanpur & IIT Madras
- Defence Institute of Advanced Technology (DIAT) Pune,
- International Institute of Information Technology (IIIT) Hyderabad
- Anna University, etc

## CSIR-IIP, Dehradun Identified Fungus for Pyrene Remediation

Scientists & Researchers at the Council of Scientific & Industrial Research-Indian Institute of Petroleum (CSIR-IIP), Dehradun, identified a fungus capable of removing toxic, recalcitrant, and carcinogenic polycyclic aromatic hydrocarbons (PAHs) from the environment. The researchers at IIP identified a white-rot fungus Trametes maxima IIPLC-32 which has the potential to cause microbial degradation of pyrene & by growing on dead plants this fungus causes pyrene degradation using special enzymes. The fungus identified by the researchers can cause microbial degradation, thereby improving the soil quality and quote that "This fungus acts to decrease the pollution level of the soil,".

## MESODG Found a Strategy to Improve the Performance of Polyaniline (PANI)-Based Supercapacitors

Scientists at Materials for Energy Storage and Optoelectronic Devices Group (MESODG), Physics Department of Sanatana Dharma College, Alappuzha, found strategy to improve the performance of polyaniline (PANI)-based supercapacitors. Scientists further added that the New low-cost, polymer-based electrode could increase electrochemical performance of supercapacitors in wearable integrated devices. The study is published in the Journal 'Electrochimica Acta' recently & carried out using the instrumentation facility procured through the Fund for Improvement of S&T Infrastructure (FIST) programme of the Department of Science and Technology (DST) programme. It would open new vistas for the development of energy sources for low-cost and lightweight wearable electronic devices.

## Special Update: IASST Scientists Developed a Smart Biodegradable Biopolymer Nanocomposite

Scientists & Researchers at Institute of Advanced Study in Science and Technology (IASST), an autonomous institute of the Department of Science and Technology (DST), developed a smart biodegradable biopolymer nanocomposite which could detect relative humidity. In this, two biopolymers, Guar Gum and Alginate were blended with carbon dots (nanomaterial) to make a nanocomposite film that was successfully used to detect relative humidity. The nanocomposite film shows change in fluorescence in presence of high humidity. Hence, the fabricated nanocomposite film could monitor the packed food freshness using just a UV light source. The biodegradable biopolymer nanocomposite has practical application in food industries.