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# INDIA SCIENCE AND INNOVATION WEEKLY

*Ask the right questions, and nature will open the door to her secrets.*

*- Dr. C.V. Raman, The Nobel Prize in Physics 1930*

## Pigmentation disorder study

Wellcome Trust/DBT Alliance has awarded an intermediate fellowship award to Regional Center for Biotechnology (RCB), to conduct a study in understanding pigmentation disorder. In long run, this project is expected to have two prolonged benefits for society - protection from UV-induced skin cancers and potential treatment options for pigmentary disorders.

## ILS and Jigsaw Bio researchers identify asymptomatic malaria

Bhubaneswar-based Institute of Life Sciences (ILS)'s Department of Biotechnology and Bengaluru-based Jigsaw Bio Solutions have come up with a method to overcome the inadequate identification of asymptomatic carriers of malaria. Researchers have used a new concept of genome mining that identifies identical multi-repeat sequences throughout the malaria parasite genome and developed an ultra-sensitive qPCR assay for malaria diagnosis.

## NCBS Researchers shed light on motor neurons of Zebrafishes

Researchers from the National Centre for Biological Sciences (NCBS), Bengaluru have shed light on the neural mechanism involved in fast movement of Zebrafishes. The team evoked the optomotor response in the laboratory by moving black and white bars on a little screen placed under the fish and added drugs to activate dopamine receptors, which increased the fish's tail bending.

## Biofuel from microorganisms

A team from International Centre for Genetic Engineering and Biotechnology (ICGEB) has successfully engineered a marine cyanobacterium called *Synechococcus* sp. PCC 7002, which showed a higher growth rate and sugar (glycogen) content than land-based crops. This bacteria could aid in biofuel production, pending follow-up studies. The yield of sugars from cyanobacteria could potentially be much higher than that of land-based crops. Further, unlike plant-based sugars, cyanobacterial biomass provides a nitrogen source in the form of proteins.

## PM lauds IAF, IIP Make in India biofuel trial

While addressing the 9th episode of 'Mann Ki Baat 2.0', Prime Minister Mr. Narendra Modi applauded the efforts of the scientists of the Council of Scientific and Industrial Research (CSIR) and Indian Institute of Petroleum (IIP), Dehradun, who developed the technology to fly an aircraft with biofuel. PM Modi said that their efforts also empower the 'Make in India' mission. He stated that history was made when an Indian Air Force (IAF) AN-32 aircraft took off from Leh's Kushok Bakula Rimpochee Airport with a mixture of 10% Indian bio-jet fuel and this was the first time that this mix was used in both engines. The oil, procured from various tribal areas, will reduce India's carbon emission footprint as well as India's dependence on crude oil.

## Vermicompost technology to help farmers produce more income

The Itanagar branch of CSIR-North East Institute of Science & Technology in collaboration with Arunachal Pradesh Rural Bank Rural Self Employment Training Institute (APRB-RSETI) conducted a two-day training programme on vermiculture and vermicompost production technology. Director of APRB-RSETI Mr. Aben Dupak elaborated on the main objective of the training programme towards sustainable socio-economic development in the rural sectors in the state. Senior technical officer Dr Budhen Chandra Baruah stressed on the need for using vermicompost and highlighted the severe impact in the health by use of different chemical fertilizers and pesticides in different horticultural crops. Vermicomposting could help farmers generate handsome income without significant investment and can generate self-employment opportunity by establishing a commercial vermicompost production unit.

## NCBS method to detect virus associated with a rare skin cancer

A team from National Centre for Biological Sciences, Bengaluru, has developed a diagnostic system to detect the presence of Merkel cell polyomavirus in Merkel cell carcinoma tumours. Merkel cell carcinoma is a rare and aggressive type of skin cancer. The researchers have developed a test using the CRISPR-CAS12 technology that can identify the virus in the tumour and give off a fluorescence to indicate the presence of the virus. This is an important development, both, from the point of view of diagnostics and giving a prognosis for the condition. The team adapted a system named DETECTR (DNA endonuclease-targeted CRISPR trans reporter) to help them in this endeavour.

## Special Update: National Science Day

The National Science Day is celebrated every year on February 28 in India to celebrate the discovery of the 'Raman Effect'. Dr. C. V. Raman invented the 'Raman Effect' and official declared it on this day. He was awarded the Nobel Prize in Physics in 1930.. The theme for National Science Day 2020 was "Women in Science". To celebrate this day, Dr. Niti Kumar was awarded the Science and Engineering Research Board (SERB) Women Excellence Award by the President of India Shri Ram Nath Kovind for her work in understanding protein quality control machinery in human malaria parasite for exploration of alternative drug targets for malaria intervention.

Raman Effect is a phenomenon in spectroscopy discovered by the eminent physicist Dr. C.V. Raman while working in the laboratory of the Indian Association for the Cultivation of Science, Kolkata.

Further details can be found at:

[http://www.rii.res.in/history\\_overview.html](http://www.rii.res.in/history_overview.html)