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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*

## IITians launch affordable antiviral protection kit

Indian Institute of Technology (IIT), Delhi incubated startups E-TEX and Clensta have teamed up and launched a complete indigenous antiviral protection kit. The kit consists of a novel Clensta protection lotion, which offers 99.9% virus protection which prevents from infections without harming the body or the environment; hand sanitizer, formulated to prevent multiple viruses; E-TEX Kawach, an antiviral fabric, which reduces the speed of contamination, and Kawach Mask.

## Scientists discover two new species of pipeworts in India

Scientists from Pune-based Agharkar Research Institute (ARI) have found two new plant species from the plant group, known as pipeworts (Eriocaulon) in the western Ghats, one of the 35 hot-spots of biological diversity in the world. The Eriocaulon plant group exhibits great diversity in the Western Ghats, having around 111 species in India.

## Scientists develop frugal method to extract anti-TB agents

Marine Biotechnology Division of National Institute of Ocean Technology (NIOT) has discovered a potential anti-Tuberculosis (TB) agent to fight against tuberculosis by successfully isolating the biomolecules of pharmacological importance from a marine microalgae *Chlorella vulgaris*. The present study revealed that Fatty Acid-Carotenoid Complex (FACC) of potent anti-TB agents would be an effective approach for tuberculosis treatment which allies with HIV related disorder.

## Researchers identify new fish

A group of international scientists from India, Germany, United Kingdom and Switzerland have described a new family of bony fishes from the Western Ghats, and named it Aenigmachannidae. The study suggest that members of Aenigmachannidae are "living fossils" and comprise an ancient gondwanan lineage that survived the break-up of the supercontinent and the northward drift of the Indian subcontinent, about 100 million years ago.

## India's AstroSat completes 5 years of mapping stars and galaxies in Space

AstroSat, India's first multi-wavelength astronomical observatory, completed five years of imaging celestial objects in space. Launched by the Indian Space Research Organisation (ISRO), AstroSat has carried out 1,166 observations of 800 unique celestial sources proposed by scientists both from India and abroad. Its superior spatial resolution capability has enabled astronomers to probe star formation in galaxies as well as resolve the cores of star clusters. AstroSat has proved to be an important satellite capable of carrying out simultaneous observations over a range of wavelengths from the far ultraviolet to the hard X-ray band. The Ultra-Violet Imaging Telescope (UVIT) in the Astrosat, one of the five payloads on board Astrosat, has recently led to the discovery of a galaxy located at a distance of about 10 billion light-years from Earth.

## Scientists identify unique patterns in COVID-19 transmission in India

Researchers, including those from the government of Tamil Nadu, and Andhra Pradesh, have conducted one of the largest analysis of COVID-19 epidemiology to date, and have found that both cases and deaths due to the disease have been more heavily concentrated in the 40-69 year age group in India than is seen in high-income countries, among other trends. Based on the data, the scientists said both cases and deaths in the two Indian states were concentrated in younger cohorts than expected from observations in higher-income countries. Follow-up testing of exposed contacts revealed that 70 per cent of infected individuals did not infect any of their contacts, while 8 per cent of coronavirus positive patients accounted for 60 per cent of observed new infections. The researchers said this finding presents the largest empirical demonstration of superspreading. According to the study, 63 per cent of those who died had at least one co-morbidity, and 36 per cent had two or more underlying health conditions that made them more susceptible to the disease, while about 45 per cent of those who died were diabetic.

## Special Update: National Geophysical Research Institute, Hyderabad

The National Geophysical Research Institute (NGRI), a constituent research laboratory of the Council of Scientific and Industrial Research (CSIR) was established in 1961 with the mission to carry out research in multidisciplinary areas of the highly complex structure and processes of the Earth system and its extensively interlinked subsystems. NGRI has the mandate to conduct research for public-good science to enable government agencies, public and private sector stakeholders to make informed decisions about use of geo-resources sustainably and improve preparedness and resilience to natural hazards. As a close understanding of Earth processes and its intersections with the growth and development of the human society only can secure the future, it is our vision to develop the knowledge base of Earth system processes and apply it to produce strategies to minimize loss of life and property from natural disaster as well as manage water, energy, and mineral resources for enhancing the quality of life.

The research activities fall broadly under three themes: **Geodynamics**, which revolve round investigating and modeling fundamental aspects of the Earth system and processes, **Earthquake Hazards**, which encompass features on the surface and subsurface of crust which may potentially endanger lives and properties through catastrophes like earthquakes and landslides as well as deterioration in pollution levels of groundwater and soil, changes in climatic conditions and associated environmental issues. The theme **Natural Resources** comprise of implementation of techniques to identify primary geo-resources, which are the pillars of human civilization and fount of economic growth like groundwater, hydrocarbons as well as alternate energy sources and minerals.

Further details can be found at: <https://www.ngri.org.in/index.php>