



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

Research on TB Bacteria

Researchers from Institute of Microbial Technology (IMTECH), Chandigarh have discovered that Mycobacterium tuberculosis, which mostly lives within macrophage cells in its human hosts, partly relies on a human drug-efflux protein to evade treatment.

Solution to deal with distillery effluent

Central Salt and Marine Chemicals Research Institute (CSMCRI), India has developed spent wash management technology that will enable alcohol distilleries to recover potash from their effluents which can be used as a fertilizer. The treated organics could be used in cattle feed and the recycled water, safely in irrigation, without the danger of contamination of groundwater.

Protein-producing parasite to aid in Arthritis treatment

Researchers from Central Drug Research Institute (CDRI), Lucknow, India have found a specific fragment of a protein secreted by the parasitic worm liver fluke (*Fasciola*) that protects the articular cartilage and can be used in treating rheumatoid arthritis.

Development of Dust-suction tool to prevent Silicosis

Researchers from Central Electronics Engineering Research Institute [CEERI], Pilani, India have developed a stone dust precipitator system to prevent silicosis. It has two variants – one for single artisan and another that can be used by four persons simultaneously. The suction is about 10 times higher than that of the inhaling power of human beings; it separates all the dust particles from the air and finally dissolves them in water.

IISc researchers identify brain changes when processing words

In a recent study, researchers at the Indian Institute of Science (IISc.), Bengaluru, have identified changes in the brain that help in visually processing words. The participants in the study had to search for an odd letter string in a field of identical letter strings to measure visual processing.

Launch of RISAT- 2BR1

On 11 December, India's space agency Indian Satellite Research Organisation (ISRO) successfully placed in orbit its latest RADAR imaging satellite and nine commercial satellites from Israel, Italy, Japan, and the US. It was the 50th launch of the PSLV [Polar Satellite Launch Vehicle] of ISRO. The 628-kg RISAT 2BR1 was placed in an orbit of 576 km. The satellite will provide services in the field of Agriculture, Forestry and Disaster Management. The mission life of RISAT-2BR1 is 5 years. The 9 commercial satellites were launched under commercial arrangement with NewSpace India Limited (NSIL), the commercial arm of ISRO.

Framework for Environmental Damage Cost Assessment with Examples

National Environmental Engineering Research Institute [NEERI] published a special report on "Framework for Environmental Damage Cost Assessment with Examples". The report highlights the methodologies by which environmental damages can monetarily be estimated. This report can act as a baseline tool for monetary assessment of environmental impacts and be useful for policymakers, industries, regulatory authorities, etc. The report contains the methodologies for evaluation of the damages and associated monetary loss due to the release of pollutants in four major sectors namely air, water, climate and solid waste.

Herbal extracts to better uptake Vitamin B12

Researchers from Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, India have identified a plant extract that has shown potential in enhancing absorption of Vitamin B12 through in vitro and in vivo bioassays. The formulation releases Vitamin B12 in controlled manner. It would provide pH dependent solubility (soluble in alkaline/intestinal pH) due to which the acidic gastric environment is bypassed and releases in intestinal pH. It also reduces the dosing frequency and thereby improves the patient compliance. Further pre-clinical and human studies are required to be done before the formulation is licensed to the interested industrial partner for its commercial utilization.

Special Update: Central Marine Fisheries Research Institute

The Central Marine Fisheries Research Institute was established by Government of India on February 3rd 1947 under the Ministry of Agriculture and Farmers Welfare and later it joined the Indian Council of Agricultural Research [ICAR] family in 1967. CMFRI's research has contributed significantly to India's marine fisheries development from a predominantly artisanal, sustenance fishery till the early sixties to that of a complex, multi-gear, multispecies fisheries.

One of the major achievements of CMFRI is the development and refinement of a unique method for estimation of fishery catch and effort from the over 8000 km coastline called the "Stratified Multistage Random Sampling Method". With this methodology the Institute is maintaining the National Marine Fisheries Data Centre (NMFDC) with over 9 million catch and effort data records from all maritime states of India of more than 1000 fished species.

The Institute's multidisciplinary approach to research in marine capture and culture fisheries has won it recognition as a premier institute comparable to any well-established marine laboratory in the world.

Further details can be found at: <http://www.cmfri.org.in/>