FORUM FOR INDIAN SCIENCE DIPLOMACY

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NEWS ALERT

Forum for Indian Science Diplomacy

RIS Science Diplomacy News Alert is your fortnightly update on Indian and global developments in science research, technological advancements, science diplomacy, policy and governance. The archives of this news alert are available at http://fisd.in. Please email your valuable feedback and comments to science.diplomacy@ris.org.in

GLOBAL

Declaration on Digital Interdependence by the UN

A new technology report was released on 10th June, 2019 by the UN High Level Panel on Digital Cooperation, led by the Secretary General Antonio Guterres, philanthropist Melinda Gates and Alibaba Founder Jack Ma. The report titled, "the Age of Digital Interdependence" is an outcome of consultations with governments, private sector, civil society, international organisations, academia, technical communities and other stakeholders, across the globe. The report highlights the urgency of improved digital cooperation and focuses on three main areas, namely; building an inclusive digital future; protecting human rights, promoting digital trust and security; as well as fashioning a new global digital cooperation architecture.

Increase in funding for Horizon 2020

The European Commission has announced a €13.2 billion budget for the last year of Horizon 2020, 6.4 per cent higher than 2019. The increase is allocated to key areas of competitiveness and economic growth, in order to finalise the pilot phase of the European Innovation Council, a €2.7 billion project for supporting scale-up and commercialisation. A significant amount is provided to Europe's own global satellite navigation system, Galileo. Moreover, Erasmus+ has been allocated €2.8 billion for education and the COSME (Competitiveness of Small and Medium-Sized Enterprises)

programme be attributed €413.1 million, to help SMEs access finance and scale up through innovation. €255 million will be funded for industrial R&D in defence, ahead of the launch of the European Defence Fund in 2021. The 2020 budget is to be approved by the EU parliament, after being agreed in the EU council.

Radiotracer developed to identify carcinogenic tumors

The Society for Nuclear Medicine and Molecular Imaging (SNMMI) reports that researchers from Heidelburg, Germany have developed a novel class of radio-pharmaceuticals, which can non-evasively identify nearly 30 types of malignant tumours. The researchers used 68Ga-FAPI positron emission topography/computed tomography (PET/CT), to image 80 patients with 28 different kinds of cancers. The discovery paves way for new applications in tumour characterisation, staging and therapy.

Novel transgenic method discovered to fight malaria

The scientists from the University of Maryland and Burkina Faso's IRSS research institute have genetically engineered a fungus that rapidly kills malaria-spreading mosquitoes. Strain of the fungus Metarhizhium pingshaense, which infects mosquitoes in the wild, was genetically modified to produce a toxin found in the venom of the Australian Blue Mountains funnel-web spider. The resultant genetically engineered variety of the toxic fungus, has the potential to crash populations of malaria-spreading female Anopheles mosquito, also validated by trials in Burkina Faso. Malaria is a life-threatening disease with vast majority of cases in Africa and hitherto the methods to target malaria causing mosquitoes were limited to chemical insecticides. The new biocidal method may solve problems of insecticide resistance and sets a precedent for other transgenic methods..

Development of hybrid nano-bio organisms for carbon sequestration

Researchers from University of Colorado Boulder have developed nanobio-hybrid organisms which are capable of consuming atmospheric gases, such as carbon-dioxide and nitrogen. The hybrid nano-bio organisms were created using light-activated quantum dots to destroy particular enzymes within microbial cells. The given technique will play a positive role in carbon sequestration and eco-friendly production of products such as biodegradable plastics, gasoline, ammonia and biodiesel.

Antimicrobial compounds synthesised from scorpion venom

Researchers from Stanford University, USA and Mexico have found that the venom of scorpion, native to Eastern Mexico, contains two colour-changing compounds that could help fight bacterial infections. They isolated the compounds in the scorpion's (D. melici) venom, and also synthesized them in the lab. The experiment verified that the lab-made versions killed staphylococcus and drug-resistant tuberculosis bacteria in tissue samples.

The findings highlight huge pharmacological potential in the toxins of scorpions, snakes, snails and other poisonous creatures found in many developing countries.

Researchers develop vaccine to protect against Alzheimer's

Alzheimer's disease is a progressive memory disorder that affects affecting 43 million people worldwide. It arises partly from accumulations of a protein called tau which disrupts the ability of neurons to communicate with one another. A team at University of New Mexico, led by Dr. Kiran Bhaskar, researchers have developed a vaccine that could prevent the formation of the tau protein tangles and potentially prevent the cognitive decline typically seen in Alzheimer's patients. Efforts are made by AgilVax Inc., a company formed to commercialize the VLP technology, and STC.UNM (UNM's technology commercialization arm).

INDIA

India-Japan Collaboration for Multimodal Regional Transport System

India and Japan have launched a joint research project "Multi Modal Smart Transportation (M2Smart) based on sensing, networking and big data analytics of Multimodal Regional Transport System. The project was launched at IIT-Hyderabad and is under the scheme of "Science Technology Partnership for Sustainable Development (SATREPS)". It aims to reduce the amount of energy consumed and to conduct research and development for low-carbon based smart cities in India.

Indian Science Communication receives a Boost

The policymakers and scientific community of India are making attempts to bring science to the citizens, particularly communicating in regional dialects and languages. Scientific content is being developed in regional languages, for better accessibility and wider outreach of science, through interactive methods such as podcasts and illustrative articles. Government-led initiatives are also using Digital platforms and media for effective communication in science and technology.

IIT Madras develops novel technique having applications in optoelectronics

A team of researchers from the Indian Institute of Technology-Madras have discovered that the photoluminescence of tungsten diselenide can be enhanced 30 times by drop-casting gold nano particles, onto a two-dimensional film. The photo-luminescence properties have applications in the field of communication and computation. It can also be be used in devices such as quantum LEDs. The study has been published in *Applied Physics Letters.*

Curd-based wound healing gel developed

Scientists from IIT-Kharagpur have synthesised a low-cost gel from curd which retards the growth of antibiotic-resistant bacteria and also enhances wound healing. The new product is made from the drainage water of curd, which is usually discarded. However, the water is a rich source of bioactive peptides. The curd-based gel is low in cost and has considerable therapeutic properties in wound healing. The study has been published in the journal *Frontiers in Microbiology.*

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