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Union Minister Dr Jitendra says, Department of Biotechnology has funded fifty-one (51) Biotech-Kisan hubs connecting Indian farmers with best scientists and institutions

CSIR-CIMAP, NBRI

14th December, 2022

Union Minister of State (Independent Charge) Science & Technology; Minister of State (Independent Charge) Earth Sciences; MoS PMO, Personnel, Public Grievances, Pensions, Atomic Energy and Space, Dr Jitendra Singh today said that the Department of Biotechnology has funded fifty-one (51) Biotech-Kisan hubs out of which forty-four (44) are operational. These hubs are located in 15 agro-climatic zones of the country and are conducting activities in 169 districts.

In a written reply to a question in the Lok Sabha, Dr Jitendra Singh said, Department of Biotechnology (DBT) is implementing farmers-centric Mission Programme 'Biotech-Krishi Innovation Science Application Network' (Biotech-KISAN). The programme connects Indian farmers with best scientists and institutions.

The Minister said, the aim of the programme is to work with small and marginal farmers for better agriculture productivity through scientific intervention and evolving best farming practices. The core activities of the programme are understanding the problems of the local farmer, scouting available technologies/solutions, demonstration and scale-up programmes, creation of strong Scientists-Farmers Interaction Platform; training programmes for the farmer and immersion programmes for scientists, communication through radio/TV and social media, thematic fellowship for selected farmers and special solution-driven thematic fellowships to women farmers.

The intended benefits of the programme are to increase farmer's income by technological interventions and develop bio-based enterprises in rural areas. The programme has benefitted over four lakhs farmers (directly or indirectly) by increasing their agriculture output and income. Programme is also successful in developing 200 entrepreneurs in rural areas. The Department has till date provided support of Rs. 9554.146 lakhs to the programme.

Moreover, the Ministries/Departments of Government of India are implementing various programmes for direct linkage between science laboratories and farmers in country. Department of Agricultural Research and Education (DARE)/Indian Council of Agricultural Research (ICAR) is supporting 731 Krishi Vigyan Kendras (KVKs) and implementing programmes like Mera Gaon Mera Gaurav (MGMG), Scheduled Castes Sub Plan (SCSP) programme and farmer FIRST. The Council of Scientific and Industrial Research (CSIR) laboratories CIMAP (Central Institute of Medicinal & Aromatic Plants) and National Botanical Research Institute, Lucknow (NBRI) provides technical support and advice to farmers through training programmes and skill development programmes on various aspects of agriculture, science and technology. In addition to Biotech-Kisan, Department is also supporting farmers through its societal programme.

Space satellites herald agritech revolution, will mark next breakthrough for Indian agri sector: Jitendra Singh

CSIR

13th December, 2022

Space satellites herald AgriTech revolution and AgriTech startups which will mark the next major breakthrough for India's Agriculture sector after the green revolution of yesteryears, said Union Minister Jitendra Singh.

Addressing the inaugural ceremony of the data products and services of RISAT-1A satellite for the user community, the minister said that satellite imaging, remote sensing from Department of Space, Genetic and Agri yield technologies from Department of Biotechnology, irradiation and preservation of shelf-life techniques from Department of Atomic Energy and food fortification research in CSIR labs will change the face of agriculture in India along with drones and geospatial data mapping.

Singh added that some of the unique operational applications which RISAT-1A offer include revolutionary radar images which is high-end, strategic technology mainly used for defence. "In this case it will be widely utilized for civilian use in agriculture sector. Data from RISAT-1A include Kharif crop sowing prospect, estimating crop damage severity levels, forest cover mapping and water body mapping etc."

He said that under the Modi government's Svamitva scheme, geospatial technology along with drones will survey all the over 6 lakh Indian villages and at the same time, pan-India 3D Maps will be prepared for 100 Indian cities. "The trinity of geospatial systems, drone policy and unlocked space sector will be a game-changer for Indian agriculture in both augmenting the farmers income and realizing the vision of the \$5 trillion economy."

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8th International Bioprocessing India Conference to open at CSIR-NCL

CSIR-NCL

15th December, 2022

The International Bioprocessing India Conference, the 8th one in the series dedicated to the presentation and discussion of the latest scientific developments in this fast-moving field, will be held in person at CSIR-National Chemical Laboratory (NCL) between December 16 and 18, 2022. The scientific programme aims to highlight the state-of-the-art technologies in Bioprocessing for Biosimilars, Vaccines and Bioenergy and trigger discussions on how to progress further in this field.

The integrity of a bioprocess is multifactorial and ultimately determines the quality of the biotherapeutic. Bioprocessing starts from design and development of cell lines and continues until the product is manufactured. The methods and strategies form essential learning to every scientist, engineer or manager in the biopharma industry.

Programme highlights:

The event will kick off with an inaugural talk by Dr Cyrus Karkaria, President of the Biotechnology division of Lupin Pharma followed by plenary lectures by Prof. Abraham Lenhoff, the Allan P. Colburn Professor of Chemical Engineering at University of Delaware, USA and Dr Umesh Shaligram, Executive Director & Board Member of Serum Institute of India.

The 2.5 day meeting expects to cover basic and applications of cutting edge research and development in both academia and industry. The areas covered would include classical themes and modern advancements in biopharma industry.

Some key areas of industrial interest including upstream and downstream processing for recombinant protein therapeutics, scale up, and biomanufacturing along with biophysical and analytical characterization will form a major part of the conference.

Another major focus will be biocatalysis, biotransformation, metabolic engineering for bioenergy. Basic scientific concepts of protein folding, refolding, aggregation, protein engineering, in-silico and mechanistic modelling critical to the success of vaccine and the biopharmaceutical industry will be focused on in some sessions.

Biosensing and diagnostics will be discussed in some detail. Nutraceuticals and natural product chemistry will also be touched upon. State-of-the-art synthetic biology approaches and ideas on stem cell technology, gene therapy and drug delivery will also be a part of these deliberations.

With 70 invited talks from academia and industry, 50 student talks and posters, 2 exciting startup stories and numerous workshops, this will be a melting pot of knowledge, ideas and discussions and collaborations.

LG Mathur visits various research centres during tour to Telangana

CSIR-CCMB, CIMAP

15th December, 2022

Lieutenant Governor of Ladakh, RK Mathur, today visited various research centres in Hyderabad to explore Ladakh-centric technological interventions and scientific innovations needed for the overall development of the region, on the first day of his two-day visit to Telangana.

LG Mathur visited CSIR- Centre for Cellular and Molecular Biology (CCMB), Hyderabad, where he was accorded a warm welcome by Director, CSIR-CCMB, Vinay K Nandicoori. LG visited the Advanced Imaging facility, Cryo-EM facility and the Next Generation Sequencing facility. Director, CSIR-CCMB, Vinay Nandicoori and Chief Scientist, Karthikeyan Vasudevan gave detailed presentations on various ongoing and future projects of the Centre.

LG Mathur discussed the potential of pashmina in Ladakh and the need for its Geographical Indication (GI) certification. He also visited CSIR-Central Institute of Medicinal and Aromatic Plants (CIMAP), Research Center, Boduppal in Hyderabad. During his visit to CSIR-CIMAP, LG interacted with the scientists and discussed various aromatic and medicinal plants being grown in Ladakh. He inquired about the process of growth and extraction of aromatic and medicinal plants and highlighted the need for developing and engaging aspiring entrepreneurs in this field. He visited the labs, experimental farm fields, herbal processing facilities and demonstration of lemongrass essential oil distribution.

LG Mathur visited ICAR-Central Research Institute for Dryland Agriculture (CRIDA), where he was accorded a warm welcome by its Director, Dr Vinod Kumar Singh. LG visited the central laboratory and the farm implements section, where he was briefed about various divisional activities conducted by the institute. Director, ICAR-CRIDA, informed LG about various activities carried out by the research institute along with its current and future projects.

LG inquired about various technologies used in dryland areas such as Ladakh. He discussed the aridity of soil, water conservation techniques and the selection of the right quality of soil along with sowing and harvesting techniques for the plantation of plants in arid areas such as Ladakh.

LG requested ICAR-CRIDA to depute a scientist with expertise in dryland technology to Ladakh to strengthen the primary sector in Ladakh with the engagement of young research scholars and students.

CSIR-NGRI

NGRI scientists discover clues of Earth's evolution in J'khand rocks

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Hyderabad: Scientists of Hyderabad-based National Geophysical Research Institute have stumbled upon new clues from carbonaceous matter (CM containing carbon) in the rocks of Singhbhum craton in Jharkhand which will help unravel the mysteries of the evolution of the earth.

Scientist PV Sunder Raju said the cratons were like natural museums that preserve evidence of changes in both physical and chemical conditions during the earth's evolution. "The rocks will provide clues and signatures in fingerprinting of earth's infancy happened 4.5 billion years ago," he said. The Singhbhum craton is a vast swathe of rocky land stretching across Jharkhand and Odisha between Chhota Nagpur plateau and the Eastern Ghats. It has

RESEARCH BY GLOBAL EXPERTS

- **Peninsular India has 5 cratonic blocks** | Dharwar, Singhbhum, Bastar, Bundelkhand & Aravalli

- Bordered by mobile belts of Eastern Ghats, southern granulite terrain and central Indian tectonic zone

- Dharwar, Singhbhum cratons bear Paleoproterozoic supracrustal rock



Carbonaceous matter found in rocks of Singhbhum craton in Jharkhand

some of the world's oldest rocks.

Researchers led by Sunder Raju published an article 'Paleoproterozoic surface processes and volcanism: Insights from the eastern iron ore group, Singhbhum craton, India' in 'Earth-Science Reviews', a scientific journal.

Sunder Raju said the new discovery will help untangle the origins of plate tectonics (how continents evolved),

which are closely related to craton formation (stable land mass), as well as about the conditions that favour life on the planet.

A further research on sedimentological and paleobiological aspects in the eastern, western and southern iron ore group belts will unravel the mysteries of early earth and the co-evolution of life and the environment. "Researchers should further focus

on the Archean geology of the Singhbhum craton to decode the mysteries of early earth," he said.

Sunder Raju said tectonic history of a craton can be derived by understanding ancient sedimentary sequences. "It spans the period of time 3,600-3,200 million years ago pertaining to the Paleoproterozoic surface process, volcanism and traces of early life, CM from eastern iron ore group in Singhbhum," he said.

Komatiite (an ultramafic, volcanic rock) forms when lava comes onto the surface where it flows with high speed. "Komatiites are found in Archean shield areas like the Singhbhum and Dharwar cratons, which formed when earth's mantle," said Sunder Raju. He added that these komatiites are same as the komatiites of the classical Barberton greenstone belt found in South Africa.



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