

**No. DSIR/MS/2020/10**  
Government of India  
Ministry of Science & Technology  
Department of Scientific & Industrial Research  
MONTHLY SUMMARY FOR THE CABINET  
(For the month of **October, 2020**)  
(Part-I Unclassified)

**Major achievements during the month of October, 2020:**

**1. Council of Scientific & Industrial Research (CSIR)**

**Update on Initiatives for Covid-19 Mitigation**

CSIR has been engaged in developing various products, processes, technologies in the areas of diagnostics, drugs, surveillance, hospital assisted devices and PPEs and supply chain logistics towards mitigation of Covid-19 for the past several months. Few of the key activities in the month of October were:

- Based on the recent approval by DCGI to the novel paper-based diagnostic kit for detection of SARS-CoV-2 that relies on CRISPR-Cas technology called FELUDA developed by CSIR-IGIB and licensed to TATA Sons (TATAMD CHECK CRISPR Test), ICMR has recommended the test for use in Government and Private hospitals that are already approved by ICMR for RT-PCR testing. There would be no further approval needed for using this method.
- A simple and fast dry swab based and direct RT-PCR method with no RNA isolation, developed by CSIR-CCMB that can easily scale up the current testing by threefold (without any additional financial and human resource burden) has been reviewed by ICMR and CSIR is in discussion with ICMR on the mechanism to expedite validation and approval. Four government labs in Nagpur IGGMCH, GMCH, MAFSU, NEERI (a CSIR lab) have independently validated the assay and reported a strong consensus on the robustness and reliability of the Dry Swab-Direct-RT-PCR method of CSIR. IGGMCH, Nagpur has recommended that the method be adopted for testing at Nagpur in place of the conventional method. This provides strong support to the independent validation of the method done at CDFD and IISER-Behrampur. Besides this, multiple publications in peer reviewed, globally prestigious scientific journals such as Nature Communications, PLOS Biology, New England Journal of Medicine lend support to the testing method of CSIR-CCMB suggesting global acceptance of the Direct RT-PCR method. Apollo Hospital has also started dry swab testing and validation studies.
- Quick and easy to use RT-LAMP diagnostic test developed in partnership with Reliance Industries has been submitted to ICMR for approval, which has been tested at NIV, Pune. Based on comments CSIR is optimizing the kit.

- On the COVID-19 sample testing by RT-PCR front, thirteen CSIR labs have been testing samples for COVID-19 across India. Till 31 October 2020, 4,85, 238 samples have been tested.
- Based on the successful Phase II clinical trial results of Sepsivac by Cadila and CSIR, DCGI had suggested to undertake a larger Phase III trial. Cadila has submitted an application for Phase III trial and regulatory approval is anticipated soon.
- Other ongoing clinical trials AQCH phytopharmaceutical trial with Sun Pharma and plasma therapy are progressing well. Phase III clinical trial of Umifenovir has been initiated by CSIR-CDRI on Covid19 patients.
- The non-invasive ventilator BiPAP developed by CSIR-NAL has undergone testing on Covid19 patients at Hospital on 30 patients. DGHS after reviewing the data has approved and has advised to test at a few other larger hospitals. Following up on that, Clinical Trial on BiPAP has started at Mysore Medical College and the trial on ten patients has completed. Command Hospital has also completed testing on 10 more patients and the comprehensive report on the BiPAP Clinical Trial from both sites will be submitted to DGHS soon for final clearance.
- CSIR has carried out a sero-surveillance in CSIR labs across the country and > 10,000 samples have been collected and analyzed. The second round of sero-surveillance has been done at CSIR-IGIB after 3 months on the patients who tested positive.
- CSIR-IMTECH has also initiated R&D activities geared towards identifying possible presence of COVID-19/ other corona viruses in sewage samples as well as analyzing air samples in areas housing COVID-19 affected patients.
- Kisan sabha app has touched one lakh downloads with about 72000 registrations.
- On the makeshift hospital front four sites at HP i.e Shimla, Tanda, Nalagarh and Nahan have been identified to setup makeshift hospitals for Covid-19
- Anti-COVID immunity food supplement: 'CoronAid', a nutraceutical anti-viral immunity booster oral suspension to boost immunity against COVID-19 has been unveiled by the startup 'Clone Deals' incubated at Atal Incubation Centre (AIC) of the CSIR-Centre for Cellular & Molecular Biology (CCMB). The 'food supplement' with a combination of powder from a rare mushroom 'Cordyceps militaris' that grows in Himalayas has been mixed with curcumin, an active ingredient in turmeric, in collaboration with another firm - Ambrosia Food Company to make the product, which has obtained approval from the Food Safety & Standards Authority of India (FSSAI). Clone Deals has taken assistance of CCMB scientists to establish the potency of 'cordycepin' component - found in the mushroom, to establish potency in "stopping the

growth of COVID-19 causing coronavirus in a cell culture system". Further, government permission for conducting human clinical trials to establish the safety of the formulation to be used as potential medicine in the form of 'cordyceps capsules' with AIIMS Nagpur, Bhopal and Mahatma Gandhi Mission Institute of Health Sciences, (MGM) Navi Mumbai.

### **New Products/Processes/ Technologies developed**

- CSIR-IHBT has developed a Herbal Nutraceutical Formulation for Maintaining Cartilage Health
- CSIR-IIIM has completed Niclosamide API synthesis upto 50 gram scale.
- CSIR-IIP:
  - Bioprocess development for Yeast SCO (fatty oil) from crude glycerol (as carbonaceous feedstock) and its further application for biofuels, oleochemicals and as dietary supplement
  - Bioprocess development for waste potato hydrolysis for maximum fermentable sugar recovery for biofuel production
  - Process development for xylitol production from biomass through microbial fermentation route.
- CSIR-NCL: Union Minister of S&T and ES Dr. Harsh Vardhan inaugurated the eco-friendly, efficient Dimethyl Ether (DME) fired "AditiUrjaSanch" unit along with the DME-LPG blended fuel cylinders as a domestic cooking fuel. The new burner is fully designed and fabricated by CSIR-NCL. Earlier, CSIR-NCL has developed nation's first pilot plant operated with clean and cost efficient fuel 'DME' with 20-24Kg/day capacity. DME an ultra-clean non fossil fuel can help in the Prime Minister UjjwalaYojana and provide a significant boost to the 'Make in India' campaign as all the manufacturers of cylinders, gas stoves, regulators and gas hoses are domestic and can also ensure energy security for the nation.
- CSIR-NGRI: The drilling of the deep Borehole (1285 mts.) at Udgiri, Koyna has been completed and the installation of seismometers inside the borehole is under progress.

### **Technologies licensed/transferred during the month**

- CSIR-CIMAP: The technology of Mospray-Mosquito repellent spray was transferred to M/s. MAA DURGA MARKETING, F-36,37 Industrial Area Ramnagar Chandauli, UP.
- CSIR-CMERI: High flow rate Fluoride & Iron removal filter technology has been transferred to M/s Capricans Aqua Pvt.Ltd., Shibpur, Howrah, WB.
- CSIR-CSMCRI: Know-how transfer "A zero liquid discharge process for the production of alginic acid and its derivatives from alginophytes" to United Alginates, Bhavnagar.
- CSIR-NBRI: Licensing agreement signed for Herbal formulation useful in Urolithiasis with Marc Laboratories Limited, New Delhi on 27.10.2020.

## Patents Update:

Patents Filed		Patents Granted		Patents Prosecutions	
India	Abroad*	India	Abroad*	Indian	Foreign
04	06	22	28	25	19

*\*Data reported to IPU during the said period and may increase later during national phase entries*

## Collaborations/Agreements/MoUs Signed (International)

- CSIR-CMERI: MoU signed for Intellectual Property Management plan on collaborative research project 'Human guided impedance control of Robotic arm' with Le Centre National de la Recherche Scientifique (CNRS), Paris Cedex 16, France AND L'Universite de Montpellier (UM), France jointly referred as LIRMM (French Institute) and CSIR-Central Mechanical Engineering Research Institute, Durgapur (Indian Institute).

## Collaborations/Agreements/MoUs Signed (National)

- CSIR-CDRI:
  - A Collaborative Research Agreement entitled "Developing a polyherbal composition for developing a polyherbal formulation as an immunobooster and for the management of Covid-19 (SARS-2)" was signed on 29-10-2020 between CSIR-CDRI and Gerah Enterprises Private Ltd., Mumbai.
  - A Collaborative Research Agreement entitled "Production of indigenous qRT-PCR (INDI-FluorAMP) kit for testing Covid-19 with Make-in-India ingredients" was signed on 27-10-2020 between CSIR-CDRI and Biotech Desk Pvt. Ltd., Hyderabad.
  - A Memorandum of Agreement (MoA) entitled "To investigate the role of HOXB1 in spermatogenesis and male infertility" was signed on 21-10-2020 between CSIR-CDRI and DBT, New Delhi.
  - A Memorandum of Agreement (MoA) entitled "To investigate the 4-hydroxyisolumicine signalling mechanism in the ovarian follicular development for the management of polycystic ovarian syndrome" was signed on 21-10-2020 between CSIR-CDRI and DBT, New Delhi.
  - A Consultancy Agreement entitled "Consultancy services on inflammatory liver disease" was signed on 16-10-2020 between CSIR-CDRI and Biotech Desk Pvt. Ltd., Hyderabad.
  - A Confidentiality Agreement entitled "Mutual consideration of the CSIR-CDRI and BMS working together on the following project or topic to enable discussions regarding exploratory projects of mutual interest in the area of hemato-oncology" was signed on 16-10-2020 between CSIR-CDRI and Bristol-Myers Squibb India Pvt. Ltd., Mumbai.
- CSIR-CECRI signed an MoU with Carborundum Universal Limited (CUMI), Chennai / for Innovation Centre for Next Generation Energy Storage Solutions (ICeNGESS) raw material supply chain.

- CSIR-CIMAP:
  - An MOU between CSIR-CIMAP and Karnataka Science and Technology Academy (KSTA) was signed for facilitating S&T dissemination through Academia-Farm-Industry interface with a focus on rural areas, fostering innovations and entrepreneurship for social benefits, and for organizing conferences and outreach programs
- CSIR-CIMFR:
  - Agreement for knowhow transfer of Improved Soft Coke Making CSIR-CIMFR Technology with M/s. Ganpati Enterprises, P.O/ P.S: Bhagwanpur, Kaimur (Bhabua), Bihar;
- CSIR-IHBT:
  - MTA to take up medicinal and aromatic plants, floriculture plants for research and extension activities by GBPNIHE, Kullu, (H.P.) on 15.10.2020
  - MoU to undertake joint collaboration in the area of essential oils with M/s Tojo Vikas International Pvt. Ltd., having its registered Office at 4 Adchini, Mehrauli Road, New Delhi on 19.10.2020
  - MTA to exchange the bamboo planting material with Jawaharlal Nehru Tropical Botanic Garden and Research Institute, KSCSTE-JNTBGRI, having its registered address at Karimancode P.O. Palode, Thiruvananthapuram, Kerala on 21.10.2020
  - MTA to take up 1 kg seeds of Chamomile (*Matricaria chamomilla*) for cultivation under “CSIR Aroma Mission” with Dr. Hitesh Kumar having Residence at Village Bhoor, PO Jhangi, Tehsil Sandhol, District Mandi (H.P.) on 28.10.2020
- CSIR-IICT:
  - Develop novel, stable and scalable polymorphs / Co Crystals / Pro drugs for five (5) APIs as mutually agreed between Mylan and CSIR-IICT. Project III: R&D work in converting existing batch manufacturing process into continuous manufacturing processes of five (5) APIs jointly agreed by both Mylan and CSIR-IICT. (Mylan Laboratories Ltd, Hyderabad).
  - Development of catalytic process for the preparation of 5-chloro indanone from 3-chloro-1-(4-chlorophenyl)-1-propanone with ADAMA India Private Limited, Hyderabad.
  - Design and fabrication of ultrapure water production plant of 50 Lit/hr capacity for medical and biochemical application with Surya Medical & Surgical, Haldwani, Nainital.
  - Design and commissioning of Accelerated Anaerobic Composting (AAC) System at Suryapet Agriculture Market Yard (250 kg/day) (Director of Agriculture Marketing-DAM), Govt. of Telangana).
  - Providing advisory consultancy for process improvement of synthesis of intermediates (Dr. Pradeep Reddy's Labs Pvt. Ltd., Hyderabad).
- CSIR-IIP:
  - NDA on Design, Supply Installation and Commissioning of a skid Mounted Hybrid Membrane -PVSA demonstration unit for oxygen enrichment from air with Gaskon Engineers, New Delhi on 08.10.2020

- MoU on Joint research in the field of hydrocarbon, petrochemicals and energy technology and commercialize the developed technologies with Engineers India Limited, New Delhi on 30.10.2020
- CSIR-NBRI:
  - Material Transfer Agreement signed for procurement of germplasm *Chenopodium quinoa* with ICAR-NBPGR, New Delhi on 07.10.2020.
  - Memorandum of Understanding signed for collaboration in developing and promoting phyto-pharmaceutical products for therapeutic uses with Indian pharmacopeia Commission (IPC), Ghaziabad on 13.10.2020.
  - Material Transfer Agreement signed for disclosing the material “Microbial formulation (*Bacillus subtilis* NBRI-W9) with ICAR-Directorate of Rapeseed-Mustard Research, Sear, Bharatpur, Rajasthan on 22.10.2020.
- CSIR-NCL: MOU signed with Godrej Consumer Products Limited for technical services on Bioefficacy of Transfluthrin 1.6% Liquid Vaporiser against three species of mosquitoes, viz., *Anopheles stephensi*, *Aedes aegypti* and *Culex quinquefasciatus*.
- CSIR-NIIST: Indigenous fabrication of transparent conducting oxide (TCO) coatings by spray pyrolysis for dye sensitized solar cell applications- M/s Delgo Coating & Technology Solutions Pvt Ltd, Kochi.

### High impact S&T services offered

- CSIR-CIMAP:
  - Planting material of lemongrass (2.5 lakhs slips) has been provided to farmers of Bundelkhand region Hamirpur, Banda, Chitrakoot and Jalaun under GAP-408 project on 19.10.2020 .
  - A mobile distillation unit deployed from 21.09.2020 to 04.11.2020 for essential oil distillation for small and marginal farmers of Hardoi districts.
  - The services of Pilot Plant facility (TBIC) has been offered to three start-ups companies, namely Kings Herbal Research Laboratory, Jalandhar, Being Arogyam Herbals Pvt. Ltd., Lucknow and Sai International, Lucknow during the month of October, 2020. the products manufactured in the facility are Anti-inflammatory Pain Relieving Oil, Floor Cleaner, Immunity enhancer Granules and Hand Sanitizer.
- CSIR-CMERI has initiated Low Cycle & High Cycle Fatigue Testing for 2000 samples (S&T Service) for HAL, Aircraft Manufacturing Division, Nasik of value Rs.71,50,800/-.
- CSIR-IHBT:
  - First-plantation of Heeng plant in India (Lahaul and Spiti, HP) by Dr. Sanjay Kumar Director CSIR-IHBT. CSIR-IHBT, Palampur introduced Heeng (*Ferula asafoetida*) seeds in the country from Iran through NBPGR, New Delhi (Import Permit Nos. 318/2018 & 409/2018). NBPGR has confirmed that Heeng seeds have been introduced through proper channel for the first time by CSIR-IHBT in the past 30 years.

- CSIR-IIP: Received the Project approval (5 Lakhs) from BDAI for “Audit and certification of Biodiesel Plant. One sample for certification received from M/s BioD Energy India Pvt. Ltd., Bawal, Haryana.
- CSIR-IMT: Testing of Anti-Viral efficacy of compounds/ devices/ appliances/ disinfectants/sample material for Industries against live SARS-COV-2 Strain.

### **Outreach Activities (Jigyasa, Skill Development, and others)**

- CSIR-CECRI: 79th CSIR Foundation Day and 150th Birth Year Celebration of Mahatma Gandhi (1 & 2 October 2020) Quiz and Slogan Writing Competition; Gandhiji's Quote about Women Empowerment.
- CSIR-CEERI: Conducted Virtual Lab Session for Class XII Students of CEERI Vidya Mandir on 19-10-2020, under CSIR-Jigyasa & Niti Aayog's ATL Mission.
- CSIR-CIMAP: A SIDBI sponsored skill-cum-training programme was organised during 13 to 15 October, 2020. on production, primary processing and marketing aspects of economically important medicinal and aromatic plants. In this programme 95 participants from 17 states has been participated.
- CSIR-CIMFR: Five days Training Programme on "Mushroom Cultivation and its Marketing" organised by CSIR-CIMFR, Dhanbad (28th October, 2020 - 3rd November, 2020) under CSIR Initiative "Combat Covid-19 Mission" for Rural Entrepreneurship Development.
- CSIR-CMERI organized training webinars on 'Advanced Manufacturing' and 'Metrology' in October 2020 on the topic "Welding and Wire Arc Additive Manufacturing Processes
- CSIR-IIP: A five day Virtual Skill Development Training Program on Crude Assay and Testing of Petroleum Fractions, was conducted during October 05-09, 2020.
- CSIR-NBRI: Online Training Programme on Home Gardening, 7-9 October 2020 (117 participants attended).

### **Visit of high level dignitaries to the Institute/Laboratory**

- CSIR-CFTRI: Shri B.C. Patil, Hon'ble Minister for Agriculture, Karnataka Govt. and Shri S.T. Somashekar, District In-Charge Minister, Mysore visited the Institute on 16.10.2020 and reviewed the progress of Atma Nirbhar Bharath, PM-FME Scheme.
- CSIR-IHBT: Visit of Er. Sonam Wangchuk from Ladakh Union Territory winner of Ramon Magsaysay Award visited IHBT's Centre for High Altitude Biology at Ribling, Lahaul-Spiti (H.P.) India on 30 October 2020.

### **Conferences, Workshops, etc. organized, if any, during the month**

- CSIR-CIMAP organized and conducted an International Virtual Conference on Plant Specialized Metabolism and Metabolic Engineering during October 14-16, 2020.



- CSIR-HRDC: Programme on 'Research & Development: Industry 4.0' during 07/10/2020 to 08/10/2020 was organized

### **Other items of significance**

- CSIR-IITR, Lucknow secured the Golden Peacock Eco Innovation Award for the year 2020 for Oneer- a novel solution for the drinking water.
- CSIR-NCL: Successful demonstration of India's first indigenously developed Hydrogen fuel cell electric vehicle (FCEV) as part of successful conclusion of NMITLI CSIR-KPIT project on "Demonstration & Validation of LT-PEMFC System for Automotive Applications".

### **DEPARTMENTAL ACTIVITIES**

DSIR's mandate is to promote Industrial Research and Development besides technology promotion, development and utilization. In order to promote and nurture Research and Development in the country, Industrial R&D Promotion Programme of the department gives recognition and registration to in-house R&D units of industries, not for profit Scientific and Industrial Research Organizations (SIROs), Public Funded Research Institutions (PFRIs) and periodically renews these recognition / registration under the respective Government Notifications (as amended from time to time), by virtue of which these organizations are able to obtain Customs duty exemptions, Goods & Service Tax (GST) concessions and Weighted tax deductions on R&D by Industry (under section 35(2AB) of IT Act). This scheme helps in encouraging industrial R&D in the country.

#### **Industrial R&D Promotion Programme Recognition/ Registration and renewal of In-house R&D in Industry**

- 15 in-house R&D units of industries were granted recognition as well as registration certificates.
- 67 in-house R&D units of industries were granted renewal of recognition as well as renewal of registration certificates.

#### **Scientific and Industrial Research Organization (SIROs) Recognition/ Registration and Renewal of SIROs**

- 04 SIROs were granted recognition and 03 were granted registration certificates.
- 18 SIROs were granted renewal of recognition and 08 were granted renewal of registration certificates.



## **Public Funded Research Institution (PFRIs) Registration and Renewal of PFRIs**

- 02 PFRIs were granted registration certificates.
- 16 PFRIs were granted renewal of registration certificates.

## **Fiscal Incentives for R&D by Industry**

- 59 reports in form 3CL submitted to CCIT under Section 35(2AB) of IT Act for weighted tax deduction on industrial R&D involving a total amount of Rs.113603.90 lakhs.

## **PUBLIC SECTOR ENTERPRISES**

### **Central Electronics Limited (CEL)**

CEL is an enterprise under DSIR having an objective to commercially exploit the indigenous technologies developed by National Labs and R&D institutions in the country. CEL has developed a number of products for the first time in the country through its own R&D efforts and it continues to emphasize its leading role in the area of solar photovoltaic systems, electronic gadgets for Railway and other strategic electronic equipment/components among others.

- The company manufactured electronic components/systems/SPV products worth Rs. 2961.64 Lakhs during October, 2020.
- Sale of items worth Rs. 2819.90 Lakhs was realized during October, 2020.

### **National Research Development Corporation (NRDC)**

NRDC continues to lay emphasis on broadening and strengthening the technology resource base by nurturing long term relationships with R&D institutions as well as universities, technical organizations, industries and also individual inventors.

- NRDC has been assigned three technologies - technology on 'Novel carbon nano-tube based hand sanitizer and hand wash' by M/s Biocyte Institute for Research and Development; 'Foot operated mobile handwash and sanitisation station' by M/s Rudrani Hospitality solutions, New Delhi and 'Bi-facial Solar Panel Technology' by A.L Vedavyasa, Hyderabad during October, 2020.
- NRDC has collected royalty of Rs.5.99 Lakh from respective technologies during October, 2020.