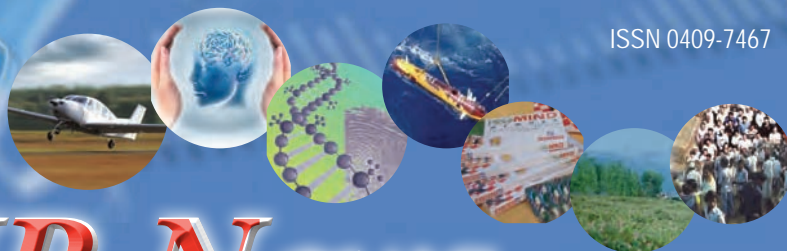




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In The News

Dr. Harsh Vardhan takes over as Vice President of CSIR

THE Council of Scientific and Industrial Research (CSIR) has a new Vice President. Newly appointed Union Minister of Science & Technology and Earth Sciences Dr. Harsh Vardhan has taken over as the ex-officio Vice President of the CSIR. He was earlier Union Minister for Health & Family Welfare in the government of India.

An ENT surgeon by training, Dr. Harsh Vardhan graduated with a Bachelor of Surgery in 1979 from the Ganesh Shankar Vidyarthi Memorial Medical College, Kanpur, from where he also earned his Master of Surgery in Otorhinolaryngology in 1983.

Elected as a member of the Delhi Assembly in 1993, Dr. Harsh Vardhan was appointed the State Minister of Health and Minister of Law for Delhi. He later became the state Minister of Education in 1996. Dr. Vardhan has been re-elected from the same constituency in the 1998, 2003, 2008 and 2013 elections.

In October 1994, as the State Health Minister, Dr. Harsh Vardhan launched the Polio Eradication Plan which saw mass immunization of more than one million children. He was also instrumental in persuading other states to make Pulse Polio



a success. On 28 March 2014, India was declared polio-free by the WHO, as there had been no reported cases for three years. In fact, Dr. Vardhan has also authored a book *A Tale of Two Drops* (in English) and *Kabani Do Boondo Ki* (in Hindi) where he outlines how he conceived and implemented the polio eradication programme.

The Delhi Prohibition of Smoking Act and the Non-Smokers Health Protection Act were passed in 1997 under his leadership. This ultimately culminated into a Central Legislation in 2002 to ban smoking in public places, bringing relief to many. It also prohibited the sale of smoking substances such as tobacco and beedis to anyone below the age of eighteen. Smoking products could not also be sold or stored within 100 metres of any educational institution.

His leadership also saw the beginning of the Shravan Shakti Abhiyan, Cataract Free Delhi Programme, and the Cancer Control Programme. Dr. Harsh Vardhan also launched the anti-plastic bag movement, the first-of-its-kind in Delhi, called “Green Shopper”.

Among the several awards bestowed on Dr. Harsh Vardhan are *Paul Harris Fellowship* by the Rotary International; IMA President’s *Special Award of Appreciation* in 1994; *Seva*

Shree Samman in 1996 by Dr. Manmohan Singh, the then Finance Minister; *National Environmental Seva Samman* at the 1996 World Environment Congress; *Director-General’s Commendation Medal* by the World Health Organisation (WHO) in May 1998; and *Doctor of the last Decade* award by the Indian Medical Association (Delhi Branch) in July 2002, on the eve of Doctor’s Day.

Dr. Harsh Vardhan assumed his duties on 10th November 2014.

Shri Y.S. Chowdary is new Minister of State for Science & Technology and Earth Sciences

Shri Y.S. Chowdary has taken over as the Minister of State of Science & Technology and Earth Sciences.

Shri Chowdary is a Mechanical Engineering graduate from the Chaitanya Bharathi Institute of Technology, Hyderabad and obtained his Masters degree from the PSG College of Technology, Coimbatore, with specialization in Machine Tool Engineering.

He created the Sujana Group of Companies in 1986 which manufactures electric fans and other home appliances under the name Padmini. The company expanded into steel re-rolling in 1988.

In 2010, Shri Chowdary was elected as a Member of the Parliament in the Rajya



Sabha. He has been appointed as member of Indo-Singapore Parliamentary Friendship Group; Parliamentary Standing Committee on Commerce, Government of India; Parliamentary Forum on Youth, Government of India; and Consultative Committee for the Ministry of Food

Processing Industries, Government of India.

Shri Y.S. Chowdary is a committee member for Hyderabad Telecom District and the Task Force on Clean Energy set up by the Columbia Law School, USA, for drawing up a legal contractual system for governing proposed participation of US investments into clean Energy development projects in India.

CSIR-NEERI to Implement Novel Sewage Treatment System at Nagpur Ordnance Factory

To cope with water shortages in urban areas, particularly in Nagpur, CSIR-National Environmental Engineering Research Institute (CSIR-NEERI) has initiated a radical shift from conventional end-of-pipe water management to an integrated approach as part of the Indo-European NaWaTech project. In this context, the Ordnance Factory at Ambajhari in Nagpur has been selected to demonstrate and install a techno-economic

natural sewage treatment system developed by CSIR-NEERI.

The treatment system consists of a high rate upflow anaerobic filter, which helps in removal of organic pollutants from sewage. Subsurface horizontal flow constructed wetlands remove the remaining pollutants including nitrogen and phosphorous. This treated effluent then passes through pressure sand filter and activated carbon columns,

which remove non-biodegradable organic matter called recalcitrant organics. Finally, the treated effluent is disinfected using chlorination or ultra violet (UV) rays, and utilised for all non-potable purposes. Sludge management through constructed wetlands called “sludge drying reed beds (SDRB)” is being demonstrated for the first time in the country.

This treatment system will treat and manage sewage generated by a population of 1000 and would treat 1 lakh litre sewage per day. The treated effluent will be utilised for maintaining multi-purpose lawn spread in 1.5-acre area and irrigating Mango Orchids at the Ordnance Factory, Ambajhari, Nagpur.

Recently, the ground breaking ceremony was held at the Ordnance Factory in the presence of the Chairperson and Members of CSIR-NEERI Research Council (RC), Dr. Satish R. Wate, Director, CSIR-NEERI and officials from the Ordnance Factory.

The Project is being coordinated by Dr. Pawan Labhassetwar, Senior Principal Scientist & Head, Water Technology & Management Division and Dr. Girish Pophali, Principal Scientist, Waste Water Technology Division. The other team members are Dr. Pranav Nagarnaik, Er. Nilesh Sahu, Er. Achal Khilnani, Ms. Harkirat Kaur, Er. Sandip Yadav and Ms. Minakshi Bagde.



CSIR-NEERI RC Chairperson Prof. Kasturi Datta, RC Members and CSIR-NEERI scientists at the Ordnance Factory, Ambajhari site

R&D Highlights

CSIR-NEERI's Study on MIPs May Help to Treat Nicotine-addicted Patients

Researchers from CSIR-National Environmental Engineering Research Institute (CSIR-NEERI) have added another piece to the puzzle of how to synthesize an artificial nicotine receptor. Nicotine – the infamous principal component of tobacco – is responsible for smoking addiction due to specific receptors in the brain that trigger

the dopamine reward system.

One of the most long-lasting goals of biomedical science and technology is to design and synthesize efficient artificial receptors that would point to new avenues in the treatment of addiction. Recent advances in materials chemistry clearly demonstrate that the development of such

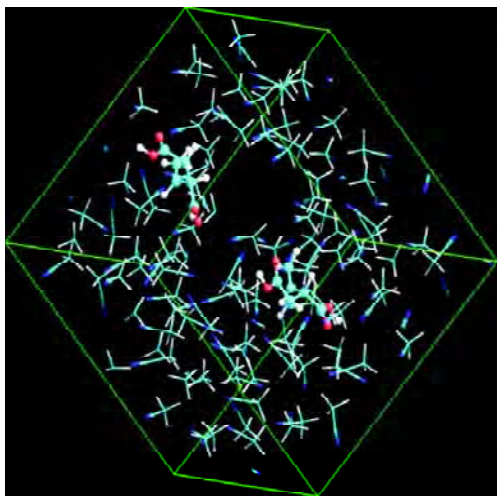
robust synthetic materials, which can partially mimic biological receptors, is possible.

Dr. Reddithota Krupadam, Senior Scientist, CSIR-NEERI and his colleagues have developed molecularly imprinted polymers as synthetic receptors for nicotine. These molecular imprinted polymers (MIPs) have potential applications for analysis in biological systems such as clinical detection of nicotine in blood and serum, as well as in the development of treatment therapies for nicotine-addicted patients.

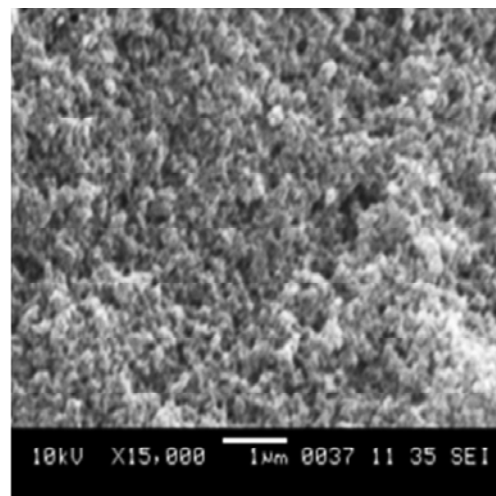
The researchers succeeded in developing highly selective MIP receptors for nicotine with levels of selectivity similar to those of natural molecules such as (AChE). The developed nicotine affinity-

polymers were able to recognize nicotine in biological buffers, which indeed is a significant improvement, compared to previous research. Additionally, when compared to natural receptors that show high binding at only pH 7.6, these receptors were effective in a wide range of pH between 6.8 and 8.2.

The researchers studied the binding mechanisms between nicotine and MIP receptors by UV spectroscopy and computer-aided molecular simulations in order to understand the nature of interactions between functional monomers and nicotine in pre-polymerization systems. Their studies create a starting point in the development of basic procedures for the optimization of



Computer simulated Nicotine imprinted polymer



Scanning Electron Micrograph showing Nicotine specific binding sites in the polymer

For his innovation, Dr. Reddithota J. Krupadam, has even received the National Award for Technology Innovation in Polymer Science & Technology. This award was conferred by the Union Minister for Chemicals & Fertilizers, Shri Ananth Kumar at a function held in New Delhi on 17th July 2014. The Minister of State for Chemicals & Fertilizers, Shri Nihal Chand was also present on this occasion. The award consists of a Shield, a Citation and a cash prize of Rs. 2 lakh.

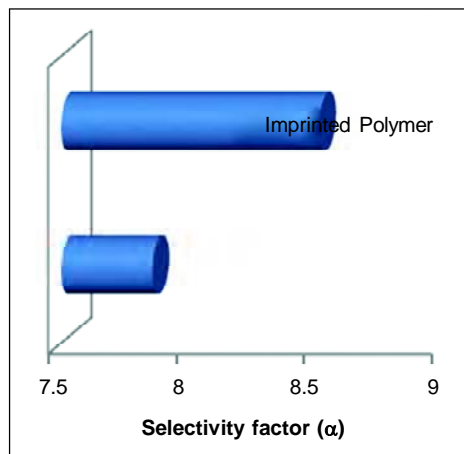


Union Minister Shri Ananth Kumar and Minister of State Shri Nihal Chand giving the national award to CSIR-NEERI scientist Dr. Krupadam

nicotine binding in biological buffers, since strong nicotine-MIP interaction typically requires the use of non-polar organic solvents during the imprinting process.

Although the researchers managed to formulate polymeric receptors with specificity to nicotine, they also emphasize that these can only work in non-polar conditions, which differ substantially from endogenous environment. It is yet to be confirmed whether these MIPs can be used as direct alternatives to natural receptors (e.g. in drug screening applications) but they could be very useful as recognition elements for key niche applications such as in biomedical assays and sensors.

The research findings are published in *Molecular Imprinting* – an open access journal published by Versita.



IN CONVERSATION

“Complex Systems can Give Simple Solutions”

Dr. Reddithota Krupadam, Senior Scientist of CSIR-NEERI, whose research has unveiled a new category of functional polymers capable of selectively separating a group of molecules from complex systems, talks about his work in a short interview given to Mr Prakash Kumbhare, Principal Scientist, CSIR-NEERI.



Prakash Kumbhare: Since how many years have you been working in the area of nanomaterials and how did you get interested in this area?

Reddithota Krupadam: It has been almost a decade since I started working in this area. In fact, some emerging environmental pollutants prompted me to work in this area, as environment and health are inseparable.

PK: Why do you consider your recent achievement as the most significant one? And in what way?

RK: There has been a considerable increase in tobacco addiction in the country. As tobacco is injurious to health, there is a need to prevent tobacco addiction. So, we initiated research and development activities in this field. We succeeded in developing MIPs for detection of nicotine in blood and serum, and we hope that these MIPs will be instrumental in developing treatment therapies for nicotine-addicted patients in the near future. The developed MIPs were able to recognize nicotine in biological buffers, which indeed is a significant improvement, compared to previous research. The research indicates that MIPs work efficiently as synthetic receptors for nicotine. When compared to natural receptors that show high binding at only pH 7.6, these receptors were effective in a wide range of pH between 6.8 and 8.2.

PK: In what way is your invention applicable for environment protection?

RK: Our research has unveiled a new category of functional polymers capable of selectively separating a group of molecules from complex systems. Using “molecular imprinting” we succeeded in imprinting highly difficult templates (carcinogenic polycyclic aromatic hydrocarbons) in polymer and demonstrated their ability to detect carcinogens in environmental systems. These polymers not only indicated high adsorption capacity but were also found reusable more than 20 times, making them cost-effective. These are, in fact, green materials useful in environmental pollution monitoring and remediation. We detected the molecule, benzo[a]pyrene responsible for air pollution in environmental samples in the range of 0.1 ppt - 10 ppm using molecular imprinted polymer sensor.

MoUs**CSIR-CFTRI Signs MoU with PCPCL, Kerala**

CSIR-Central Food Technological Research Institute, Mysore recently signed an MoU with Palakkad Coconut Production Company Limited (PCPCL), a co-operative federation formed under the aegis of the Coconut Development Board, aimed at protecting the interests of coconut farmers. Under this agreement, CSIR-CFTRI will help the farmers' cooperative body in bottling of Neera in PET bottles for large-scale marketing across the country. Neera is the sweet, oyster-white-coloured sap tapped from the immature inflorescence of coconut.

It is a sugar-containing delicious health drink, a rich source of sugars, minerals and vitamins. It contains substantial amounts of iron, phosphorus and ascorbic acid. The high nutritive value of Neera makes it an excellent health drink.

The Institute also would make available a few of its other proven technologies such as Coconut beverage, Virgin coconut oil, Coconut spread, Desiccated coconut powder and spray-dried coconut milk powder for the production and marketing of these technologies for enhancing the livelihood of farmers. In return, PCPCL will pay the royalty against the ex-factory sales price of these products for a stipulated period.

With a large array of post-harvest technologies in its repository, the Institute has been working towards empowering the farmer community through various innovative mechanisms.

The MoU documents were exchanged by Prof. Ram Rajasekharan, Director, CSIR-CFTRI and Shri Vinod Kumar, Chairman, PCPCL in a function organized on the sidelines of the CSIR Foundation Day.



Prof. Ram Rajasekharan, Director, CSIR-CFTRI exchanging the MoU with Shri Vinod Kumar, Chairman, PCPCL

CSIR-NEIST signs Technology Marketing Agreement with CSIR-Tech Pvt. Ltd

In a major step to boost the commercialization of its technologies and processes, CSIR-NEIST signed a Technology Marketing Agreement with CSIR-Tech Pvt. Ltd., Pune on 20 August 2014. CSIR-Tech was created with the recommendations of a high-powered committee constituted by DG-CSIR to take the technologies, processes, knowledgebase, knowhow, etc. generated by CSIR labs to the market and spin-offs as business enterprises.

A team led by Shri Amitabh Shrivastava, CEO, CSIR-Tech visited CSIR-NEIST during 19-20 August 2014. After a short meeting and technical presentations by CSIR-NEIST scientists on 19 August 2014, the Agreement was signed on 20 August 2014. Through the signed agreement, CSIR-Tech will act as a marketing agency and help in catalyzing the commercialization of CSIR-NEIST technologies, processes, knowledgebase, consultancy and testing/analysis services as well.



Dr. D. Ramaiah (second from right), Director, CSIR-NEIST and Shri Amitabh Shrivastava (third from left) with the signed agreement, in presence of CSIR-Tech team and CSIR-NEIST scientists

CSIR-CFTRI to Tie-up with Govt. of Karnataka for establishing a Nutra-Phyto Incubation Centre



Prof. Ram Rajasekharan, Director, CSIR-CFTRI exchanging the MoA Document with Ms. Tanusree Deb Barma, IAS, Director, Dept. of IT, BT and S&T and MD, KBITS, Govt. of Karnataka

CSIR-CFTRI, Mysore, signed a Memorandum of Agreement (MoA) with Karnataka Biotechnology & Information Technology Services (KBITS), Dept. of IT, BT and S&T, Govt. of Karnataka for establishing a Nutra-Phyto Incubation Centre and Common Instrumentation Facility (NPIC_CIF) in the project mode at its campus for the betterment of Industries in the areas of nutraceuticals and functional foods.

The proposed facility would facilitate discovery and development of new products/innovative technologies by establishing world-class laboratories, Pilot Plant facilities, analytical testing and safety studies for promoting entrepreneurs, SHGs and SMEs. The facility would be also made available to farmers for primary and secondary processing of agri-produce for value addition.

The major objectives of the centre are:

- Focused research initiatives for functional nutraceuticals
- Facilitate incubation facility for entrepreneurs
- Provide testing and safety evaluation studies

- Promote SMEs
- Catalyse employment generation

The NPIC_CIF would be transformed as a world-class hub to catalyse research and innovations in the area of nutraceuticals to support the growth of wellness industry in Karnataka. Importance and role of food in maintaining wellness of the body are well established and there is a huge potential for nutraceuticals the world over. Since food alone is unable to meet all the nutritional needs of the body, supplementation with non-nutrients such as antioxidants, prebiotics and probiotics is resorted to. Besides, the ability of many nutraceuticals to influence chronic diseases is also considered as a great opportunity for treatment.

Presently, in the world market India's share is less than 1%. A large number of nutraceuticals are imported at a high cost. There is also concern about unproven health claims and benefits of these products. The proposed centre is expected to facilitate the entry of traditional and non-traditional nutraceuticals into the global market with proven scientific evidence.

The proposed facility would facilitate discovery and development of new products/innovative technologies by establishing world-class laboratories, Pilot Plant facilities, analytical testing and safety studies for promoting entrepreneurs, SHGs and SMEs. The facility would be also made available to farmers for primary and secondary processing of agri-produce for value addition.

Symposia/Seminars**CSIR-CMFRI organizes 66th Meeting & Symposium of International Committee for Coal & Organic Petrology for the first time in India**

CSIR-Central Institute of Mining and Fuel Research Institute, Dhanbad organized the 66th meeting and symposium of the International Committee for Coal and Organic Petrology (ICCP-2014) at Science City, Kolkata during 20-25 September 2014 at Science City, Kolkata.

It was a rare occasion that ICCP provided to CSIR-CIMFR an opportunity to host its 66th meeting for the first time in India. Since its inception in the year 1954, the Committee organizes different activities on basic research on coal petrology across the globe. In recent years it was hosted by Poland (Sosnowiec, 2013), China (Beijing-2012) and Portugal (Porto-2013).

One of the main activities of the ICCP is the constitution of different commissions/working groups on various themes/topical issues of basic and applied aspects of coal constitution. The expert members of working groups evolve the standard procedures for the characterization of coal through rigorous exercises. Also, it arranges accreditation programs to nurture a pool of accredited coal petrographers and provides training in basic and applied aspects of coal petrography at different venues including geological field trips on fossil fuel exploration/

environmental aspects.

In the 66th ICCP 2014 Meeting and Symposium over 160 delegates attended and among them around 30 foreign coal experts from 13 countries participated.

The inauguration of ICCP-2014 Meeting/Working Group Discussion was held on 21st September 2014. The Chief Guest of the function was Shri Harbans Singh, Director General, Geological Survey of India, Kolkata and Guests of Honour at the function were Dr. Petra David, President ICCP and Dr. Angeles Borrego, General Secretary ICCP. The function was presided over by Shri A.N. Sahay, CMD, Mahanadi Coalfields Limited (MCL). The Welcome address was delivered by Dr. Amalendu Sinha, Chairman Organising Committee, ICCP 2014 and Director CSIR-Central Institute of Mining and Fuel Research, Dhanbad. Dr. Ashok Kumar Singh, Organizing Secretary, ICCP-2014 briefed about the ICCP activities and proposed the vote of thanks.

The Inaugural function was followed by the Committee/Working Group deliberations and technical presentations in different sessions during 21-24 September 2014. Experts in over 30 working groups discussed the findings at ICCP Forum. It is noteworthy that ICCP evolves different standards for different coal petrographic methods through such activities. Finally, the committee recommends its decisions to international standard organizations such as ISO, ASTM, AS, IS etc.

A one-day symposium was also organized at Science City on 25th September 2014. The theme of the symposium was "Application of Organic Petrography for Power & Steel Industries – Our preparedness for facing the challenges in coming decades". The Chief Guest of the inaugural function was Prof. Joan Esterle, University of Queensland, Australia; Guests of Honour



Dignitaries on the dais

were Shri A. K. Jha, Director Technical, NTPC, New Delhi and Shri Sekhar Saran, Director Technical (CRT), CMPDIL, Ranchi.

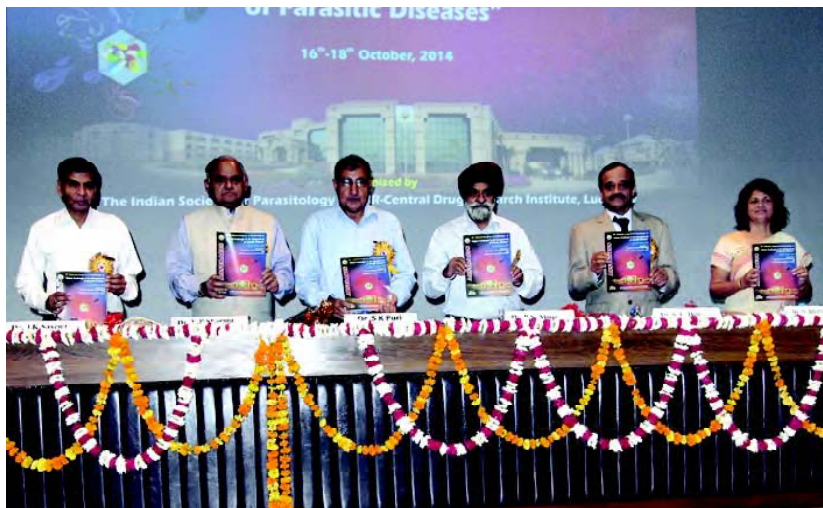
The Welcome address was delivered by Dr. Amalendu Sinha, Director CSIR-CIMFR, Dhanbad and Chairman Organizing Committee, ICCP-2014. Mrs. Nandita Choudhury, Chief Scientist, CSIR-Central Institute of Mining and Fuel Research, Dhanbad highlighted the theme of the ICCP-2014 symposium. Formal vote of thanks of the function was proposed by Dr. Ashok Kumar Singh, Organizing Secretary, ICCP-2014.

In the symposium 48 papers were presented in oral and poster sessions. Eminent researchers from across the globe made it possible to understand coal better as a fuel for its efficient utilization, particularly in power and steel industries. Coal petrographic studies have provided methodologies for characterization of coal for carbonization, gasification, liquefaction and many other conversions. The reactive macerals and the rank decide combustion properties of coal to be used in pulverized fuel furnaces.

Nowadays, to run a thermal power plant coals are required from different sources and

have to be blended. The best suitable blend can be adjudged and boilers could be modified to accept a particular blend as fuel through the quantitative study of pulverized fuel chars.

The presence of leading experts from Australia, USA, Germany, Spain, Greece, Poland, Portugal and Korea, especially the presence of Dr. Petra David (President ICCP), Dr. Angeles Borrego (General Secretary, ICCP), Dr. Peter Crosdale, Dr. Joan Esterle, Dr. Walter Pickel, immensely benefited the Indian scientists.



Release of Conference Proceedings



A view of the participants

Workshops

One-day Workshop on Empowerment of Tribal Women in Andhra Pradesh organized by CSIR-IICT

A one-day workshop-cum-training programme on “Socio-economic Empowerment of Tribal Women through Tassar sericulture in Andhra Pradesh” was conducted at Bhadrachalam, Khammam district of Telangana by the CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad in collaboration with the State Sericulture Department and Central Silk Board on 23rd July 2014.

The training programme on Tassar sericulture for healthy larvae and production of quality cocoon yield was sponsored as a project to CSIR-IICT by the Department of Science and Technology, Govt of India, New Delhi. Tassar silkworms are reared traditionally by tribals (Koya) in eight mandals of Bhadrachalam agency areas comprising of

Venkatapuram, Wazeedu, Cherla, Kunavaram, Chintur, VR Puram and Aswapuram covering about 1500 poor tribal farmers in the remote forest areas. The main purpose behind the programme was to identify Tassar farmers and bring them on a single platform and to distribute the required appliances and materials which are quintessential for rearing of the Tassar silkworms.

CSIR-IICT initiated a program on Tassar culture for the economic empowerment of tribal women by providing them training and equipment for maintenance of the food plant as well as silkworm rearing for employment and income generation in Khammam, Warangal and Karimnagar district of Telangana. In the first phase of the project, a one day workshop was arranged at



Dr. M. Lakshmi Kantam, Director, CSIR-IICT addressing the Tasar farmers during inauguration of workshop



View of the participants during the workshop



Dr. M. Lakshmi Kantam, Director, IICT interacting with farmers at the workshop



Distribution of rearing appliances and disinfectants to farmers by Director, CSIR-IICT

Bhadrachalam, an agency area in Khammam district. Nearly 180 tribal farmers comprising mostly women participated in the workshop.

The function was presided over by Dr. M. Lakshmikantam, Director, CSIR-IICT. In her address she assured provision of all necessary help to carry out Tasar culture in a big way through scientific inputs and financial assistance by CSIR-IICT to farmers for production of better cocoon crop.

Speaking on the occasion, Dr. U.S.N. Murty, Project Coordinator, Head, Biology, CSIR-IICT described in detail about the extensive rural development work taken up by CSIR-IICT and management of various diseases and pests in sericulture. He also spoke about introducing mulberry sericulture in non-traditional areas of North East states like Assam, Manipur, Sikkim and in the state of Jammu and Kashmir.

Principal Investigator of the project, Dr. Sunil Misra, Scientist, Biology Division of CSIR-IICT spoke in detail about the project

and various technologies that will be transferred to the field during the duration of the project.

Dr. Durga Prasad, Joint Director, Department of Sericulture, Warangal narrated the process of conducting silkworm rearing and their management at each step during its life cycle. He also highlighted the immediate need of having reeling facility in areas where Tasar is being cultivated, so that farmers need not depend on reelers from other states like Jharkhand and Chattisgarh to sell their produce. In this process farmers are being exploited by the reelers to offer throwaway price causing severe economic loss.

Dr. Venu Babu and Dr. Satyanarayana, senior scientists from CSB demonstrated to the farmers management of chawki worms as well as late-age worms for better cocoon production. During the training programme, information on Tasar culture like host plant maintenance, grainage activity, pest and disease management were imparted to the



Interactive session of farmers with experts



A woman farmer highlighting her problems to the experts during the workshop



Group photo of delegates and farmers at the workshop

farmers at field level. All the identified farmers attending the one-day workshop were provided with sicuture for pruning of host plant stem, 20 kg of bleaching powder, 5 kg of lime as disinfectant and 50 kg vermicompost for maintenance of the host plant.

The dignitaries had a healthy interaction

with the farmers wherein they came to know about the difficulties faced by the Tasar farmers and the necessary inputs to be strengthened so that many more tribals take up this activity. The points raised by them were noted for providing better facilities to be taken up for implementation during the course of the project.

Science Awareness Programmes

INSPIRE Programme inaugurated at NIO by Mrs. Alina Saldanha

Exposing young students to science is the need of the hour, our students are the budding scientists of tomorrow, said Mrs. Alina Saldanha, Minister of State for Environment and Forest, as she inaugurated the INSPIRE (Innovation in Science Pursuit for Inspired Research) program organized by the CSIR-National Institute of Oceanography on 27th October.

Dr. S.W.A. Naqvi, Director CSIR-NIO welcomed the gathering and highlighted the role of national institutes like NIO in sharing the new developments in science with young students.

The keynote address on “Space initiatives – a new revolution” was delivered by Padma Bhushan Prof. U.R. Rao, former Chairman ISRO and Secretary to Govt. of India, Dept of Space. Prof. Rao described evolution of space research in the country starting from INSAT to the Mars Orbital Mission and motivated the students to take up a profession in a field of their interest rather than following others.

Also present for the programme was Dr. Umesh Sharma, INSPIRE-DST In-charge, Ministry of Science and Technology, New Delhi. The program Co-ordinator, Dr. Judith Gonsalves, CSIR-NIO, proposed the vote of thanks to the dignitaries, invitees and participants.

The five-day program is structured for Goa's top performers of X standard examination who are presently pursuing science stream in XI standard. The program is sponsored by the Department of Science and Technology, Govt of India. The basic objective of INSPIRE is to communicate to the youth population of the country the excitements of creative pursuit of science and attract talent to the study of science at an early stage and build the required critical human resource pool for strengthening and expanding the science & technology system and research and development base.



Mrs. Saldanha addressing the gathering

Mrs. Saldanha said that she also wanted to be a scientist in her younger days and that the young students participating in the program should make full use of the opportunity by interacting with leading scientists. She expressed confidence that this initiative will go a long way in inspiring the youth of Goa to pursue careers in science.

Mosaboni School Students Motivated For a Science Career at CSIR-NML



A batch of 43 students of Std. XII from St. Joseph's Convent High School, Mosabani accompanied by three teachers — Ms. Mitali Nath, Ms. Shibani Nayak and Mr. K. Dutta visited CSIR-National Metallurgical Laboratory, Jamshedpur and interacted with the scientists and research fellows under the aegis of Faculty Training and Motivation and Adoption of Schools, sponsored by CSIR-HRG, New Delhi.

The students were thrilled to visit the laboratory and interact with the working groups. Shri Ankit Nandy, a student said, “The visit to the lab gave me a brief idea of India’s bright scientific history. The

presentation on CSIR and NML was very fascinating and motivating. We got to know the entire functioning in CSIR ranging from drug research- aerospace-genetic engineering-agro & food-ecology & environment-mining, minerals & metals-health care-rural development-leather industry to almost I believe everywhere.”

Another student Shri Siddharth Majhi said, “What I loved the most is the way the things about science and future career prospects were explained. It was truly remarkable.”

Ms. S. Sangeeta Kumari, another student, said, “Visit to the laboratory gave us a real



Glimpses of the visit

picture how science and technology work hand in hand for the benefit of the common mass. The work done by CSIR and NML in particular is highly commendable”.

The students were happy to learn about the various CSIR products being marketed today all over India, for example Swaraj tractor, Amul baby food, Asmon (drug for Asthma), Saheli, E-Mal (malarial drug), leather goods, supercomputer, precious metals, agroproducts, etc. “The programme was an eye opener for me. I am deeply motivated,” said Ms. Manisha Das, a student, after the visit.”The interaction has helped me to understand science in a better way. Rather, now I want to pursue science in a more meaningful way. I feel more inclined towards

my future goals in life,” said Ms Harshika Gupta.

Dr. N.G. Goswami, Chief Scientist and Coordinator of the programme, motivated the students explaining about the importance of science learning by citing lively examples related to day to day life activities and how it can change our life, environment and society.

The programme was scheduled for four hours consisting of an overview of Indian Science and Technology, motivational video clippings on science, Documentary film show on CSIR and NML, practical demonstrations, lively discussion, and visit around the selective units of the laboratory/ NML Museum/Archive.

Training Programmes

National Apprenticeship Training Programme at CSIR-NAL

As part of the Human Resources Development Programme, CSIR-NAL is conducting the National Apprenticeship Training Programme for students who have ITI qualification in various technical trades. The Apprenticeship Training is governed by the Apprentices Act 1961 under the Ministry of Labour and Employment, DGET, Government of India.

This Programme was started in the year 1993 as per instructions from Regional Directorate of Apprenticeship Training (RDAT), Chennai. The total allocation of trainees to NAL was 19 at that time.

Subsequently, during 2008-09 when Karnataka State came under the jurisdiction

of RDAT, Hyderabad, the allocation of trainees at CSIR-NAL was increased to 77 in various designated trades. Of this, around 52 candidates are being selected through campus interviews from various Industrial Training Colleges in rural areas of Karnataka and 25 candidates (exclusively for SC/ST candidates) are selected through the Ambedkar Trade Training Programme of CSIR-NAL.

The training is for a period of one year for all the trainees, and starts on 15th of October every year and all eligible students are trained to appear for the All India Trade Test (AITT) being conducted during October/November or April/May every



Participants of the Training Programme

year. The trainees who are successful in the AITT Examination will be awarded the National Apprenticeship Certificate (NAC), issued by the National Council for Vocational Training (NCVT), RDAT, Hyderabad.

The various designated technical trades in which CSIR-NAL provides training are Electrician, Fitter, Machinist, Mechanic Motor Vehicle, Turner and Welder. As per the Apprenticeship Training curriculum, every technician in the above designated mechanical trade supposed to learn and practice manufacturing methods, operation of machinery, fitting & assembly processes; MMV technicians will learn and practice complete overhauling and maintenance of transport vehicles, while the Electrical technicians will learn and practice electrical installations, maintenance of various equipments and test facilities, maintenance of electrical substation etc.

It may be noted that the Mechanical trade trainees get trained at various workshops of NAL viz., APMF Central Machine Shop, Propulsion Workshop, STTD Workshop, Materials Science Workshop; Mechanic Motor Vehicle trainees in the Transport Garage while the Electrical trainees get trained at the Electrical Sections at Kodihalli and NWTC, Belur Campuses.

Initially for about two months the

trainees are under the supervision of regular staff/technicians. During this period they learn and understand the skills required in a technical environment and later are provided on the job training in the laboratory apart from conducting regular class room coaching.

Additionally, the trainees belonging to Fitter, Turner and Machinist trades are also well exposed to the operation of Advanced Computer Numeric Control (CNC) machining centres which enables them to be multi-skilled and industry competent.

This skill development programme conducted by CSIR-NAL as part of its Corporate Social Responsibility is benefiting the young technicians and the Micro, Small, Medium and Large Engineering Industries where they would be eventually working and thereby contributing to the nation's development. CSIR-NAL is happy that, through this programme most of the candidates from rural areas and also from SC/ST categories have been brought into the mainstream of the society as they are well placed in many engineering industries.

The trainees are paid a stipend of Rs.3,500/- per month by CSIR-NAL.

**Dr. R. Rajendran and
Pradeep M. S.**



Teachers' Training and Adoption of Schools by CSIR-NIO

CSIR-National Institute of Oceanography (CSIR-NIO), Goa organized a four day "Faculty Training and Motivation (FTAM)" program for high school teachers from Goa from 9th to 12th September 2014 and the "Adoption of schools and colleges" program funded by the Human Resource Department Group of the Council of Scientific and Industrial Research (CSIR), New Delhi. The purpose of FTAM is to re-energize teachers, expose them to recent development in different fields of science and enhance their knowledge about the world of oceans. NIO conducts this outreach program every year and has successfully



trained 161 teachers from various schools across Goa since its inception in 2004. This year the program was attended by 8 science

teachers from different schools of Goa.

The program consisted of lectures on latest trends in biotechnology, coastal zone management and underwater cultural heritage. The programme included demonstration of sophisticated equipments and visits to aquaculture laboratory housing sea horse and ornamental fishes, as well as marine archeology museum with artifacts of ancient maritime implements and pottery. The teachers also participated in activities such as role play on societal issues, group discussions on environmental topics and an ocean quiz.

Under the scheme "Adoption of Schools & Colleges by CSIR Labs", NIO gifted laboratory equipment consisting of binocular and biological microscopes, chemical storage cupboard and chalk less boards costing Rs. 1 lakh to the two adopted schools namely,

Govt. High School, Dona Paula and Govt. Higher Secondary School, Sanquelim. Under this scheme, the students of these schools can avail laboratory and library facilities at NIO, as well as attend any public lectures and seminars at the Institute.

The function was attended by the staff and the students of the schools. Dr. Rajiv Nigam, Dy. Director, NIO assured the students of all the help that NIO could give and also urged the schools to take maximum benefit of this opportunity. The scientific equipments were handed over to the representatives of the schools by Dr. Nigam who congratulated the participants and awarded the certificates during the concluding session. Dr Maria Brenda L. Mascarenhas Pereira, Senior Scientist and the Coordinator of the program proposed the vote of thanks.

Celebrations

CSIR Foundation Day at CSIR-NEERI



Prof. Kasturi Datta, Chairperson, CSIR-NEERI Research Council addressing the audience

CSIR-National Environmental Engineering Research Institute (CSIR-NEERI) celebrated the 72nd CSIR Foundation Day on 26th September 2014. Dr. S. Subramanian, Professor, Department of Materials Engineering, Indian Institute of Science, Bengaluru was the Chief Guest and Prof.

Kasturi Datta, Chairperson, CSIR-NEERI Research Council Guest of Honour on this occasion.

While delivering the CSIR Foundation Day Lecture on 'Microbially assisted processes in mineral processing and environmental remediation', Dr. Subramanian said that in recent years, the content of heavy metals in the soil has gradually increased, resulting in the deterioration of the environment. Once the soil suffers from heavy metal contamination, it is difficult to remediate, he added. Briefing about mineral bioprocessing, Dr.

Subramanian said that microorganisms are finding increasing use in minerals engineering. Therefore, at Indian Institute of Science (IISc) he targeted his studies on both enhancement of mineral engineering operations and remediation of mineral industry wastes, Dr. Subramanian informed.

Some of the applications, such as biologically assisted leaching of sulfide ores are established commercial processes, he said. Others, such as the use of organisms for the removal of heavy metal ions from dilute aqueous streams, are nearing commercial application, he added. Dr. Subramanian said that microorganisms can also be used in leaching of non-sulfide ores, the flocculation or flotation of minerals and remediation of toxic chemicals discharged from mineral engineering operations.

Earlier in her address as Guest of Honour, Prof. Datta talked about the CSIR-NEERI technologies that have been successfully implemented in the field. She made a special mention of phytoid wastewater treatment technology and electrolytic defluoridation technology and informed that these technologies have been successfully implemented in various parts of the country. She gave credit to the team work of CSIR-NEERI.

Dr. Satish R. Wate, Director, CSIR-NEERI in his welcome address, briefed about CSIR@80 which refers to global scientific impact. This can happen only if we properly evaluate our scientific and technological contributions, he said. Science without application has no meaning, Dr. Wate said. He urged scientists to work for the benefit of the people and that research must reach the masses. He also briefed about the waste to wealth projects being undertaken by the Institute.

The dignitaries released CSIR-NEERI Annual Report 2012-13 and a booklet on 'Lab to Land Achievements of CSIR-NEERI'. A science model exhibition-cum-competition was also organized on this occasion in which students from 15 schools took part. Prizes were given away to the winners of the competition. Mementoes were presented to CSIR-NEERI employees who had completed 25 years of service in CSIR and retired on superannuation during the period September 2013 to August 2014.

Mr. Prakash Kumbhare, Principal Scientist & Head, R&D Planning Division, CSIR-NEERI proposed a vote of thanks and Mrs. Jaya Sabjiwale conducted the proceedings.



Dr. S. Subramanian, Professor, Department of Materials Engineering, Indian Institute of Science, Bengaluru delivering the CSIR Foundation Day Lecture



The dignitaries releasing a booklet on 'Lab to Land Achievements of CSIR-NEERI'



A view of the science model exhibition organized on the occasion

CSIR-CSIO Celebrates its Foundation Day



Release of Annual Report (2013-14) by Prof. A.K. Ganguli (*Centre*), Director INST, Mohali on the occasion of CSIR-CSIO Foundation Day. Other dignitaries are Dr Amod Kumar, Acting Director, CSIR-CSIO (*Left*) and Dr. C. Ghanshyam (*Right*), Chief Scientist, CSIR-CSIO, Chandigarh

CSIR-Central Scientific Instruments Organisation (CSIO) celebrated its Foundation Day on 30th October 2014. Dr. Ashok K. Ganguli, Director, Institute of Nano Science and Technology, Mohali gave an inspiring, motivating and thought provoking Foundation Day Lecture on Nanoscience & Nanotechnology.

Dr. Ganguli informed about the challenges the society is facing today in the areas of Energy, Environment, Security, Food and Disease Control. He highlighted that Nanotechnology can be applied to each of these areas. He advised the scientists of CSIR-CSIO to observe nature and mimic it. He revealed that the latest trends in nanotechnology are in the fields of stronger materials/higher strength composites, scalability of production, more commercialization, sustainability and Nanomedicine.

Dr. Amod Kumar, Acting Director, CSIR-CSIO while welcoming the Chief Guest highlighted the aims and goals of CSIO and its contribution in the field of science and technology. Dr Amod Kumar also presented an overview of the on-going projects and future plans of the organisation. He said that the lab has traversed a long

journey and is celebrating its 55th Foundation Day. He said that initially CSIO was set up to cater to the service and maintenance requirements of industry in this area but now it had grown in the direction of R&D. He also mentioned that CSIO has come a long way in developing human resources in Instrumentation from skill-based training in ISTC in the past to Post Graduate level courses in Advanced Instrumentation leading to M. Tech and PhD.

Dr. Girish Sahni, Director, Institute of Microbial Technology who was present on the occasion expressed his happiness at the growth of CSIO. He remembered fondly the time he had spent in CSIO and said that a great opportunity is in the offing in future and there is a need to translate the scientific research into products and services that could be of use to the society.

Dr. Ashok K. Ganguli released the Annual Report of CSIO for 2013-14 and also distributed prizes to the school children who had scored well in Hindi Subject. Prizes were also given to the winners of essay writing competition held during vigilance awareness week. The function ended with a formal vote of thanks by Dr. C. Ghanshyam, Chief Scientist, CSIR-CSIO.

Annual Day Celebrated at CSIR-NBRI



The Institute celebrated its Annual Day on 25 October 2014. Renowned Plant Geneticist of International repute Prof. Deepak Pental, Director, Centre for Genetic Manipulation of Crop Plants (CGMCP), University of Delhi, South Campus, was the Chief Guest and Shri Rajan Shukla, IAS, Principal Secretary, Coordination, Govt. of UP, Lucknow, presided over the function.

Dr. C.S. Nautiyal, Director, CSIR-NBRI welcomed the dignitaries and guests and presented the Annual Report of the Institute summarizing various activities undertaken and major achievements made by the Institute in the past one year. Highlighting the work carried out during the year 2013-14, he said that the Institute published 218 research papers in leading national and international journals. Of these, 126 were in SCI journals with an impact factor of 2.26 per paper and total IF of 284.784. A new facility in the NBRI Botanic Garden *viz.* Jurassic Gallery was developed and a new *Gladiolus* cultivar, 'NBRI-Heerak' was released by Shri B.L. Joshi, the then Governor of UP.

Dr. Nautiyal also mentioned with pride that CSIR-NBRI, Lucknow and Rice Research Station, Chinsurah, West Bengal, have developed an arsenic-free rice variety (CN-1794-2-CSIR-NBRI) that contains safer levels of arsenic even if produced in areas with high levels of arsenic in ground water or soil.

On this occasion, Annual Report 2013-14 was released by Prof. Deepak Pental. In his Annual Day lecture entitled 'Polyploidy and Angiosperm Evolution', Prof. Pental mentioned that the flowering plants are represented very strongly in the terrestrial flora of earth. Rapid radiation of flowering plant families is an interesting feature of earth's history. Polyploidy has been recognized as another interesting feature of angiosperm evolution. Evidence for widespread polyploidy first came from cytogenetic studies. Molecular biology tools have contributed in two significant ways to study the evolution of flowering plants.

Study of evolution of organelle and nuclear genes has led to major revisions in angiosperm taxonomy. Further, study of genome organization of plants through comparative mapping and sequencing has shown many species to be paleopolyploids.



Prof. Deepak Pental addressing the audience



Dignitaries releasing CSIR-NBRI Annual Report 2013-2014

Polyploids can be autopolyploids or allopolyploids (strict doubling of chromosome number) and the number may remain so or these may evolve into lower chromosome number mesopolyploids. Many paleopolyploidy events have not stayed as exact multiples of initial chromosome number of the parents but as reduced chromosome number entities. Study of the biological and environmental factors that have shaped

evolution of polyploids is evoking high interest amongst those who are fascinated with the evolution of angiosperms.

Shri Rajan Shukla, released the Hindi Magazine 'Vigyan Vani'. In his presidential address, he said that three objectives are essential and should be fulfilled by the scientists and administration together. Scientists should carry out meaningful research, and this research should percolate from laboratories to the fields and finally

this research must be beneficial to everybody.

On this occasion Shri Shukla felicitated the scientists/research scholars with citations and mementoes who published high impact research papers in different decision units of NBRI. Dr. Prabodh Kumar Trivedi was felicitated for the Best Research Paper of the Institute, with an impact factor of 5.906. Dr. Vidhu A. Sane, Principal Scientist, compered the function while Dr. S.K. Raj, Chief Scientist proposed the vote of thanks.

Lectures

Prof. P. Khanna Memorial Lecture



Shri K.P. Nyati delivering the Prof. P. Khanna Memorial Lecture; seated on the dais (from left): Dr. Satish R. Wate

CSIR-National Environmental Engineering Research Institute (CSIR-NEERI) organized the Prof. P. Khanna Memorial Lecture in the CSIR-NEERI Auditorium on 14 August 2014. Shri K.P. Nyati, Renowned Environmental Consultant & Former Member, NEERI Research Council was the Chief Guest on this occasion and delivered the Prof. P. Khanna Memorial Lecture.

While addressing the gathering, Shri Nyati briefed about the vision, mission, passion and personality of Prof. P. Khanna. He stated that Prof. Khanna was crazy to bring innovations and creativity in the R&D activities. Prof. Khanna always strived to introduce new methodologies for identifying environmental problems and finding out their effective solutions, he added. Shri Nyati informed that in the 1980s, Prof. Khanna gave a new direction to environmental research

by introducing a new concept of reclaiming degraded environment with the help of microorganisms. Many paradigm shifts in the area of environmental science and engineering took place during Prof. Khanna's tenure as Professor at IIT Bombay and Director, NEERI, he informed. Shri Nyati mentioned that Prof. Khanna not only had a vision in environmental science and engineering, he also had knowledge of environmental economics, which has now become an important tool for policy makers in the country.

Talking about 'Green GDP (Gross Domestic Product)', Shri Nyati said that India can make green growth by putting in place strategies to reduce environmental degradation. This will allow India to maintain a high pace of economic growth without jeopardizing future environmental sustainability, he added. Shri Nyati advocated the need of natural resource accounting and environmental policy analysis in the country to identify gaps in the environmental data.

Earlier, in his welcome address, Dr. Satish R. Wate, Director, CSIR-NEERI briefed about the significant contributions of Prof. P. Khanna. He said that Prof. Khanna initiated various new R&D areas in CSIR-NEERI. Prof. Khanna developed many processes and ensured that those processes were translated into technologies, he added.

Prakash Kumbhare proposed the vote of thanks. Mrs. Jaya Sabjiwale conducted the proceedings.

Health Camps

CSIR-NEIST organizes Health Camp in Meghalaya



A Health Camp in Lower Primary School, Sohknynphor village under West Jaintia Hills District of Meghalaya was organized by the CSIR-North East Institute of Science & Technology on 17 October 2014 under the CSIR Network project 'Therapeutics of chronic obstructive pulmonary disease (COPD) and related respiratory disorders' (BSC0116).

The objective of the project is to survey and organize health camps in coal mine areas of Assam and Meghalaya in relation to COPD disease. This was the sixth Health Camp organized under this project and the first of its kind to be organized in the Jaintia Hills, Meghalaya. A team of Scientists, Medical doctors, Nurses, Research fellows coordinated by Dr. B.G. Unni, Chief Scientist and Nodal Scientist of the project attended the camp.

Dr. P.K. Baruah, Medical Officer, Clinical Centre, CSIR-NEIST and Dr. C.B. Duarah, Medical Officer of Jorhat conducted medical check-up of a large number of villagers/patients, of which a few of them

were suspected to have COPD. Most patients had also gone through blood and spirometry tests. COPD is suspected to develop due to genetic and environmental factors and hence air and suspended dust samples have been collected from the area through a Respirable Dust Sampler for further analysis. A good stock of medicines were also distributed free of cost among the patients.

The Health Camp was organized with the help of doctors from the local Health Centre and members from M/s Seng Kynjoh Shaphrang Ki Kynthai (NGO).



A large number of villagers waiting for the medical check in the health camp



Dr. B.G. Unni Coordinating the entire activities in the Health Camp



Registering the patient in the Health Camp



Dr. P.K. Baruah checking the patient in the Health Camp



Dr Fernandez, Primary Health Centre, West Jaintia Hills (Meghalaya) explaining the procedure of preparing for Spirometry Test in the Health Camp

CSIR Health Mela-2014 at CSIR-CIMAP: Use of Local Resources Stressed

CSIR-Central Institute of Medicinal and Aromatic Plants (CSIR-CIMAP), Lucknow organized a 'Health Mela' under the CSIR Network Project (BSC-0125), "S&T intervention to combat malnutrition in women and children" on 14 August 2014 in CSIR Techvill Daun (Block Purva), District Unnao (UP).

About 500 people comprising children and women in large numbers participated in the 'Health Mela'. The Health Mela was inaugurated by Dr. (Mrs.) Manju Sharma, former Secretary, Department of Bio-

technology, Government of India. Dr. Sharma also visited various stalls put up on the occasion.

Dr. Sharma in her address emphasized that malnutrition is a big problem in our country and we can combat this problem collectively by using available natural resources to their full potential. CSIR can contribute in this programme in a big way, she added. She also praised CSIR labs who have undertaken a project in this national work of importance. Dr. (Mrs) Sharma stressed upon the need for better education to children, which will enable them to take care of their health related problems.

Dr. Sharma also released the Souvenir published on the occasion and distributed herbal products developed by CSIR-NBRI, CSIR-IHBT, CSIR-NEIST, and CSIR-CIMAP to combat malnutrition to the beneficiaries.

Earlier, Prof. Anil Kumar Tripathi, Director, CSIR-CIMAP welcomed the participants and other guests. Prof. Tripathi said that the use of locally available resources must be popularized to combat the problem of malnourishment among the women and children. He said that CSIR-CIMAP shall steer the rural development programme and will follow up the malnutrition project in the adopted villages regularly so that the benefit of CSIR technologies could reach the masses. He said that initial health check up of the targeted population should be done to find out the specific problems before suggesting any remedial measure.

Dr. Vishwajanani Sattigeri, Sr. Principal Scientist, PPD, CSIR, New Delhi talked about the objectives of the CSIR Network Project in which six CSIR labs are participating. Dr. H.S. Chauhan, Chief Scientist, CSIR-CIMAP informed about the progress made under the project.

In the daylong programme, a general health check up of the beneficiaries was done by a team of medical doctors of CSIR-CIMAP led by Dr. V.K. Agarwal and



Prof. A.K. Tripathi welcoming the guests and participants



Dr. (Mrs) Manju Sharma interacting with the team of doctors in the CSIR Health Mela



Dr. D.N. Mani. Propagation and uses of medicinal plants were discussed in detail by Dr. V.K.S. Tomar and Dr. Sanjay Kumar. Demonstration of distillation of essential oils was arranged by Er. Sudeep Tandon.



Women and children participating in the CSIR Health Mela

Honours & Awards

CSIR-NEERI scientist gets CSIR Young Scientist Award 2014

CSIR-NEERI scientist Dr. Manmohan Dass Goel has been conferred the prestigious CSIR Young Scientist Award 2014 in the category of Engineering Sciences. Dr. Jitendra Singh, former Minister for Science & Technology & Vice-President, CSIR gave away the award to Dr. Goel on the occasion of the CSIR Foundation Day celebrations held in New Delhi on 26th September 2014.

Dr. Goel was selected for this award recognizing his innovative and significant contributions in the area of 'blast response of structures and its mitigation using advanced lightweight materials'. Dr. Goel designed and developed such innovative structural components that can be used as blast-resistant structures. Dr. Goel has used indigenous lightweight materials to develop the blast-resistant structures.

The research has given a new and innovative direction to structural engineering, and would also help to prevent buildings during blast-terror attacks and accidents. His research will also be used as a disaster mitigation tool. The research of Dr. Goel can further lead to the development of many new indigenous blast-resistant materials,



Dr. Manmohan Dass Goel, receiving CSIR Young Scientist Award 2014 from former Minister for Science and Technology Dr. Jitendra Singh

which can be exploited for various industrial applications too.

Dr. Goel joined CSIR-NEERI, Nagpur on 21 July 2014 on transfer from CSIR-AMPRI, Bhopal.

The award consists of a citation, a cash prize of Rs. 50,000/- and a plaque. He will be awarded a research grant of Rs. 5 lakh per annum for a period of five years, and an honorarium of Rs. 7,500 per month till the age of 45 years.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH
HUMAN RESOURCE DEVELOPMENT GROUP
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 New Delhi 110 012

NOMINATIONS INVITED

2015 CSIR Young Scientist Awards

The Council of Scientific & Industrial Research (CSIR) invites nominations for the CSIR Young Scientist (YS) Awards for the year 2015. The awards are to be given for research contributions made primarily in India. The nominee should be a regular scientific staff of CSIR system holding a post of Junior/Trainee Scientist or above (Previously Scientist 'B' or above in Group IV) and should have joined the CSIR laboratory on or prior to 26th September 2014. The age of the nominee should not be **more than 35 years as on 26th September 2014**.

The YS Awards are given annually in the following disciplines: (1) Biological Sciences, (2) Chemical Sciences, (3) Earth, Atmosphere, Ocean and Planetary Sciences, (4) Engineering Sciences, and (5) Physical Sciences (including instrumentation). The YS Award comprises a citation, a cash award of Rs 50,000 (Rupees fifty thousand only), and a plaque.

Nominations addressed to **Scientist Incharge, SSB YSA Unit, Human Resource Development (HRD) Group, CSIR Complex, Library Avenue, Pusa, New Delhi 110 012** should be sent as per the prescribed proforma (original + one copy) latest by **31st January 2015**. A CD/DVD/USB flash drive is also required containing digital photograph (in JPEG format), duly filled proforma and significant publications (*in PDF format*) of the nominee.

The details of the YS Award and the prescribed proforma for nomination may be obtained from the above address or may also be downloaded from the website: www.csirhrdg.res.in

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