

CSIR NEWS

ISSN 0409-7467

VOL 56 NO 12 30 JUNE 2006



Team CSIR

NCL signs MoU with Deepak Nitrite Limited

THE National Chemical Laboratory (NCL), Pune and Deepak Nitrite Limited (DNL) have entered into a Memorandum of Understanding (MoU) that will allow NCL and DNL to work closely together in identifying and pursuing research and development opportunities of mutual interest where fruitful and synergistic collaboration can be achieved.

As part of this MoU, DNL has set up an R&D centre within the NCL Innovation Park in the close vicinity of NCL, in order to leverage the expertise and facilities of NCL. The R&D centre has been incorporated as Deepak Research & Development Foundation (DRDF) and was recently inaugurated by Dr R. A. Mashelkar,

Director General, CSIR. Dr S. Sivaram, Director, NCL, Dr M.M. Sharma, Chairman NCL's Research Council, Dr L.K. Doraiswamy and Dr Pcu Ratnasamy, both former Directors, NCL, were present on the occasion.

The DRDF is the first such facility to be set up in the NCL Innovation Park (www.innovationpark.org). The NCL Innovation Park is a facility being developed by NCL to support the birth, growth and expansion plans of research and knowledge-based business entities through critical stages of their growth by providing ready-to-occupy space with easy access to knowledge centers (like NCL), knowledge workers, business networks and other resources. The NCL Innovation Park shall also be home to the Venture Centre. It will initially aim to nucleate and nurture technology and knowledge-based enterprises.



Dr R. A. Mashelkar, Director General, CSIR, inaugurating the R&D Centre, DRDF, located at NCL Innovation Park. Shri Deepak Mehta, Managing Director of DNL, is seen on the left.





This agreement between DNL and NCL represents a new model for public-private partnerships, wherein, the research competencies and resources of a leading publicly funded research laboratory and the process engineering, and scale up capabilities, manufacturing expertise and business insights of a private sector enterprise will be twinned to develop innovative new processes and products while also delivering end-to-end research services to customer world wide.

Speaking on the occasion, Dr Mashelkar congratulated DNL and NCL on taking this initiative and said that companies occupying the NCL Innovation Park would actually have the privilege of having access to the 'mind space of NCL' which was something much more valuable than the physical resources of NCL. He hoped that both DNL and NCL would use this opportunity to work together on innovative projects with the potential of creating long-term value for all.

Solid-phase synthesis of heterocycles of biological interest

IN recent years, the field of solid-phase heterocyclic chemistry has rapidly expanded and numerous preparations based on privileged structures with proven utility in medicinal chemistry have been reported.

Bijoy Kundu and his team of the Medicinal and Process Chemistry Division, Central Drug Research Institute (CDRI), Lucknow, have published novel polymer supported synthetic strategies for heterocyclic structures via cycloquanylation in *Journal of Combinatorial Chemistry*, **7** (2005) 909-915 and a modified Pictet-Spengler strategy in *Journal of Combinatorial Chemistry*, **7** (2005) 317-321. The studies comprise part of their ongoing programme to develop new solid-phase strategies for synthesizing *N*-rich heterocycles of biological interest. For the synthesis of heterocycles involving cycloquanylation, a versatile solid-phase method for the synthesis of various substituted 2-amino-4(3H)-quinazolinone with two- and three-point diversity was developed following retrosynthetic analysis (Fig 1). Retrosynthetic analysis revealed two different synthetic routes

possible for the solid-phase synthesis of the title compounds. Out of these two routes, route B was preferred as it would lead to the synthesis of both 2-aminoquinazolinones and 2-amino derivatized quinazolinones whereas route A would yield only 2-aminoquinazolinones.

The synthesis commenced with the generation of polymer bound *S*-methylisothiourea followed by *N*-acylation with different substituted *O*-nitrobenzoic acid (Fig 2). Finally, reduction of the nitro group triggered the intramolecular cyclization via formation of guanidine to afford 2-amino-4(3H)-quinazolinone and its derivatives in high yields and purities. The crude products after the acidolytic cleavage from the resin were purified on silica gel chromatography using EtOAc:Hexane as an eluant to furnish 2-amino derivatized quinazolinones. The electron withdrawing and donating substitution on *O*-nitrobenzoic acid had no significant effect on the yield and purity of final compound. All compounds were characterized using HPLC, ESMS and ¹H NMR.

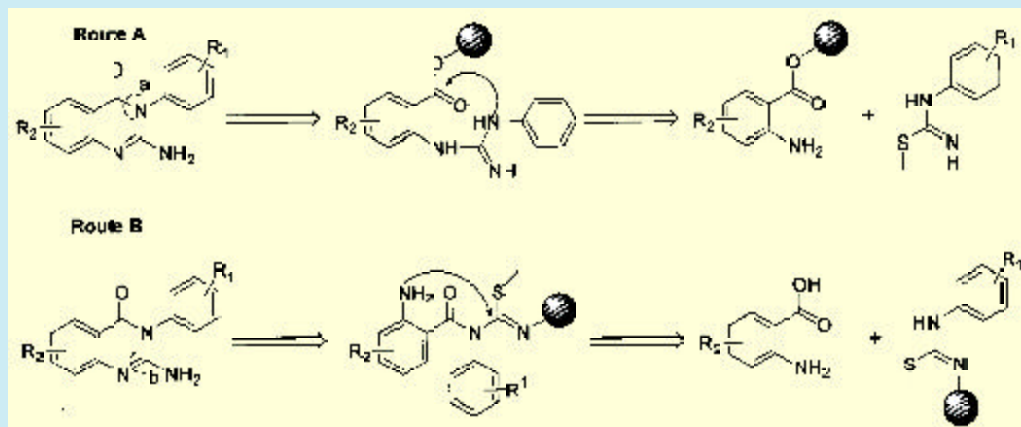


Fig 1: Retrosynthetic analysis led to two possible synthetic pathways for 2-aminoquinazolinones on solid support

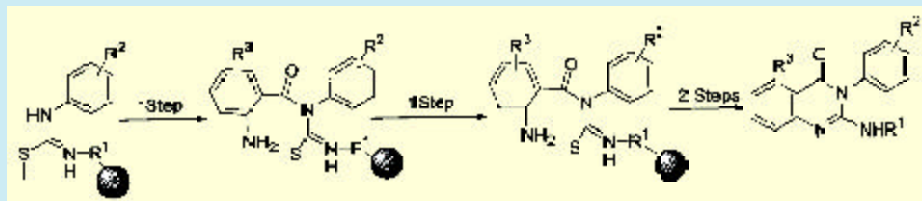


Fig 2: Solid-phase synthesis of 2-aminoquinazolinones with three-point diversity

For Pictet-Spengler reaction the researchers applied a new concept that subsequently led to the identification of a variety of second-generation substrates. This is in contrast to the traditional Pictet-Spengler reaction that revolves around three substrates (Fig 3), derived from Trp/tryptamine, His/histamine, and dopamine/tyrosine thereby invariably resulting in the formation of either β -carboline or isoquinolines. The common feature in the above traditional substrates is that the aliphatic amine is linked to the carbon of an activated ring heterocyclic ring. Therefore, the challenge of applying the Pictet-Spengler reaction beyond syntheses of isoquinolines and β -carbolines appears to be associated with the

limited availability of amine substrates.

The researchers envisioned that by replacing aliphatic amine with aromatic amine and by allowing it to originate from the either C or N of the activated heterocycle in a manner to facilitate C-C bond formation, several new substrates can be developed (Fig 3).

They rationalized that the iminium ion derived from an aryl amine would facilitate C-C bond formation better than an aliphatic amine since enhancement of the electrophilic nature of the iminium intermediate is known to be the driving force for the cyclization. Based on these assumptions, they first directed their efforts on imidazole-based substrates, by

allowing an aryl amine to originate from N-1 of the imidazole. The solid phase synthesis of this substrate commenced with nucleophilic aromatic substitution of imidazole on resin bound *O*-fluoro-nitro-benzoic acid followed by SnCl_2 mediated reduction of nitro to generate Pictet-Spengler substrate. The final Pictet-Spengler cyclization was carried out by treating the resin with aldehydes in toluene at 80°C for 12h.

Interestingly, Pictet-Spengler reaction on this imidazole substrate occurred under both aprotic and non-acidic media and aldehydes with both electron-withdrawing and - donating groups underwent C-C bond formation with equal ease. This is in contrast to the traditional Pictet-Spengler reaction where aldehydes with electron donating substituent such as salicylaldehyde failed to undergo cyclization. The researchers attributed this to the lower $\text{p}K_a$ value of the aryl amine substrate than the traditionally used substrate (tryptamine) that

furnishes imines with relatively enhanced electrophilicity thereby favoring *6-endo* cyclization with salicylaldehyde.

In subsequent studies, the researchers have identified several 'second generation substrates' based on their novel concept and demonstrated the applicability of Pictet-Spengler reaction for the synthesis of hetero-system beyond β -carbolines and isoquinolines

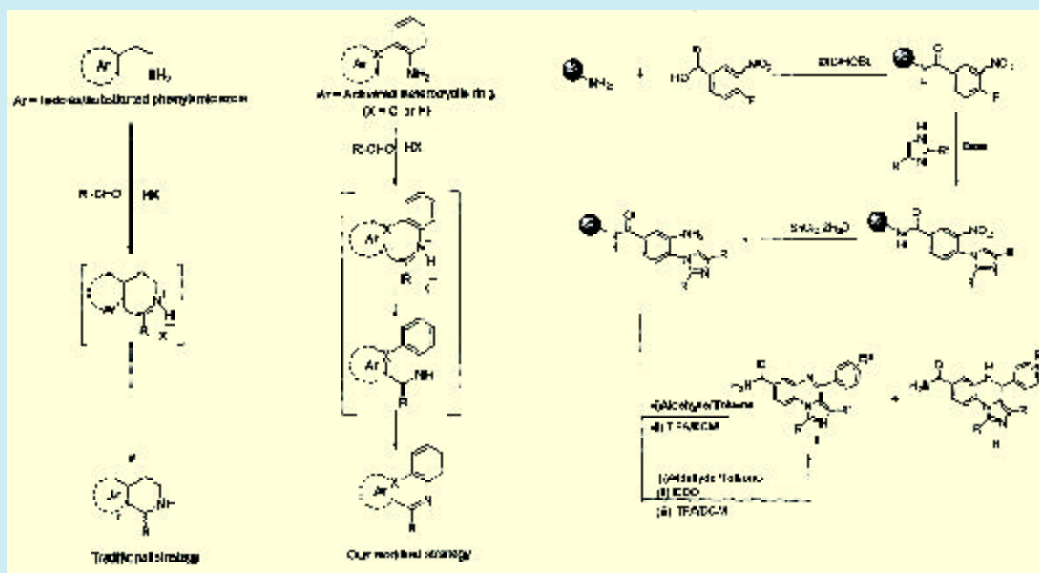


Fig 3: Traditional and modified strategies for Pictet-Spengler reaction

ACS-CSIR Conference on Organic Chemistry at NCL

THE National Chemical Laboratory (NCL), Pune, organized a four-day conference on organic chemistry and chemical biology at NCL in recent past. The conference was jointly sponsored by American Chemical Society (ACS) and CSIR, India. The conference titled 'Building Bridges, forging Bonds for 21st Century Organic Chemistry and Chemical Biology (OCCB2006)' was attended by more than 500 scientists from the strategic triad of industry, academia and government. Twenty seven distinguished scientists from India and USA both from industry and academia gave plenary lectures at the event focusing on organic synthesis, chemical biology, drug discovery and process research, chemical informatics and biotechnology. The lectures were held in ten technical sessions. About one hundred eighty-five scientists presented their work in the form of posters.

The conference was marked by the presence of Prof Robert H. Grubbs, California Institute of Technology, USA, who received the Nobel Prize in chemistry for 2005. The other eminent speakers were Prof. Laura Kiessling, University of Wisconsin-Madison, Madison; Prof Ronald Raines, University of Wisconsin-Madison, Madison; Prof James D. White, Oregon State University, Corvallis; Prof Stephen Buchwald, Massachusetts Institute of Technology, Cambridge; Prof Prasad Kapa, Novartis Institute for Biomedical Research, New Jersey;



Dr Mukund K. Gurjar gives welcome remarks. Seated on dais (from left) are: Mr Massie, Dr Schutt, Dr Sivaram, Dr Chorghade, Prof Dervan and Dr Ganesh

Dr Mukund S. Chorghade, D&O, Pharmachem; Dr John Amedio, EPIX Pharmaceuticals Inc., Cambridge; Prof. Peter Dervan, California Institute of Technology, Pasadena; Dr Michael Lipton, Pfizer Pharmaceutical Sciences, Kalamazoo; Dr Bruce E. Maryanoff, Johnson & Johnson Pharmaceutical Research & Development, Pennsylvania; Dr Bhaskar Rao Venepalli, CiVentiChem, Research Park Triangle; Dr Sundeep Dugar, Scios Inc., Fremont; Kevan M. Shokat, University of California, Berkeley (all from USA); Dr Jorg Senn-Bilfinger, Altana Pharma AG, Konstanz, Germany; Prof C. Robin Ganellin, University College London, UK; Dr Krishna Ganesh, Dr Ganesh Pandey, Dr Mukund K. Gurjar, (all from NCL); Prof. Gautam R. Desiraju, University of Hyderabad, Hyderabad; Prof Ila H, Indian Institute of Technology,

Kanpur; Dr Vijay Nair, Regional Research Laboratory, Thiruvananthapuram; Prof. Brindaban Ranu, Indian Association for the Cultivation of Science, Kolkata; Dr Bhushan Lohray, Zydus Research Centre, Ahmedabad, and Dr Rama Mukherjee, Dabur Research Foundation, Delhi (all from India).

Delivering the inaugural address, Dr S. Sivaram, Director, NCL and Chairman, Local Organizing Committee, said that 'organic chemistry is one of the strongest disciplines of NCL and even today, the largest number of scientists at NCL are working in organic chemistry. NCL is extremely proud to be part of this event. The interface of chemistry and biology is most exciting as the chemical biology or chemical genomics holds the promise of preventing, diagnosing and even



Dr Sivaram delivering the inaugural address

curing a wide range of human diseases, he further added. The time has come When the chemists have to learn and talk the language of biology just like biologists have to learn and talk the language of chemistry and the two must talk to each other. He further hoped that this conference that has brought together this confluence of chemistry and biology will talk the same language and reinforce in each other the quest for making organic chemistry a truly enabling science for the benefit of mankind.

Dr M. K. Gurjar, Head, Organic Chemistry (Technology) Division, NCL and Convenor OCCB 2006, in his welcome remarks described NCL as ground zero of the chemical sciences in India which has trained many eminent chemists and chemical engineers. "The title of the symposium is very relevant as organic synthesis continues to expand and flourish in relentless fashion, the borderline between chemistry and biology appears to be broken," he added further.

Dr David L. Schutt, Director for

Institutional Development, ACS, USA, mentioned that ACS deeply appreciates the opportunity to work with CSIR. 'Our members welcome the opportunity to build close ties with Indian chemists and biologists,' he added. Talking about ACS, Dr Schutt said that ACS was founded in 1876, and today it is the world's largest scientific society with 158,000 members. 'It seeks to advance chemical sciences, communicate the values of chemistry and serve

the chemical profession. The journals of ACS published 127 volumes in the year 2005. Though by name we are American Chemical Society but we have over 18,000 members in about 100 countries out of which 500 are in India,' he further elaborated.

Mr R. Massie of Chemical Abstract Services (CAS), USA, in his welcome remarks, said that at CAS for last one hundred years, we have a single mission to serve the chemical scientists of the world by gathering chemical information and making it available. On every business day, CAS adds 6500 new substances, and more than half of it comes from patent literature. Dr Mathew, Head, Editorial Operations, CAS, briefly outlined the presence of Indian Science as related to the Chemical Abstract. He informed that last year out of 982,000 index records, about 30,000 index records indicated India as the location of the work at the time of publication. CAS has started its operations now from India.

Dr M. S. Chorghade, President, Chorghade Enterprises, USA, Chief Scientific Officer, D&O

Pharmachem, USA and Chairman, US Organizing Committee for the ACS-CSIR Symposium, remarked, 'We have got a chance now to form strategic bonds with the Indian counterparts. We are going to discuss medicinal chemistry, informatics, organic synthesis and the idea is to get people to talk to each other to explore bonds of friendship between the most prosperous country and the most populous country on earth.'

Prof. Peter Dervan, California Institute of Technology, USA, spoke on behalf of speakers and thanked Indian hosts for wonderful hospitality. Prof. Dervan said that last 5 or 10 years were most exciting in the field of organic synthesis. In chemical biology, next few years are of post-genomics, post-proteomics era when synthetic chemists are going to probe biological systems to discover new pathways.

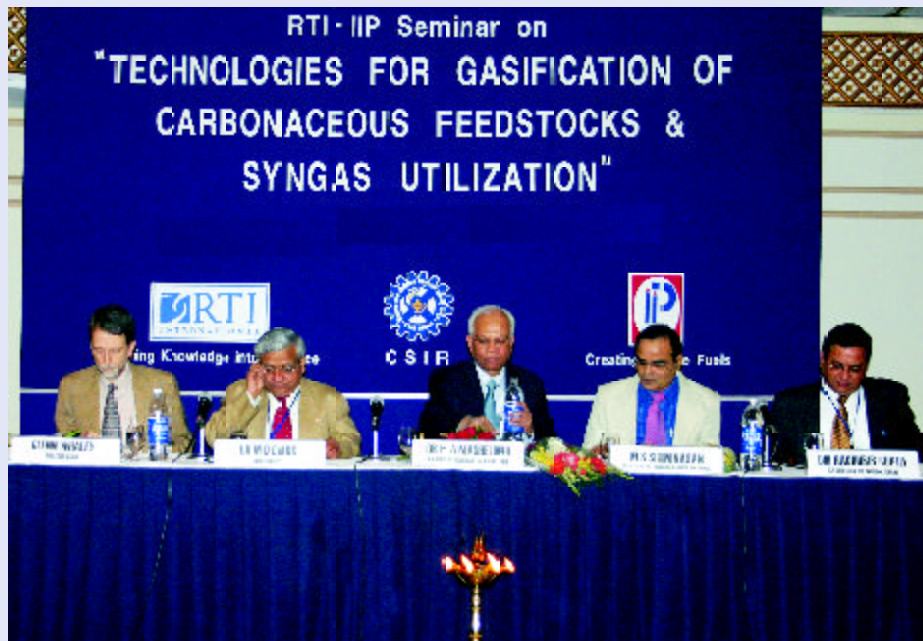
Dr K. N. Ganesh, Head, Organic Chemistry (Synthesis) Division, NCL and Convenor, informed the audience about Indo-US Science & Technology Forum sponsored mini-workshop called 'Early Career Researcher Workshop' was organized. Half of it was organized at NCL and the remaining will be continued and concluded at IICT, Hyderabad. Dr Ganesh hoped that it would fruitfully help build scientific interactions among young researchers. "This is truly a futuristic action and we thank Indo-US Forum, particularly, Dr Joseph Akkara and Dr A. Mitra for supporting the event," added Dr Ganesh. He also proposed the vote of thanks.

Seminar on ‘Technologies for Gasification of Carbonaceous Feed-Stocks and Syngas Utilization’

THE Indian Institute of Petroleum (IIP), Dehra Dun, organized a seminar on ‘Technologies for Gasification of Carbonaceous Feed-Stocks and Syngas Utilization’ in collaboration with the Research Triangle Institute (RTI) International, USA in recent past. The seminar was the first joint effort by the IIP and the RTI International, USA.

The objective of the seminar was to provide a comprehensive review of available commercial and emerging technologies for conversion of carbonaceous feedstocks like coal, petroleum coke, biomass, waste etc. by means of gasification followed by synthesis gas (syngas) utilization, to value-added products, including electric power, steam, hydrogen, transportation fuels and other chemicals. The technologies under review included various gasification technology options, syngas cleaning for sulphur, nitrogen, chlorine, mercury, arsenic and carbon-dioxide removal. Besides these, syngas utilization technologies ranging from combustion in a gas turbine to production of value-added chemicals including hydrogen, substitute natural gas (SNG), DME, LPG, methanol, Fischer Tropsch diesel and gasoline etc., were also included.

The seminar was attended by more than 140 delegates from various organizations of the petroleum sector (both upstream and downstream), engineering



Seated on dais during the seminar (from left) are: Shri Glenn Whaley, Director, USAID, Dr M. O. Garg, Director, IIP, Dr R. A. Mashelkar, Director General, CSIR, Shri M. S. Srinivasan, Special Secretary (now Secretary), MoP & NG, Government of India, and Dr Raghurib Gupta, Research Director, Centre for Energy Technology, RTI International, USA

companies, power plants, CSIR laboratories, various universities, Centre for High Technology (MoP&NG) etc.

The inaugural session was graced by Dr R. A. Mashelkar, Director General, CSIR-India, as keynote speaker and Shri M. S. Srinivasan, Special Secretary (now Secretary), MoP and NG, Government of India, as the Chief Guest. Dr Raghurib Gupta gave an introduction to the seminar. Shri Glenn Whaley, Director, USAID, apprised the audience of some of the activities of the United States Agency for International



Shri M S Srinivasan, Chief Guest, addressing the audience

Development (USAID). Dr M. O. Garg, Director, IIP, gave an overview of the RTI-IIP relationship.

There were nine technical presentations in the two sessions namely 'Gasification and gas clean-up technologies' and 'Syngas utilization technologies'. The principal speakers included Dr Raghuraj Gupta, Research Director, Centre for Energy Technology, RTI International, USA; Dr Brian Turk, Process Development Manager, Centre for Energy technology, RTI International, USA; Dr T. P. Chen, Sr. Vice President, Nexant Inc., USA and Dr M. O. Garg, Director, IIP, Dehra Dun and Shri R. R. Sonde, ED, NTPC, Noida. At the end there was a discussion session for the benefit of the participants.

The response to the seminar was encouraging and overwhelming and this joint RTI-IIP initiative was spoken highly about, as it served to give a renewed thrust to residue gasification. The seminar laid more stress on the scientific aspects and was appreciated for its technical depth. Dr P. K. Mukhopadhyay, former-Director, IOC (R&D Centre), commended the seminar for its specific topic, highly relevant for refiners and the power sector. He was happy at the inclusion of new aspects like hot gas clean-up, etc. Dr Mukhopadhyay also acknowledged the expertise of the RTI and Nexant Inc. in this area.

RSC West India Section-Students Symposium at NCL

THE National Chemical Laboratory (NCL), Pune, organized the annual meeting of Royal Society of Chemistry (RSC), West India Section (RSC-WIS) - Students Symposium 2005 at NCL recently. About forty Ph.D. students of different regions of Western India comprising states of Maharashtra, Gujarat, Madhya Pradesh and Rajasthan attended the symposium.

Dr K. N. Ganesh, Chairman, RSC-WIS and Head, Organic Chemistry (Synthesis) Division, NCL, while inaugurating the symposium introduced the RSC's aims and activities to the participants. This was followed by an address by Dr S. Pal, Head, Physical and Materials Chemistry Division, NCL and Chairman, Students Academic Committee, NCL, emphasizing the importance of such symposia for development of competitive and co-operative

interactions among the students and for the promotion of scientific excellence.

The scientific sessions were initiated with an absorbing lecture by Prof. Subhash Padhye, University of Pune, on the development of drugs with a focus on new chemical structures designed for hybrid activities for potential treatment of chronic and currently problematic diseases like cancer, HIV, malaria etc. This was followed by presentations from the participating students of universities such as M. S. University (Baroda), Shivaji University (Kolhapur), Barkatullah University (Bhopal) and research institutes like NCL, Tata Institute of Fundamental Research (Mumbai), Indian Institute of Technology (Mumbai), Institute of Science (Mumbai) etc. In the poster session held in the afternoon, about forty posters were presented with highly motivated and interactive discussions.

Dr K. Vijayamohan, scientist, Physical and Materials Chemistry Division, NCL, delivered lecture, highlighting the current topics of research interests in the areas of materials chemistry including nanomaterials,



Shri M. Mustafi, TIFR, receiving best oral presentation award from Dr K.N. Ganesh



electrochemistry, organic-inorganic hybrid materials etc. This was followed by students' presentations.

The symposium committee chose four best oral presentations for awards. In addition, Shri Vishal Rai of IIT-Bombay was declared as the best participant of the meeting for his outstanding performance. Finally, Dr R. Gopalan, RG-SPECHEM, Mumbai, and past secretary, RSC-WIS addressed students in concluding session and made appreciative comments of the meeting and wished to have more such meetings in future in different regions of the Western India. The symposium was organised by a team of students comprising Shri Kapildev K. Arora, Kumari N. SeethaLekshmi, Shri Amit Patwa, Shri Khirud Gogoi, Shri Sujit Pal, Shri J. Prakasha Reddy and Shri Sunil Gandavadi from NCL.

National Workshop and Symposium on 'Sensors and Instrumentation for Food Processing'

A national workshop followed by a two-day Symposium, on Sensors and Instrumentation for Food Processing was recently held at Central Food Technological Research Institute (CFTRI), Mysore. The Department of Science and Technology (DST), Government of India, New Delhi, extended support to the event jointly organized by CFTRI, and the Biosensor Society (India).

In view of the growing concern about food quality, food safety assessment has acquired prime importance. New sensors/instrumentation methods are coming up as tools to analyze food products. The field of sensors and instrumentation has become vast and highly interdisciplinary, spanning areas such as electronics, engineering, biological sciences, material science and computer technology, among others. The deliberations in the workshop and symposium have provided fillip to research and development in the area through collaborations and product development. There is a great need for scientists from the field of sensors and instrumentation to make forays into the area of food processing with particular reference to food safety aspects and to cross the traditional barriers for interaction and collaboration in interdisciplinary areas. This event has provided a common platform for discussion amongst scientists, technologists from R&D Institutes/Universities and Industry to strengthen research and forge possible collaborations.

Around 55 eminent researchers in the field drawn from various academic institutes, national laboratories such as RRI, IIT, IISc, NDRF, NPL, IMTECH and industries like M/s Big Tech and M/s TAN Tea delivered lectures on several topics of interest. The workshop and

symposium was divided into sessions covering Instrumentation and sensors for food quality assurance-overview, sensors and instrumentation for food analysis, Biosensors for food analysis, Automation and control in food processing, Biomolecular systems/devices for analysis, Micro-array and nano biosensors and smart sensors. Instruments and methods for analysis, colour, texture, sensory, rheology, NIR, biosensors, elemental analysis, critical processing parameters and automation aspects were demonstrated. Poster sessions during the symposium provided opportunity to the young researchers to fortray their current research and to have interactions with scientific community. An exhibition of instruments/equipments and sensors for food analysis and processing by leading manufactures in the field was also arranged for throwing light on new developments in sensors and instrumentation. The workshop and symposium gave a chance to bring together R&D and industry for a fruitful interaction.

Dr S. Natesh, Senior adviser, Department of Biotechnology, Government of India, New Delhi, inaugurated the symposium. Earlier Dr Laxman Prasad, Senior adviser, Department of Science & Technology, Government of India inaugurated the workshop. Dr V. Prakash, Director, CFTRI, Prof. E.S.R. Gopal, Emeritus Professor, Indian Institute of Science, Bangalore; Lt. Gen. Dr V.J. Sundaram, Chairman, NDRF, Bangalore, Dr Pawan Kapur, Director, CSIO, Chandigarh and Prof. S. Mohan, IISc, Bangalore, Prof. Basudam Adhikari, IIT, Kharagpur and J.K. Sharma, Senior adviser, DST, New Delhi, were among the dignitaries who took part in the workshop and symposium.

Fortieth Convocation of Indo-Swiss Training Centre of CSIO

FORTIETH Convocation of Indo-Swiss Training Centre (ISTC) of the Central Scientific Instruments Organization (CSIO), Chandigarh, was held recently. Dr Kota Harinarayan, Chairman, Research Council of CSIO and Raja Ramanna, Fellow, was the Chief Guest on the occasion. Dr Harinarayan said that in today's competitive world, high quality at competitive cost is the *mool-mantra* of success. He further added that certain abilities are required to become good professional and these include—time and stress management, planning, continuous learning and a bility to handle the complexities of life. Values and ethics play an important role in imbibing these qualities in one's personality, he opined.

Earlier, Dr Pawan Kapur,



Dr Pawan Kapur, Director, CSIO, awarding diploma certificate to one of the pass out

Director, CSIO, highlighted the activities of ISTC and welcomed the Chief Guest.

Shri H. S. Gupta, Principal, ISTC, presented the annual report of the training center and informed the gathering that all the 54 passing out graduates of this year had already been picked up for employment by various industries of repute. He further said that center had produced so far over 2700 graduates in various streams.

Later, students were awarded diplomas and advanced diplomas by Dr Kapur and Dr Harinarayan gave away the prizes and medals to the students. Dr Kapur also gave away the prizes to the winners of various sports events organized throughout the year. The programme concluded with the formal vote of thanks proposed by Dr R. K. Jain.



A view of audience



CFTRI celebrates Foundation Day

THE Central Food Technological Research Institute (CFTRI), Mysore, celebrated its 55th Foundation Day in recent past. On this occasion Dr V. Prakash, Director, CFTRI, gave away institute awards to employees in recognition of their outstanding contribution during the last year.

In his Presidential address, Dr Prakash spoke of the path of excellence the institute traversed and pointed out the challenges ahead for the institute in the coming years. 'We need to refocus our areas of research on industry related, societal and innovation oriented research as TEAM CFTRI and identify the role of CFTRI in the future progress of Indian food processing industry,' he said. Speaking of CFTRI's strategic positioning in the area of food processing, he said that replenishing the infrastructure including human

resource expertise, built over the years, is a must for sustainable growth.

'Team CFTRI' as a whole received the Best Societal Contribution Award this year as against any individual/group for its Tsunami relief efforts by providing food to the affected population. The 'Continuous chapathi making machine' and 'Shelf-stable ready-to-eat foods in thermo-processed retort pouches' were jointly awarded the prize for the best technology developed and transferred to the industry. The Department of Food Engineering received the award for maximum contribution towards filing of patents during this period. Awards were also distributed for the Best Research Paper published by staff and research students. Individual staff of different categories were also feted for their performance and excellence on the occasion with a plaque and certificate.



Ms Anwesha Sarkar receiving the Best Student Award (M.Sc. Food Technology) for the year 2005 from Dr V. Prakash, Director, CFTRI; Dr N.G. Karanth, Head, Fermentation Technology & Bioengineering Division, was also present

CBRI, Delhi Centre organizes IHC-CBRI Talk

THE Central Building Research Institute (CBRI), Delhi Centre, recently organized a talk on 'Urban Development and Cultural Heritage: The Making of Modern Delhi' by Dr Jyoti Hosagrahar, Director of Sustainable Urbanism International, New York and Professor at Columbia University in collaboration with India Habitat Centre. It was attended by about sixty leading architects, engineers, policy makers, academicians and publishers.

The talk was Chaired by Padmabhushan Shri Jagmohan, former Union Minister for Tourism and Culture and Urban Development. Shri V. Suresh, former CMD, HUDCO, welcomed the Chair and introduced the speaker. The talk was preceded by release of Dr Hosagrahar's recently published book, '*Indigenous Modernities – Negotiating Architecture & Urbanism*' by Shri Jagmohan. The book gives a detailed study of the urban development of Delhi, while examining evolution of a traditional city into a modern metropolis.

Shri Jagmohan in his remarks reminded that India's civilization and city planning was five

thousand years old and even some western scholars had opined to look to the East for lessons in culture and art. He spoke highly of the painstaking research done by the author while analyzing the urban development of Delhi during the British rule in the light of its cultural and historical realities prevalent at that time and recommended its reading by the audience. He also hoped that her book



Dr Jyoti Hosagrahar delivering her talk

would encourage others to undertake serious studies on various issues concerning urban development.

Dr Jyoti Hosagrahar in her talk gave detailed presentation on what happens when global modernity engages with a place, locality, or tradition. Taking example of Delhi during the late nineteenth and early twentieth centuries, as it developed from a walled city into a fragmented metropolis, she elaborated with the help of old maps and images how the 'traditional' built forms like 'haveli' metamorphosed to 'modern' in the context of colonialism. European designs and goods made their way in Delhi market. New materials and technologies of construction brought changes to the 'haveli' buildings. Toward the end of the nineteenth century, prospering traders rushed to rebuild residential structures, shops, and

workshops from old abandoned or disused 'haveli' buildings. On small lots carved from the old large 'haveli', merchants built new, redefined 'haveli' consisting of a single central courtyard converting the old pavilions with rooms all around. Many older 'haveli' were renovated and converted to include Greek columns, wrought iron balconies, cement lattice-screens, large framed mirrors, stained glass, and paneled doors. In the early twentieth century indicating further transformation, the speaker pointed out that increasing commodification of property made 'haveli' into anonymous structures to be used in the service of capital as warehouses, factories, or rental properties.

Touching upon other urban interventions that the British brought to Delhi such as sanitary reforms, planned residential colonies, municipal governance and

building regulations, the speaker in conclusion remarked that in spite of their expectation of replacing the existing one in order to achieve a new built form and spatial culture that was 'modern' from the perspective of Europe, Delhi emerged as a patchwork of many different landscapes with incomplete transformation coloured by local conditions, making the city of Delhi 'modern' in its own unique indigenous way.

Bringing forth the concept of 'indigenous modernities', she pointed out that even in today's globalization, the manifestations of modernity are different in different cities whether it is Paris, Vienna or Chicago and these manifestations are the result of their local cultural history and heritage.

After the talk, Shri V. J. Nene, Scientist-in-Charge, CBRI, Delhi Centre, proposed a vote of thanks to the Chair and the speaker and to Shri V. Suresh. He expressed his gratitude to the speaker for bringing awareness about the indigenous modernities in buildings and city scapes that have rather been obvious to us in our attire and in our music. He also suggested to the author to consider writing a companion volume to the book covering the post-independence era, which would be of practical use for today's planners.



National Science Day Celebrations at CSIR Laboratories/Institutes

THE National Science Day (NSD) celebrations at some of the CSIR laboratories and institutes were covered in 15 May 2006 issue of CSIR News. At some more laboratories/institutes are covered in this issue.

Highlights of celebrations at CGCRI and CSIO this year:

Central Glass and Ceramic Research Institute (CGCRI), Kolkata

CGCRI celebrated National Science Day jointly with the Science Association of Bengal (SAB), Kolkata. The programme was inaugurated by Shri Nemai Mal, Hon'ble Minister of Library of Information Science and Technical Education, Government of West Bengal. Dr N.R. Banerjea, Vice Chancellor, Bengal Engineering and Science University, Howrah, West Bengal, graced the occasion as the Chief Guest. Dr A.K. Barua, eminent scientist and President, SAB presided over the programme while the programme was coordinated by Dr S. Roychowdhury, Secretary, SAB, Kolkata.

Dr H.S. Maiti, Director, CGCRI while welcoming the delegates, guests and the scientists of CGCRI said that it is the prime responsibility of the scientists to make the common people aware of the R&D activities going on in the various fields in easy to understand popular forms. Shri Nemai Mal in his inaugural address mentioned the need of propagating awareness among the common people about the need of science education. He also stressed on the need of disseminating information relating to the scientific and technological developments of the country of the

people in attractive and popular manner. For this, the help of NGO's could be taken. Dr Banerjea appreciated the role of CGCRI and SAB for organizing such a programme and emphasized that all of us should take the oath to popularize science to the public. R&D work on science and technology should not be confined within the four walls of the laboratories only, he added. Dr A.K. Barua in his presidential address explained the significance of the day.

On this occasion Dr Jnan Chandra Ghosh Memorial Lecture was delivered by Prof. Debashis Mukherjee, Director, Indian Association for the Cultivation of Science, Kolkata on 'Legacy of Einstein in Chemistry' in Bengali. The presentation of Prof. Mukherjee in simple terms even while describing difficult topics made the audience spell bound. He also received the National Science Day 2006 award.

The Gopal Chandra Bhattacharya Award was given to Shri Kalyan Kumar Dasgupta, eminent Bengali popular science writer. Several others received of various other awards for their notable contributions to popularization of science. As part of the programme, a seminar on

'Science, Technology, IT and Library Science' was organized where eminent speakers from C-DAC, Jadavpur University, Department of Technical Education, West Bengal, Asiatic Society, Kolkata, Indian Institute of Chemical Biology, Kolkata etc. delivered lectures. They also actively participated in the poster session of the programme. An extempore speech contest was organized for the school and college students where they spoke on the theme of the National Science Day — 'Nurture Nature for Future'. An exhibition on some of the recent developments on science and technology was organized where participants from Kolkata including Jadavpur University, Techno India, C-DAC, SAB, Dipanwita Braille Institute, etc., presented excellent visuals and models. The National Science Day issue of the Bengali popular science journal of SAB named 'Bijnan Mela' was published on this occasion.

The valedictory session was presided over by Dr A. Roychowdhury, Director, National Institute of Occupational Health (Eastern Region), Kolkata. About 350 participants including 175 school and college students attended the programme.

Central Scientific Instruments Organisation (CSIO), Chandigarh

At CSIO, on the occasion of National Science Day, all the labs were kept open for general public in the forenoon. A large number of visitors including students from various schools, colleges, university and general public went around the laboratories of the organization. They interacted with the scientists and were given exposure to the technologies developed and being developed at the CSIO.

Later, Shri K. Nagachenchaiah,

Chairman-cum-Managing Director, Semi-conductor Complex Ltd, S.A.S. Nagar (Mohali), delivered a lecture on 'An Introduction to Remote Sensing Technology'. He, in his lecture, traced the history of remote sensing and brought out how ISRO with the help of Indian Remote Sensing Satellites can detect and image objects as small as 1 metre from a satellite. Through satellite images he brought with him, the usefulness of remote sensing was

depicted and he also explained the instrumentation developed at ISRO for such applications. Prior to this Dr Pawan Kapur, Director, CSIO while welcoming the chief guest highlighted the significance of National Science Day and talked about rich scientific heritage and appealed to the scientists to take this heritage forward. The programme was coordinated by Shri J.K. Chhabra and concluded with the vote of thanks by him.

CSIR Programme for Youth Leadership in Science (CPYLS) at CEERI, CIMAP and CSIO

THE CSIR programme for Youth Leadership in Science (CPYLS) is aimed at attracting the best school students towards science through a unique 'hand holding' experience. It aims at encouraging them to take science as an exciting, rewarding and fulfilling career. The CPYLS held at CEERI, CIMAP and CSIO are highlighted here:

Central Electronics Engineering Research Institute (CEERI), Pilani

At CEERI 81 talented students from Rajasthan attended the programme. Prof. L.K.

Maheshwari, Pro-Vice-Chancellor, BITS, was the Chief Guest, while Prof. G.S. Visveswaran IIT, New

Delhi, was the Guest of Honour. Dr Chandra Shekhar, Director CEERI, in his welcome address



Group photo of participants with academicians and scientists

emphatically mentioned that the 21st century was the century of adventures and one could only be satisfied by accepting the professional challenges to understand thoroughly the mystery of nature and life.

Prof. G.S. Visveswaran emphasized the need for developing scientific attitude and thrust for science should be given highest

priority as per his ideology.

Prof. L.K. Maheshwari, appealed to the students that science education should be chosen as a means for career development and not only for earning livelihood but also equally for providing strong foundation to the thought process with scientific attitude. He was of the firm opinion that the progress of any nation can be well judged by

application of science and its education in real life.

The impact-generating programme was spread over three days during which eminent academicians and scientists delivered educative and motivating talks.

Dr Rajesh Luthra, Head, HRD, CSIR, presented an overview of the various activities and schemes run by CSIR.

Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow

At CIMAP programme started with a visit to institute's 'Manav Park' (Health Park of CIMAP), by the students and their parents. Students also visited pilot plant distillation unit. With live demonstration, they were explained various aspects of water, steam, and steam and water distillation for extracting essential oil from plants. Inaugural function was held at CIMAP auditorium 'Sandesh'. Programme was chaired by Prof. Anil Kumar Gupta, Indian Institute of Management (IIM), Ahmedabad,

Dr Rakesh Tuli, the then an eminent scientist from National Botanical Research Institute, was Guest of Honour.

Dr S.P.S Khanuja, Director, CIMAP, in his welcome address focused on issues like Information Quotient (IQ), and Asking Questions (AQ). Prof. Anil K. Gupta, in his lecture focused on the importance of scientific attitude. He said curiosity (utsukta), enthusiasm (utsah), energy (urza) and happiness (ullas) lead to scientific attitude in budding brains. In a simple and

effective way, he told how scientific steps are part of our daily life and it is the science that gives rise to any technology that further leads to entrepreneurship.

Dr Rakesh Tuli delivered his lecture on 'Science and Technology for brightest and the best'. He spoke on issues like scientific impact of nations, scientific vs. economic wealth of nations, financial input vs scientific outcome of different nations, patent application by developed countries, tenth plan action, and S&T infrastructure. Dr



Group photo of participants with academicians and scientists

P.K. Srivastava, Scientist, CDRI, Lucknow, explained very complex scientific phenomena, in a simple way with the aid of his cartoons.

Dr S.P.S. Khanuja, in his lecture covered various issues ranging from

choice of subjects, professional streams available today and new emerging scientific areas. He also focussed on drug discovery, cloning, DNA replication and other such topics. Memento and certificates

were distributed to students and winners of the quiz programme were awarded cash prize. Students with the innovative scientific ideas were also awarded cash prize.

Central Scientific Instruments Organisation (CSIO), Chandigarh

At CSIO 54 students accompanied by their parents, attended the programme.

Dr Pawan Kumar, Director, CSIO, in his welcome address highlighted the aim of CPYLS. He said that this scheme is at the grass root level and further facilities are available in case students wish to pursue high level research in CSIR Labs.

Prof. J.S. Sandhu, FNA, former Director, RRL, Jorhat, delivered the inaugural address, in which he emphasized that science must change quality of life. He encouraged the students to develop scientific approach through proper guidance.

Dr Pawan Kapur; Dr H.K.

Sardane; Shri G.S. Singh; Shri J.K. Chabra, Deputy Director CSIO; and Shri N.S. Aulakh delivered lectures and interacted with students highlighting achievements in various fields of science. R&D activities of CSIO were also explained. They also highlighted the achievements and contributions of Indian Scientists and Technologists. Films were screened. Several episodes of Turning Point were shown and a NASA film 'Sixteen Days -



Students visiting Image Processing Laboratory and interacting with Dr H.K. Sardana, Scientist, CSIO

Columbia's Final Journey' was shown. A multi media Quiz Competition was organized for the students.

Shri Rajeev Ranjan, IAS, Secretary, Board of School Education, Haryana, Bhiwani, who was the Chief Guest at valedictory function, stressed that a career in science is not only rewarding, it is also satisfying and gives meaning to life. Shri Ranjan gave away the quiz prizes to the winners of quiz and the participation certificates to the students.



A group photo of participants with Chief Guest Prof G.S. Sandhu and Dr Pawan Kapur, Director, CSIO



Dr Lalji Singh gets J. C. BOSE Fellowship



DR Lalji Singh, Director, Centre for Cellular and Molecular Biology (CCMB), Hyderabad, has been selected for the prestigious J.C. Bose National Fellowship..

The J.C. Bose Fellowship was instituted to give a boost to scientific research in the country on 5 August 2005. The Fellowship, constituted by the Department of Science and Technology (DST), Government of India, recognizes active, performing scientists and engineers below the age of 60 years in the country for their outstanding performance and contributions.

The Fellowships are scientist-specific, very selective and have close academic monitoring. A Search-cum-Selection Committee under the Chairmanship of Prof. C.N.R. Rao, Scientific Advisor to Prime Minister, India, has made the selection.

The J.C. Bose Fellows are provided a Fellowship of Rs 20,000/- per month in addition to their regular income. A contingency of Rs 5 lakh per annum is provided towards conference participation and other expenses. The Fellowship will be for a term of five years initially.

Industry-oriented Technology Courses

2006-2007

THE Central Electrochemical Research Institute (CECRI), Karaikudi, will be conducting Training Courses in the following subjects during July 2006 – February 2007.

- Corrosion Science and Engineering (5 Modules)
- Modern Instrumental Methods of Analysis
- Electrolytic Recovery of Metals
- Battery: Science and Technology
- Industrial Metal Finishing and Electroplating (11 Modules)

The courses are structured as modules, each lasting for 5-6 days. Candidates can register for as many modules as they desire.

For further details about course content, fees, date of commencement of each module, please visit CECRI website: **www.cecri.res.in** or contact:

**The Director,
CECRI,
Karaikudi – 630 006,
Tamil Nadu
Fax: (04565) 227779, 227713.
Phone: (04565) 227550 to 227559**