ISSN 0409-7467

CSIR NEWS

VOL 56 NO 11 15 JUNE 2006

MERADO releases its technology for 50 tpd modern oil expeller

THE Mechanical Engineering Research and Development Organization (MERADO)-Ludhiana, of the Central Mechanical Engineering Research Institute (CMERI), Durgapur, has recently released the technology for 50 tpd modern oil expeller to M/s Gobind Oil Expeller Co., a leading manufacturers of Ludhiana. The technology was released by Dr G. P. Sinha, Director, CMERI. MERADO had transferred its technology for 1tpd and 6tpd oil expellers to the same party earlier.

Speaking on the occasion, Shri Jagtar Singh of M/s Gobind Expeller Co. expressed his full satisfaction for the earlier released technologies by MERADO. He also expressed his desire for partnership with MERADO in the technology development in the area of oil expelling in future.

Dr Sinha, Director, CMERI, in his address, expressed happiness over the confidence of M/s Gobind Expeller Co., Ludhiana, in technology developed by MERADO. He told that MERADO-CMERI is committed to extend full support to its licensee in successful implementation of the technology to the possible extent.

Dr G.P. Sinha, Director, CMERI (*left*), releasing the technology of 50 tpd modern oil expeller, to Shri Jagtar Singh of M/s Gobind Oil Expeller Co

Shri Rakesh Nigam, Scientist Incharge, MERADO, Ludhiana, thanked M/s Gobind Oil Expeller Co. for having confidence in MERADO-developed technologies, even in the absence of test results. This shows the degree of their tremendous confidence in the MERADO technologies, he said.

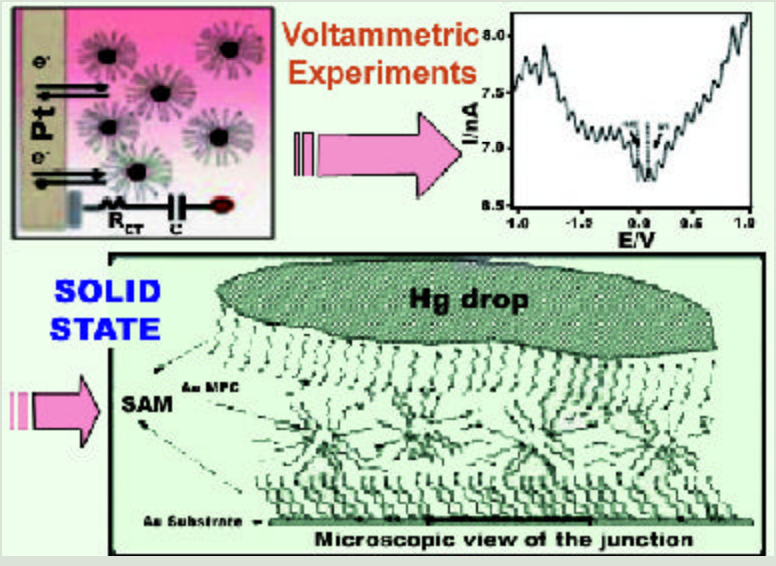
During his welcome address, Shri S. Salman Mojiz, Scientist and Head Business Development Group, said that the technology has some very unique features for example self driven quill worms to change speed for various seeds, water cooled chamber which is book type for easy assembly and dismantling and compacting worms for efficient and effective filling etc. This is the first time in India that an expeller of 50 tpd capacity has been developed. This remarkable feat has been achieved by the design team of MERADO. He said the technology would give a new insight into the oil expelling technology for efficient and effective oil extraction and quality of oil and cake is certainly going to be of better quality.

Tunable Single Electron Transport in Nanoparticle Assembly

TRANSISTORS have made tremendous impact on our day-to-day life. They are used as major components in electronic devices, high performance automobiles, mobile phones etc. Perhaps one of the greatest impacts is on the personal computer. Now researchers are focusing on further miniaturization of transistors towards the molecular level, which will be based on single electron transfer (SET) features. This will increase the number of transistors per circuit and will give enhanced storage capacity and faster operation in the future molecular electronic devices.

Dr K. Vijaymohan's group at National Chemical Laboratory (NCL), Pune, has shown that the SET can be controlled in chemically synthesized nanoparticles by varying the organic molecules, which are used to stabilize them. In particular, they used organic molecule based metal – insulator — metal-insulator — metal junction for studying the effect of the nature of organic molecules on the SET features through these nanoparticles. The insulator, self-assembled monolayer (SAM), offers a simple method to form a close packed array of organic molecules on metallic/ semiconducting surfaces. Similarly, metal nanoparticles could also be stabilized by forming SAM on their surface, commonly known as monolayer protected clusters (MPCs). Formation of SAM on the surface of these nanoparticles makes them stable under ambient conditions and can be handled like any other material. The nature of these passivating molecules often controls the local chemical, structural and electronic environment of the nanoparticles. For example, a simple variation in the length of the SAM forming molecule could, in principle, allow one to tune the distance between adjacent particles. This SAM based junction is easy to assemble, mechanically quite stable and reproducible.

Conventionally, a hydrocarbon chain does not allow electron transfer through it and, hence, most of the polymers like polyethylene and Teflon act as insulators. However, quantum mechanical studies reveal that the electron transport through the hydrocarbon chain is possible in certain conditions by a mechanism called tunneling. Recently, it has been shown that several gold/silver MPCs (less than 2 to 3 nm) exhibit single electron transport behaviour due to their smaller capacitance (10^{-18}F), provided their charging energy exceeds the value of thermal energy. Electron transport through a single nanoparticle is commonly



investigated using scanning tunneling spectroscopy (STS), where nonlinear current-voltage (I-V) behavior is observed unlike linear, in case of conventional materials. Ideally, steps or stairs are observed in the I-V curve for single electron transport, which is known as coulomb blockade or coulomb staircase. Further, the single electron charging features are also accessible by several voltametric measurements, which is analogous to STS based coulomb staircase.

NCL scientists have developed an easy method to organize gold-MPCs at a fixed distance on SAM modified gold substrate, where the distance could be controlled by changing the length of the SAM forming molecule. The I-V measurements were done in air at room temperature by using aforesaid mercury based junction. In particular, the SAM-modified substrate was used as ground and the voltage was applied through the SAM functionalized mercury drop. The SAM functionalisation on the mercury drop was achieved by dipping it in an ethanolic solution of thiol for 5-10 minutes prior to each measurement. The same thiol has been used for a single set of experiment, that is, for gold MPC's preparation, SAM formation on gold substrate and SAM formation on mercury drop. The junction was established by lowering a SAM functionalized mercury drop suspended from a wire lead onto the cluster monolayer on SAM functionalized gold substrate. Interestingly, researchers observed nonlinear I-V behaviour for these hierarchical superstructures, signifying the collective single electron transport through these nanoparticles. Moreover, the I-V profile obtained using a single micrometer controlled mercury drop is comparable with those of STS studies. In particular, they found that the electron transfer property drastically depends on the variation of the chain length and the nature of the protecting organic molecules. More importantly, these results suggest that the electronic tunneling probability is limited for the length corresponding to carbon-8 to carbon-12 thiols. They have also shown that dodecanethiol protected gold nanoparticles (~ 3.7 and 4.6 nm) exhibit series of single electron transfer features by voltammetric measurements, which further confirm its potential application for SET device construction. These results help to understand the electronic behaviour of nanoparticles based molecular circuits especially useful for constructing future electronic devices.

NPL signs MoU with M/s Eastern Medikit Limited

Dr Vikram Kumar, Director, NPL, (left) and
Shri. Karun Raj Narang, Managing Director,
M/s Eastern Medikit Ltd, Delhi, exchanging MoU documents

THE National Physical Laboratory (NPL), New Delhi and M/s Eastern Medikit Limited (EML), a Public Limited Company, Delhi, signed a memorandum of understanding (MoU). Eastern Medikit Limited (EML) is one of the largest manufacturers of single use medical devices in India and has a global presence in more than 75 countries.

The objective of this MoU is to strengthen relations between NPL and EML and to promote the exchange of information and technical and scientific knowledge and the augmentation of the technical capabilities of NPL and EML. The above activities will be implemented using modes of co-operation such as: Exchange of technical and scientific information, materials and publications; Exchange of personnel; Implementation of collaborative projects; Other modes as may be needed, upon mutual agreement.

This memorandum states the declared intention to cooperate and shall not be regarded as in national/international binding agreement.

CRRI-VIT MoU for Cooperation in the Area of Landslide Disaster and Road Safety

THE Central Road Research Institute (CRRI), New Delhi, has entered into a Memorandum of Under standing with the Centre for Disaster Mitigation & Management, Vellore Institute of Technology (VIT), Vellore, for cooperation in the area of Landslide Disasters and Culture of Road Safety in Disaster Prone Areas of India.

Recognising the importance of fostering, promoting and sustaining the culture of safety against all forms of hazards and disasters and desiring to strengthen this cooperation on the basis of synergy of core competence, especially in the area of landslide hazards and ensuing mutual benefit, the two institutes have agreed as follows:

- Joint initiatives in evolving a blueprint of action plan for 2006-10, based on perceived national needs, synergy of strengths and common interests
- Joint meetings, seminars, public awareness programmes etc.
- Joint training programmes for the target groups
- Joint inspections and investigations of cataclysmic events
- Joint safety audits
- Author safety manuals, guidelines and such other publications
- Exchange of information
- Any other, to be mutually decided.

The MoU was signed by Dr P.K. Nanda, Director, CRRI and Shri P. Radhakrishnan, Vice-Chancellor, Vellore Institute of Technology (VIT), Vellore.

NIO signs MoU with St Xavier's College, Mapusa

THE National Institute of Oceanography (NIO), Goa, and St Xavier's College, Mapusa, Goa, have signed a Memorandum of Understanding (MoU) to enter into a long-term collaboration in the areas of research, education and training.

The inking was done by Dr Newman Fernandes, Principal, St Xavier's College, and Dr Satish Shetye, Director, NIO, at a function organized for the occasion.

The objectives of the MoU are to work in partnership in undertaking academic project assignments in computer sciences, instrumentation, chemistry, biosciences and physics.

This has become effective immediately and will remain in force for five years initially. This has helped in opening an avenue for execution of research projects; organizing educational tours and programmes for students and staff; training opportunities in analytical instrumentation, organization of workshops, seminars, and lectures by scientists and teachers on topics of mutual interest.

NGRI signs 4 MoUs with DGH

DR V.P. Dimiri, Director, National Geophysical Research Institute (NGRI), Hyderabad, has signed several memoranda of understanding with the Director General, DGH, Dr V.K. Sibal on four major projects of national importance related to oil industry in the presence of the then Minister for Petroleum and Natural Gas, Shri Mani Shanker Aiyer, recently. Under the agreement NGRI will carry out: 2D seismic reflection survey along six regional profiles in Kutch on land basin, Gujarat at a cost of 1600 lakh; Marine seismic and magnetotelluric survey in Gulf of Kutch region (Rs 665 lakh); Magnetotelluric studies along two long traverses, Sihore to Akola and Indore to Jalgaon, Central India in Narmada-Tapati basin (Rs 60 lakh); and Analysis of aerial imagery/ remote sensing data over Narmada Cambay/Deccan Syneclise region in Central India (Rs 120 lakh).

DR V.P. Dimiri, Director, NGRI, (left) and Dr V.K. Sibal, DG, DGH, (right) exchanging the MoU documents in the presence of Shri Mani Shanker Aiyer, the then Minister for Petroleum and Natural Gas

In these surveys the state-of-the-art data acquisition systems coupled with industry standard software will be used for data acquisition, processing and interpretation. Dr B. Rajendra prasad, Project Leader, CSS and Dr T. Harinarayana, Project Leader, MT, will co-ordinate the 23.5 crore project(s).

After signing the MoU, the DG has complemented NGRI and felt that NGRI, being a national institute with world class facilities under one roof should play a lead role by taking up more number of projects related to hydrocarbon exploration. Initiation of marine magnetotellurics, first time in the country, will go a long way to develop now such techniques in India.

Earlier the Minister laid the foundation stone for the proposed building to house Controlled Source Seismology and Gas Hydrate projects.

Shri Mani Shanker Aiyer, the then Minister for Petroleum and Natural Gas, unveiled the foundation stone plaque

National Conference on Marine Archaeology of the Indian Ocean Countries

THE National Institute of Oceanography (NIO), Goa, recently organized the Seventh National Conference on 'Marine Archaeology (NCMA) of Indian Ocean Countries'. Dr N.P.S. Varde, Joint Secretary and Director, Science and Technology Environment, Goa Government, was the Chief Guest at the inaugural function. He released a souvenir brought out on the occasion.

Dr S.R. Rao, delivering the inaugural address at the national conference. Seated (from left) are: Shri K. H. Vora, Dr N. B. Bhosle, Dr S. R. Rao, Dr N.P.S. Varade and Dr A. G. Untawale.

The conference was inaugurated by Dr N.B. Bhosle, Dy. Director, NIO. Dr S.R. Rao, President, Society for Marine Archaeology, presided over the function and delivered the keynote address. In appreciation of his notable contributions to the field of marine archaeology, he was felicitated on this occasion. It was due to his efforts that maritime archaeological studies in India began in 1981.

More than 50 archaeologists and scientists from various archaeological departments, universities and institutions participated in the conference.

In all 37 papers were presented highlighting the progress achieved in various aspects of the marine archaeology. Two papers on Kerala coast, one related to an ancient sailboat, excavated from hinterland, and another on exploration of Muziris, an ancient port town, provided new data on boat building technology, culture and shoreline shift in last 2000 years. Presentations on Tamil Nadu coast provided recent data on ancient ports, their past glory and present status due to change in geological regime. Moreover, information on underwater investigations off Mahabalipuram was most revealing.

Other interesting findings related to the research efforts along Gujarat coast. It showed that there was a tsunami like event. It postulated as one of the probable causes of the submergence of Dwarka. A paper derived the probable paths of the Vedic Sarasvati, emptying several millennia ago into the Arabian Sea, based on remote sensing studies. Through satellite imagery, traces of several palaeo-channels and human settlements were demarcated along the route of the Sarasvati.

Presentations along the Goa coast were related to studies on shipwreck, boat building, petroglyps, trade, conservation and heritage. Conservation of coastal archaeological monuments is one of the important aspects that required urgent attention. A follow up action for preservation of these monuments has already been initiated in consultation with NIO.

Scientific contributions, providing multi-disciplinary approach in marine archaeological studies, were related to sea level changes on Maharashtra coast during the late Holocene, with reference to some important ports; the role of foraminifera in resolving archaeological controversy, like Lothal as a dockyard; and use of laser optical instrument for underwater positioning of the artefacts. The radiometric dating and its usefulness to marine archaeological research were also discussed.

National Seminar on 'Vision 2010: Analytical Techniques & Instruments for Industries, Research and Academics'

MODERN analytical techniques play a vital role and form the lifeline for achieving technological excellence worldwide. With the rapid advancement of analytical instrumentation technologies, analytical techniques have formed an integral part of quality assurance along with research in various industries.

In view of above in Indian Society of Analytical Scientists (ISAS) in collaboration with Indian Institute of Petroleum, Dehra Dun, organized a National Seminar on 'Vision 2010 - Analytical Techniques and Instruments for Industries, Research and Academics' to redefine the future of analytical techniques. The seminar was attended by 140 delegates from different organizations in Dehra Dun and other parts of the country.

Established in 1983, ISAS, a non-profit organisation, is engaged in the dissemination of scientific information related to Analytical Sciences. It is the premier professional society of its kind in India.

The seminar was inaugurated by Dr D. M. Kale, ED & Head KDMIPE, ONGC, Dehra Dun. In his keynote address Dr Kale said that the analytical techniques are extremely important in every sphere of life. He said that measurements initiate thinking and therefore accurate measurements have prompted new discoveries. The precision in measurement and analysis is mainly responsible for reducing the time lag between the discovery and its application for the society. He said that the economic growth of the country is very high. As we have a very large group of young, intelligent and enthusiastic brains, the tomorrow belongs to India.

Speaking on this occasion, Dr M. O. Garg, Director, IIP, elaborated on the importance of the analytical techniques and emphasized on the need to have our own standards and specifications like other countries for various products.

Dr Padmanabhan, Vice President, ISAS, gave the details of the seminar and said that its objective is to frame a vision in this area. Dr A. Datta, Head, Analytical Sciences Division, IIP and Convenor of the Seminar, welcomed the participants. Dr O. S. Tyagi, Scientist, IIP, proposed Vote of Thanks.

The seminar had three technical sessions and one poster session in which the eminent Scientists presented their papers. Dr V. Manohar, Nicholas Piramal, Mumbai, put forward the idea of integrating LC/DAD/SPE/NMR/MS Approach as 'All in One' and anticipated that future labs would be based on chip concept.

Dr A. Datta, highlighted the applications of various analytical techniques for the characterization of surfaces of materials and its application in areas like nanotechnology and catalyst characterization. Dr Ashutosh Srivastava, RD University, Jabalpur, discussed Raman Spectroscopy, FT Raman and Laser Raman Spectroscopy and their applications in the study of complex molecules.

Dr R. Kishor, NPL, New Delhi, focussed on the application of Electron Micrscopy in the study of carbon nanotubes and gold nano particles. Dr S. S. Ray, IIP, explained magnetic resonance imaging techniques as a versatile diagnostic tool in the health care area. Dr R. S. Kumar, Ranbaxy, Gurgaon, explained the diffraction techniques in particle size analysis applicable in pharmaceutical area. Dr A. K. Mittal, ONGC, Dehra Dun, discussed Continuous Flow Isotope Ratio Mass Spectrometry (CF-IRMS) and its applications in petroleum exploration and crude oil and petroleum products characterization.

Dr S. Narawane, RIL, Patalganga, shared his experiences of working with various instrumental techniques in petrochemical industry. Shri. S Likhite, Apex Enterprises, Mumbai, elaborated on the selection of right type of column for analysis of petroleum products in terms of suitability of phases and effect of internal diameter. Dr P. V. C. Rao, BPCL, Noida, gave an overview of recent advances in the analytical techniques used in petroleum and petrochemical industry.

An exihibition of analytical instruments by their manufacturers and suppliers was also organized which witnessed very good response from the delegates.

Symposium on National Biodiversity at NCL

THE National Chemical Laboratory (NCL), Pune, organized a four-day symposium on 'National Biodiversity and Ecosystem Information Infrastructure: Challenges and Potentials' recently. About one hundred participants attended the symposium. The four-day programme covered six themes like Biodiversity in India, Status of biodiversity data and information in India, Biodiversity informatics efforts in India, Invasive species and geospatial technologies, Information infrastructure for biodiversity information management, Outreach and capacity building in biodiversity and ecosystem informatics, and Discipline diversity and IPR.

Symposium was organized in two parts: (a) 'Workshop on National Biodiversity and Ecosystem in India' in which over thirty scientists presented their work in oral sessions and thirty contributions were made through poster session, and (b) 'Brainstorming Session on National Biodiversity and Ecosystem Information Infrastructure: Challenges and Potentials' which discussed framework for developing national information infrastructure, its agenda and strategies to better manage biodiversity and ecosystem information. Dr Hannu Saarenmaa, Deputy Director, Informatics, Global Biodiversity Information Facility (GBIF), Denmark delivered the keynote address.

Dr Saarenmaa highlighted the achievements and features of the cyber infrastructure developed by the Global Biodiversity Information Facility (GBIF). Dr Saarenmaa said, 'Documenting biodiversity is a huge information management challenge. Out of about 10 million species only 1.75 million are described and named. Eighteen thousand new species are added each year to the list whereas thousands of species are lost to extinction with every passing year.' Elaborating on why data sharing is needed Dr Saarenmaa said, 'Solving of global problems requires integrated datasets that no single investigator or project can put together.' Speaking on GBIF's role in biodiversity information networks, he mentioned that GBIF is an international mega-science project designed to make world's biodiversity data freely and universally available via the Internet, and especially to share primary scientific biodiversity data for science, society and a sustainable future. He also showed how one can become data provider to GBIF information system.

Dr Hannu Saarenmaa delivering the keynote address

In his welcome address Dr S. Krishnan, Chairman, Local Organizing Committee and Head, Information Division, NCL, informed that NCL is active in the area of biodiversity informatics for last six years. He also briefed on the problems associated with documentation of biodiversity. He said that the idea behind this symposium is to network people together so that in long run we have common approach/platform to start documenting the biodiversity in a readily accessible form.

Dr S. Krishnan delivering inaugural address

Dr S. Sivaram, Director, NCL, in his inaugural address mentioned about the very complexity associated in society makes it difficult to document biodiversity. He also appealed to the participants to define a roadmap to beat the challenges of future in the management of biodiversity informatics. He said that information is poorly available and every step in collecting/collating/compiling information is a

Dr S. Sivaram giving welcome remarks

challenging activity and requires co-operation from every quarter of society. 'Unless data is available, the tools of informatics have no value,' he added further.

Shri Vishwas Chavan, Organizing Secretary, said that there is enough capacity distributed across various research groups, which needs to be bound together through interoperable mechanism that can lead to development of National Biodiversity and Ecosystem Information Infrastructure. Two working groups in brainstorming session debated on issues related to i) state of biodiversity and ecosystem information, data gaps, and data needs and outreach, capacity building, collaborations, and financing; and ii) ICT infrastructure needs, tools for analysis, visualization, GIS, remote sensing, imaging technologies, multilingual, mobile, information system development and networking, integration, standards, schemas, protocols. Symposium culminated into recommendations by the working groups and Pune declaration on National Biodiversity and Ecosystem Information Infrastructure.

National Symposium on 'Ethnobotany in the New Millennium'

A three-day National Symposium on 'Ethnobotany in the New Millennium' was jointly organized by the National Botanical Research Institute (NBRI), Lucknow; Society of Ethnobotanists, NBRI; and Institute of Ethnobiology, Gwalior, at NBRI, to commemorate the completion of 25 years of existence of the Society of Ethnobotanists. The main theme of the symposium was to focus on important issues of ethnobotany, ethnomedicine, scientific validation and standardization of herbal drugs, ethnocosmetics, primary health care, traditional medicine and development of strategies for strengthening the traditional systems of medicine in order to meet the challenges of the 21st century.

The eminent Scientist, Dr Nityanand and Chief Guest of the function in his inaugural address spoke about development of the drugs from plant sources and ethnobotanical leads. He said that with the concurrent development in so many fields of science, the new millennium has unprecedented opportunities for more appropriately utilizing the traditional wisdom of our society by applying science on it. Another thing, which facilitate the use of ethonobotany, is the application of ideas that were articulated by Darwin's law of survival of the fittest, he added. He further said that the ideas and concept of the ethnobotany were best suited considering the socio-economic and socio culture condition of the country. Elaborating further on the subject, Dr Nityanand told that our country has well documented and well researched based on scientific footings traditional system of medicine. The resurgence of the interest in plant based drug gained momentum in 1975 onwards as the plant based drugs and traditional medicine filled the therapeutic gaps present in the modern system of medicine coupled with the side effects of modern drugs, he informed. Dr Nityanand emphasized the importance of laying an interphase between the traditional and the modern system of medicine, adding that it was very daunting task but with the emergence of LC MS, HPLC, NMR, MS like sophisticated instruments the ethnobotanical knowledge of drugs can be standardized and characterized in a proper scientific way. He was of the view for the extensive screening of the plant wealth of the country applying modern technological advances, so that we have our

own leads to create the new knowledge. Citing examples of alkaloids like, vincristine, vinblastine obtained from *Catharanthus roseus* and taxol from *Taxus baccata* being used in the treatment of cancer, he said that they provided excellent set of examples which act as different set of mechanisms and today we look for drugs which act having different set of mechanisms. A number of economically important plants are on the verge of extinction and we should conserve the plant wealth of the country and utilize it carefully, he concluded.

Dr S.K. Jain, Founder President of the Society and ex-Director, Botanical Survey of India, gave the Key note lecture on 'Some thoughts on future directions in Indian ethnobotany'. Speaking on the subject, Dr Jain said that ethnobotany was still a young science and the term ethnobotany was of very recent, just 110 years old, and its organized study even younger. Little was known of the science when the first book on the subject, 'An introduction to ethnobotany' was published in 1960's. But it suddenly acquired importance with the emergence of environment, intellectual property rights and yoga movements, he said. He further explained that for a discipline so young as a century old, perhaps it can be called presumptuous to try foresee its evolution in a millennium. The social implications of ethnobotanical knowledge and practice are multifarious. The local people like to use, practice and patronize the familiar materials. Improvements are easily acceptable, but drastic changes or alternatives can create resistance. This appreciation has led to programs like joint forest management and participatory management of bioresources, Dr Jain elaborated. He appreciated the very valid question of rewarding the owners if information knowledge, i.e. benefit sharing has been realized in time. Once we realized that ethnobotany, or in wiser sense IK play such significant role in development in agriculture, pharmaceutical industry, biotechnology, environment and conservation of biodiversity. Finally Dr Jain said that if we can chart out a fairly clear road map for next 25-30 years, i.e. the scientific working life of young research workers, the objectives of the symposium would be well fulfilled. He also narrated the genesis, emergence and history of the society of ethnobotany.

Earlier at the outset, Dr P. Pushpangadan, Director, NBRI and President of this society welcomed the chief guest, Dr Nityanand, Dr S.K. Jain, Dr N.C. Shah. He said that the distilled knowledge and wisdom of tribals, which are passed on generation to generations through folklores, oral traditions practiced by the rural people are the heritage of our country and needs to be revitalized in the dawn of 21st century. He informed that all cultures of the world have evolved remedies by trial and error which led to the emergence of the science of ethnobotany. He said that ethnobotany has tremendous relevance in the 21st century in gene hunting, bioprospecting, drug research and in prescribing social values. He was also of the view that there should be a synergy of modern and traditional system of medicine.

In the Society of Ethnobotanists award function that followed the inaugural session, Dr Chun-lin Long of Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, China, was honoured with JW Harsberger medal for 2005, while Dr Hembrom Peter Paul of Jharkhand was given J.W. Harshberger medal for 2004. Dr K.S. Negi of NBPGR, Regional Station, Bhowali (Nainital) and Dr R.L.S. Sikarwar, Arogya Dham, Deen Dayal Research Institute, Chitrakoot, were awarded with S.K. Jain Medal for the year 2005 and 2004, respectively.

Dr A.K. Goel, Scientist, NBRI, elaborated about the genesis of the establishment of *International Journal on Ethnobotany* and its role in propagating the knowledge of ethnobotany and related issues. During the three day symposium deliberations were held on the dynamisms in Indian ethnobotany, experimental ethnobotany/ Ethnopharmacology, search of new phytodynamic constituents; community knowledge, conservation and sustainable utilization; ethnobotany, IPR and legal issues of biodiversity.

International Workshop on IOGOOS/JCOMM Western Indian Ocean XBT Training conducted at NIO

THE National Institute of Oceanography (NIO), Goa, hosted an International Workshop on Indian Ocean Global Ocean Observing System/Joint Technical Commission for Oceanography and Marine Meteorology (IOGOOS/JCOMM) Western Indian Ocean Expendable Bathythermograph (XBT) Training in the recent past. The UNESCO's Intergovernmental Oceanographic Commission (IOC), Paris, funded the workshop including procurement of Shipboard Environmental (Data) Acquisition System (SEAS).

Dr V.S.N. Murty, Chairman of the workshop delivering his welcome address. Seated on dais (from left) are: Mr Steven Cook, Dr Sidney Thurston and Dr Gary Meyers

Dr Murty, Chairman of the workshop and a senior scientist from NIO, inaugurated the workshop in the presence of Dr Sidney Thurston, National Oceanic Atmospheric and Administration's (NOAA) Office of Climate Observation (OCO), US; Dr Gary Meyers, Chairman, Climate Variability/Global Ocean Observing System (CLIVAR/GOOS) Indian Ocean Panel (IOP), Australia; and Mr Steven Cook, Chairman, Ships of Opportunity Implementation Panel (SOOPIP), NOAA, US.

Dr Murty welcomed the participants. Dr Sidney Thurston presented the overview of the workshop. Dr Gary Meyers addressed the necessity of XBT temperature measurements in the poorly sampled Western Indian Ocean. He presented the scientific results from the XBT observations along Australia - Java shipping route (IX-01) which had been continuing on weekly to monthly time scales to study the intra-seasonal and inter-annual variability of the Indonesian Throughflow which brings in warm and less saline Pacific waters into the Indian Ocean. Dr Meyers opined that the XBT observations would be resumed and sustained in the western Indian Ocean, particularly along Mumbai-Mauritius shipping route (IX-8), which were being taken up earlier by NIO from 1992 to 1997. After the demonstration of the SEAS at the workshop, it is retained with the NIO for its use along IX-8 (Mumbai - Mauritius) shipping route.

The participants presented the scientific results from some of the XBT observation programmes being carried out in the Indian Ocean. Some participants briefed the R&D activities of their respective organizations. Prof. Chris Reason, Department of Oceanography, University of Cape Town, South Africa, showed interest and expressed collaboration with NIO for the implementation of XBT lines from South Africa to Mauritius. Dr Mitrasen Bhikhajee, Director, Mauritius Oceanography Institution (MOI); Mr Charles Magori, Kenya Marine Fisheries and Reserach Institute (KMFRI); and Dr Arulananthan, National Aquatic Resources Research and Development Agency, Sri Lanka, also expressed similar interest to collaborate with NIO on the XBT observations as well as other ocean measurements and research.

The officials from the Shipping Corporation of India (SCI) and Directorate of Customs and Central Excise, Goa, presented the shipping and customs procedures required for XBT measurements on board merchant vessels steaming out of India. Mr Steven Cook demonstrated the SEAS unit to the technicians, research fellows and project assistants for the XBT data acquisition and real time transmission of the data.

Fifty participants including 15 foreign nationals from US, Australia, Nigeria, Kenya, Mauritius, Seychelles Islands, Sri Lanka, Indonesia, Malaysia, South Africa and Republic of China, attended the workshop. Besides, representatives from the Department of Science and Technology (DST), Department of Ocean Development (DOD), Department of Naval Oceanography and Meteorology (DNOM), Officials from the Shipping Corporation of India (SCI) (Mumbai & Chennai), and Directorate of Customs and Central Excise, Goa, and research students from NIO were also present.

In the concluding session, Dr Sidney Thurston proposed the 'Goa Plan of Action 2005'. This action plan outlined specific milestones necessary to achieve the principal goal of the workshop which was to re-establish the western Indian Ocean XBT line IX-8. The participants expressed their satisfaction in meeting the objective of the workshop, i.e., to build a regional capacity to ensure that the XBT operations are sustained in the Western Indian Ocean.

Shri Kapil Sibal visits CFTRI Stall

Shri Kapil Sibal, Hon'ble Minister for Science & Technology and Ocean Development and Shri Rahul Gandhi, Member of Parliament, seeing the demonstration of mini dal mill at CFTRI stall

SHRI Kapil Sibal, Hon'ble Minister for Science & Technology and Ocean Development, Government of India, inaugurated the 'Exhibition-cum-Fair on Rural Technologies' held at Raibareilly, U.P. organized by Ministry of Science and Technology and Ocean Development, Govern-ment of India in which the Central Food Technological Research Institute (CFTRI), Mysore, participated.

Shri Rahul Gandhi, Member of Parliament, was also present on that occasion. While visiting CFTRI stall Minister showed keen interest in various technologies developed by CFTRI for rural-agro sector especially Mini dal mill, Leaf-cup making machine and Papad press.

Introduction of mini dal mill at rural level has helped farmers and entrepreneurs to process pulse with a minimum investment. CFTRI had also propagated more than 200 Dal mills benefiting the pulse-growing regions of the country at large. In a similar manner the automated and hand operated leaf cup making machine developed at the institute has been successfully transferred to rural areas empowering the women for self employment for the manufacture of bioplates which has a lot of market potential.

Flower Shows at NBRI

THE National Botanical Research Institute (NBRI), Lucknow, organized its annual coulourful events, viz. Chrysanthemum and Coleus show; and the Rose and Gladiolus show in the recent past.

Chrysanthemum and Coleus Show

In the Annual Chrysanthemum and Coleus show organized at NBRI, large varieties of chrysanthemum - potted as well cut flowers, large and small flowers, and arrays of coleus in their multiple hues and shades, vying with each other for their intrinsic beauty were displayed on the green lawn of NBRI. Besides this, cut flowers and special flower arrangements were also organized in a huge enclosure. Local exhibitors as well as exhibitors from outside of Lucknow took part in the exhibition. A total number of 129 competitors sent 1112 entries this year.

Prof. T. Thangaraj, Director, Regional Plant Resource Centre, Department of Forest and Environment, Government of Orissa, presided over the prize distribution function and presented the prizes to the successful competitors. A total number of 383 prizes, in addition of 23 running challenge cups, shields and trophies, were given away.

This year, Assistant Engineer, U.P. Power Corporation Ltd, Lucknow, got first place by bagging as many as seven challenge cups/ shields/trophies. H.Q. Central Command, Lucknow and Shri Ram Subramanyam, Kasturba Marg, Lucknow bagged second place, each lifting three challenge cups/shields/ trophies. Syed Shabbir Hasan of Shahjahanpur and Shri Anand Prakash, U.P. Sachivalaya, Lucknow, each lifted two running challenge cups, shields and trophies and secured third place.

Dr Manisha Bagchi, Indira Nagar, Lucknow, won the Ranjit Singh Memorial trophy for the 'King of the Show'. Queen of the Show, i.e. Smt Ranjit Singh Memorial Trophy, was lifted by H.Q. Central Command, Lucknow. Qazi Syed Masood Hasan Running Challenge Trophy for 'Prince of the Show' for a specimen pot of spider bearing single bloom was lifted by Shri Surendra Kumar Sharma, SEIKO Cabels, Lucknow, and Flower of the Year –'Tay Hoto Jaan' was won by Head Shri Ram Subramanyam, Kasturba Marg, Lucknow.

There were many attractive and inviting themes in the thematic arrangements on display like 'Dreams of Spring', 'Yah Kaun Chitrakar Hai', 'Chaman ek Rang Anek', 'Bhookamp Peedhiton ko Samarpit', 'Kargil ke Shaheedon ko Samarpit', 'Aao Dosti Karen'.

Dr Rakesh Tuli, the then Deputy Director and now Director, NBRI, Lucknow, welcomed the Chief Guest, Prof. T. Thangaraj. Smt Thangaraj; participants and the garden enthusiasts present on the occasion. Dr Tuli in his address emphasized the significance of such shows and said that this show was being organized to promote floriculture in the country, primarily in and around Lucknow.

Chief Guest, Prof. T. Thangaraj, expressed his happiness to visit the show and eulogized the efforts of NBRI in this direction. Lauding the flower show, Prof. T. Thangaraj said that our country in the past decade is witnessing a dramatic change in floriculture – from traditional cultivation to greenhouse cultivation and from loose flowers to cut flowers. He appreciated the efforts taken by NBRI in this direction and exhorted flower lovers, scientists and other stakeholders to capitalize the strength of the country, especially flower varieties and to develop better varieties that can capture the international market.

On this occasion, the institute also exhibited its research and development achievements in the area of floriculture. Some of the special features of the R&D highlights of the NBRI, were also on display. New varieties, namely, Mother Teresa, Diana, Y2K, Shanti, Sadbhavna, Kargil 99, Lalima and golden jubilee varieties, namely, NBRI Indiana, NBRI Kususm, NBRI Little Darling, NBRI Mini Jessie developed and released , were on display. New flower colour/shape

varieties developed through conventional breeding, induced mutation breeding and tissue culture were also displayed. To educate the students and general public, the flowers were displayed according to different bloom types. It may be mentioned that intensive research by the NBRI on Chrysanthemum was directed towards enrichment of germplasm by introduction and breeding since 1966. Presently the institute has a collection of 275 cultivars/varieties in the country. Of these eighty were evolved by the institute by conventional or mutation breeding methods. Some of these important varieties have become immensely popular among growers and consequently found mention in the leading nursery catalogues.

Rose and Gladiolus Show

The Annual Rose and Gladiolus Show attracted a total of 588 entries contributed by 64 competitors. The enthusiastic visitors were seen all over the show ground and various enclosures, admiring the colours and spectrum of splendid flowers vying with each other for their intrinsic beauty.

This year, the awards for Best Rose of the Show, Best Red Rose of the Show and Best Fragrant Rose of the Show were presented to Hindustan Aeronautics Limited (HAL), Lucknow; Best Yellow Rose of the Show by Shri Akshat Gupta, Ashok Marg, Lucknow; Best Pink Rose of the Show by Dr S.P.S. Khanuja, Vikas Nagar, Lucknow; Best Indian Bred H.T. Rose of the Show by Shri Akhilesh Singh of Bareilly, U.P.; Best Stripped/ Streaked Rose of the Show by Upper Police Mahanideshak, Suraksha Shakha, Lucknow; Best Bicoloured/Blended Rose of the Show by Commercial Auto Products Pvt. Ltd, Chinhat, Lucknow; Best Gladiolus Spike of the Show by Upper Police Mahanideshak, Suraksha Shakha, Lucknow.

Best red rose of
the show Christian Dior

Best bicoloured/blended rose of
the show Granada

HAL, Lucknow Division, Faizabad Road, Lucknow, stole the show by lifting as many as 10 running challenge cups/shields/ trophies, namely, Commissioner's Running Challenge Cup - for the highest score in Class A; Percy Lancaster Challenge Cup - for the Best HT Red Rose of the Show; Ch. Akbar Hussain Memorial Running Trophy - for the Best Fragrant HT Rose of the Show; Jugal Kishore Jewellers Running Challenge Trophy - for the highest score in Class-F (F-6 to F-16); Mall Nursery Running Challenge Cup - for the Best Rose of the Show; Bonanza Decorator's Running Challenge Cup - for the highest score in Potted Roses in Section H-1 to H-5; Baljit Singh Memorial Challenge Cup - for the Best Floribunda Rose displayed in 25 cm earthen pot; Motor Sales Running Challenge Shield - for the best collection of 12 specimen blooms of different varieties of HT Roses; H.C. Gupta Memorial Challenge Trophy - for the best collection of 12 stems of different Floribunda Roses; and Bonanza

Decorator's Running Shield - for the highest score in the show. HAL Faizabad Road, Lucknow, also shared Lt. Col. V.R. Mohan Running Challenge Cup - for the highest score in Class E-7 to E-15 with Director, Horticulture and Food Processing, Aliganj, Lucknow.

Additional Director General of Police, Security Branch, Lucknow, won three running cups/shields/ trophies viz Smt. Usha Kacker Memorial Running Challenge Cup - for the best collection of Indian bred three stems of different Roses

Best Gladiolus spike of the show Yellow Stone

(D-5); Hirday Prasad Tiwari Running Challenge Shield - for the best HT-striped/streaked coloured rose of the show; and Syed Gulam Abbas Kazmi Memorial Running Challenge Shield - for the best gladiolus spike of the show. Shri Ramdew Marya, Kakori, Lucknow, also won threeRunning Cups/ Shields/Trophies i.e. Motor Sales Running Challenge Cup - for the best collection of eight Gladiolus spikes of different varieties; Army Commander Challenge Cup - for the best collection of 12 Gladiolus spikes of different varieties; and HAL (Lucknow Division) Running Challenge Trophy - for the best collection of Gladiolus spikes in floral trade.

Movie Mughal's Running Challenge Cup - for the highest score in Class B went to HAL Club, Faizabad Road, Lucknow. Smt. Sushma Francis, Executive Colony, HAL, Lucknow, got Commissioner's Running Challenge Shield - for the highest score in Class C. Shri S.M. Sharma, Executive Colony, HAL, Lucknow, got Ch. Muzzaffaruddin Memorial Running Trophy - for the highest score in Class C (C-12 - C-14) for the Fragrant Roses. Shri Akhilesh Singh, Rajkiya Polytechnic, Bareilly, won Raja Bhadri Running Challenge Shield - for the best indian bred HT rose (D-1). R.V. Sitholey Memorial Challenge Cup for the best HT bicoloured/blended rose of the show went to Commercial Auto Product, Chinhat, Lucknow. Shri Akshat Gupta, 23, Ashok Marg, Lucknow, won Sulabh Tewari Memorial Running Challenge Cup - for the best HT yellow rose of the Show. Dr S.P.S. Khanuja, Vikash Nagar, Lucknow, won Smt. Kumud Rastogi Memorial Running Challenge Trophy - for the best HT pink rose of the show. Director, Horticulture and Food Processing, Aliganj, Lucknow, won H.C. Gupta Running Trophy - for the best collection of 6 stems of different Polyantha Roses. Hindalco Industries Ltd, Renukut, Sonbhadra, got Sir. Padampat Singhania Memorial Running Trophy - for the best collection of 27 Specimen bloom of different varieties of HT Roses.

Among the prizes the maximum prizes (42) were won by HAL, Faizabad Road, Lucknow, followed by Director, Horticulture and Food Processing, Aliganj, Lucknow (26), HAL Club, Faizabad Road, Lucknow (15) and Director, CIMAP, Lucknow (14).

A very eye-catching section of the show was that of gladioli where a large number of colourful varieties were on display. Most of the gladiolus cultivars evolved by the institute and suitable for cultivation in Gangetic plains were on display. NBRI also displayed its choicest collection of exotic varieties of Indian Bred Roses, besides gladiolus cultivars both exotic and indigenous, for the benefit of garden lovers and to boost nursery trade. Two new varieties of gladiolus, namely, 'Uravashi' and 'Neelima' developed and released recently by NBRI were also on display.

Dr Rakesh Tuli, the then Senior most Scientist, NBRI, Lucknow, while welcoming the Chief Guest, Shri N.C. Agarwal, General Manager, HAL, Lucknow, highlighted the R&D efforts of the

institute towards evolving several new varieties and their release for nursery trade. He said that NBRI has vast collection of Gladiolus and Rose germplasm. He also mentioned about the two new hybrid varieties of Gladiolus, namely, 'Uravashi' and 'Neelima' developed recently and thanked the participants of the show and congratulated the winners.

Shri N.C. Agarwal expressed his happiness to witness the show and gave away the prizes. He lauded the efforts of NBRI towards encouragement and promotion of landscaping and cultivation of Rose and Gladiolus flowers. Dr S.K. Datta, Scientist-in-Charge, Floriculture, proposed the vote of thanks.

Top Right: Shri N.C.Agarwal (left), Dr Rakesh Tuli (centre) and Dr S.K. Datta (right) taking round of the flower show

Right: Winners of the rose and gladiolus show 2006

NPL Research wins Appreciation from President of India

A Poster entitled 'Novel method of fabrication and characterization of anthracene based nanostructures' by Alka Gupta, Shubhra Goel and K.P. Singh, Dyal Singh College, Delhi, University, New Delhi and Ranjana Mehrota and H.C. Kandpal, National Physical Laboratory, New Delhi, was presented in International Conference on Nano Science and Technology, IIT, Delhi, in recent past. The research was conducted at the Optical Radiation Standards, National Physical Laboratory, New Delhi, and Dyal Singh College, Delhi University, under a CSIR sponsored project entitled 'Optical and spectral properties of organic compounds used as building blocks for nanostructures', (Scheme No. 80(0047)/03/EMR-II). Dr Ranjana Mehrotra is the PI of the project from NPL, New Delhi and Dr K.P. Singh is her counterpart from Dyal Singh College, New Delhi.
The Honorable President of India in his inaugural address mentioned about four posters as the best posters. The poster mentioned above was one of them.

Printed and Published by V.K. Gupta on behalf of National Institute of Science Communication and Information Resources (CSIR), Dr K.S. Krishnan Marg, New Delhi -110 012 and printed at NISCAIR Press, Dr K.S. Krishnan Marg, New Delhi -110 012
Editor: Dr B.C.Kashyap; Associate Editors: Meenakshi; Vineeta Singhal; Editorial Assistant: Neelima Handoo;
Design: Pradip Banerjee; Sarla Dutta; Production: Kaushal Kishore
Phone: 25846301 Fax: 25847062 E-mail: bck@niscair.res.in; meenakshi@niscair.res.in; vineeta@niscair.res.in; Website:http://www.niscair.res.in
For subscription: The Sales & Distribution Officer, NISCAIR; E-mail: sales@niscair.res.in Annual Subscription: Rs. 200 Single Copy: Rs. 10.00
Subscription Complaint No 25843359

RN 4512/57