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NEWSLETTER

October - December 2007

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National Academy of Sciences, India - 77th Annual Session and Symposium

The Seventy Seventh Annual session and symposium of the National Academy of Sciences, India, the first science academy in the country based in Allahabad, was organized by CFTRI, Mysore in association with University of Mysore and Defence Food Research Laboratory, Mysore during December 6-8, 2007 in Mysore. The event dwelt upon the theme "Novel approaches for food and nutritional security". Eminent Scientist and former Director General, Council of Scientific & Industrial Research (CSIR), Govt. of India, New Delhi, Prof. M.G.K Menon, inaugurated the meet in the presence of distinguished scientists and research students from all over the country.



Prof. M.G.K. Menon, Advisor, ISRO and President, ISI (Kolkata), inaugurating the Annual Session of NASI at Mysore; Dr. V. Prakash, Director, CFTRI and Prof. Manju Sharma, Former Secretary, DBT, Govt. of India are also seen

Prof. Menon, in his inaugural address urged the scientific community to address the needs of disadvantaged sections of the society and reach out to them by the application of science. He also pointed out the need to attract large number of young minds to make science more exciting.

Prof. Ashok Misra, President, NASI and Director, Indian Institute of Technology, Mumbai, delivered the presidential address. He also spoke on the advancements in the areas of polymer science.

Prof. Manju Sharma, former Secretary, Department of Biotechnology, Govt. of India, said the topic is very relevant to our country as nutritional security is one of the looming problems in the third world countries including sub Saharan African countries. She also said the extent of malnutrition among children in India has also not improved substantially in recent period and it is a matter of concern to all of us.

Speaking on the occasion, Dr. V. Prakash, Director, CFTRI said the meet would help to draw plans towards fulfilling the nutrition security of the billion plus population of the country with the association of national laboratories and other institutions.

The prestigious NASI-Reliance Platinum Jubilee Awards were presented to distinguished researchers. Prof. Bimal Kumar Roy, Dean of Studies, Indian Statistical Institute, Kolkata and Dr. G.V. Madhava Sharma, Deputy Director, Indian Institute of Chemical Technology, Hyderabad, received the NASI-Reliance Platinum Jubilee Award for application-oriented innovations in physical science. Prof. P.N. Rangarajan, Department of Biochemistry, Indian Institute of Science, Bangalore and Dr. Tirlochan Mohapatra, Principal Scientist, Indian Agricultural Research Institute, New Delhi, were honoured with the award for their contribution in the area of Biological Sciences.

Prof. A.K. Seth, Secretary, NASI and Chief Executive Officer, Biotech Park, Lucknow, proposed vote of

From the Inaugural Session



Presidential address by Prof. Ashok Misra
Director, IIT, Mumbai and President
National Academy of Sciences, India



Releasing the Souvenir on
"Novel Approaches for Food and Nutritional Security"



Remarks by Dr. V. Prakash, Director, CFTRI

thanks. Prof. Akilesh Kumar Tyagi, Director, Interdisciplinary Centre for Plant Genomics, New Delhi and Prof. Eshwar Bhat, Vice Chancellor, University of Mysore, also spoke on this occasion.

Prof. Meghnad Saha Memorial Lecture, 2007 was delivered by Prof. Bikash Chandra Sinha, Director, Variable Energy Cyclotron Centre and Saha Institute of Nuclear Physics, Kolkata.

The symposium in general, focussed on important aspects related to food and nutritional security scenario in the country. The technical sessions provided a forum for exchange of knowledge base, expertise and scientific thoughts. Aspects related to enhancing the food and nutritional security, nutritional outreach, food safety, food security and biotechnology for productivity enhancements were discussed in various sessions.

In the Valedictory session, best poster awards were given to presenters of the poster sessions under biological and physical sciences. The *Young scientist Platinum Jubilee Awards* and *Swarna Jayanthi Puraskar* for the year 2007 were also conferred to researchers on this occasion.



NASI - Reliance Awardees with dignitaries



A biological poster session in progress



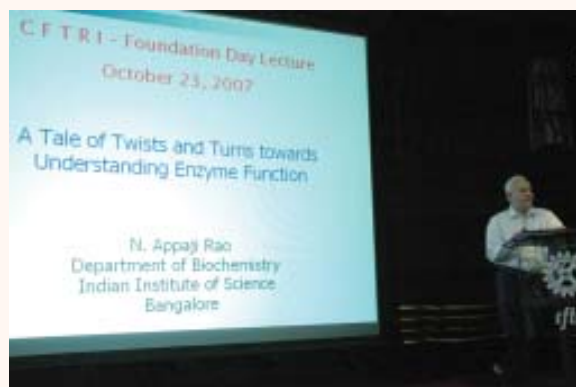
A view of the distinguished audience in the Inaugural Session



Awards to Poster participants in the Valedictory function

CFTRI Foundation Day

CFTRI celebrated its Foundation Day on 23rd October, 2007. Prof. N. Appaji Rao, Emeritus Professor, Department of Biochemistry, Indian Institute of Science, Bangalore and Member, CFTRI Research Council, delivered the Foundation Day lecture entitled “**A Tale of Twists and Turns Towards Understanding Enzyme Function.**” Dr. V. Prakash, Director, CFTRI, presided over the function.



ICMR Award to CFTRI Scientist

Dr. K. Srinivasan, Scientist, Biochemistry & Nutrition Department, CFTRI was awarded with **ICMR – BGRC Silver Jubilee Oration Award (2004)** for his significant contributions in the areas of haematology / immunohaematology. The award was presented in a function held at Vigyan Bhavan, New Delhi by Dr. Anbumani Ramdoss, the Hon'ble Union Minister for Health & Family Welfare, Govt. of India on 6th July 2007. Smt. Panabaka Lakshmi, Hon'ble Minister of State for Health & Family Welfare, Govt. of India and Prof. Nirmal Kumar Ganguly, Director-General, ICMR, New Delhi, were present.

The citation of the award reads, “*The investigations carried out by Dr. K. Srinivasan in the rat model has documented the nutraceutical potential of dietary spices (turmeric, red pepper and garlic) with respect to the protection of structural integrity and fluidity of red blood cells under conditions of either hypercholesterolemia or hypertriglyceridemia. The studies conducted by Dr. Srinivasan have shown that in hyper-cholesterolemic situation induced by an atherogenic diet, the structural integrity of red blood*



Dr. K. Srinivasan, Scientist, CFTRI receiving **ICMR Silver Jubilee Oration Award** from Dr. Anbumani Ramdoss, the Hon'ble Union Minister for Health & Family Welfare, Govt. of India

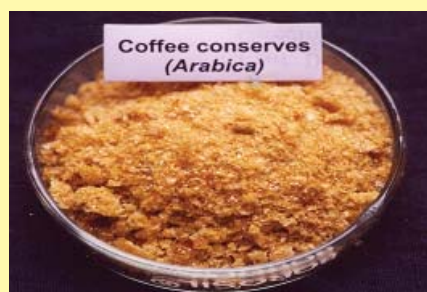
cells and hence the osmotic fragility is affected due to a significant alteration in membrane cholesterol : phospholipid ratio. It has also been evidenced that dietary hypocholesterolemic spices, such as curcumin, capsaicin and garlic offer protective influence on this altered fluidity of erythrocytes in hypercholesterolemic condition by producing a decrease in membrane cholesterol content. This information assumes importance in view of exploiting the pharmacological potential of spices”.

Chlorogenic acid rich coffee conserve from green coffee beans

Coffee, known for antioxidants and anti-tumor activity, also possesses many therapeutic properties. The phenolic acids present in coffee, such as chlorogenic acid, caffeic acid, paracoumaric acid and eugenol have been shown to exert cancer preventive effects in animal models. Chlorogenic acid, which is the main phenolic acid in coffee, is able to protect the gastric mucosa against irritation and improves the digestibility of foods, beverages and medicaments. The improved digestibility is expressed through a much-reduced systemic acid secretion, which has been found to be directly dependent on an increased level of chlorogenic acid content. Also chlorogenic acid has a chemo-preventive effect on rat stomach cancer. Chlorogenic acid and caffeic acid are shown to have a potential role in increasing the uptake of glucose in the body and regulating blood glucose levels. CFTRI has developed a technology

for the chlorogenic acid rich conserve from green coffee beans.

Green coffee beans of various grades and low grade coffee are softened by steam and flaked to coffee bean flakes. The flakes are passed through a suitable dryer to reduce the moisture and to get light cream / light brown colored crispy flakes, followed by grinding to a coarse powder. The flakes or powder is loaded into columns and extracted with a suitable solvent mixtures. The extract is distilled under controlled conditions to maximize the recovery of the solvent to produce coffee conserves, which are mainly chlorogenic acids and diterpenes. Final product is packed in clean containers.



Chicken soup mix composition and a process for preparing the same (US Patent No. 7255889)

Poultry industry is one of the important food industries in India, providing eggs and chicken meat to the consumers in Indian market. It occupies fourth place in the world in egg production, producing around 36,000 million eggs annually from layer chicken. Layer chicken population is around 140 million in the country. Meat from layer chicken after egg laying period is completed, is tough and underutilized. Value addition of this meat into ready-to-use convenient products, such as chicken soup mixes, may be an effective way to enhance its utility.

There is a growing demand for products like chicken soup mix (dehydrated) world wide. The effective utilization of underutilized layer chicken would not only provide value added products but also supply protein-rich nutrients to the consumers.

Preparation of dehydrated chicken soup mix involves pressure cooking of chicken meat along with ginger, garlic and onion, separation of liquid extract from cooked meat, separation of meat from the bone, blending of cooked meat and extract with starch and spices into a mix, addition of liquid extract to the mix to make it a slurry, drying of slurry into powder form, and mixing of this powder with milk powder, salt, ascorbic acid, pepper powder and sugar. The product is sensorily highly acceptable and is microbiologically safe.

The main advantages of this process are:

- It provides chicken soup mix in dehydrated form, with improved body on reconstitution.
- The settlement of solids in the soup is prevented, providing uniform consistency. The product is storable at ambient temperature.
- The soup mix is rich in protein content, with optimum chicken flavour.

Delegation from Mexico at CFTRI

A Mexican delegation comprising Dr. Mario Orozeo Santos, Agronomist; Mr. Mario Cruz, Civil Engineer; Mr. Rafael Perez, President, Tamarind Growers Council and Mr. Guillermo Fernandez, Agronomist, visited CFTRI on 21st November 2007. The delegation was here to understand the agricultural status of tamarind cultivation, R&D activities on tamarind, commercialization of fresh tamarind fruits and byproducts, tamarind packing industries and commercial products based on tamarind. Delegates were taken around various facilities of the institute including Showcase, Central Instruments facility and Food Engineering Pilot plant. During

interaction, various value added tamarind products were also showcased to the delegation.



Dr. Mario Orozeo Santos, Mexico (second from left) and other delegates with Director, CFTRI

Zimbabwe Delegation's visit

A delegation from Zimbabwe visited CFTRI, Mysore on 17th November 2007. The team included Mr. Simon Nyarota, Mr. Kasanda Sibanda and Ms. G. Machingura from Reserve Bank of Zimbabwe. The delegates went round the institute to see various facilities of CFTRI, including Showcase, Central Instruments Facility, Pilot Plant at Food Engineering Centre, International School of Milling Technology (ISMT) and Nodal Codex Laboratory. Mr. Simon Nyarota, Divisional Chief, Reserve Bank of Zimbabwe (RBZ) appreciated the R&D work undertaken at CFTRI. During presentation, Mr. Simon gave a brief account of the economic activities in their country. The delegation requested CFTRI to

provide technical assistance in identifying the appropriate technologies in the area of agri-processing for Zimbabwe.



Mr. Simon Nyarota and other members of the delegation being received by Director, CFTRI

Vigilance Awareness Week

Vigilance Awareness Week was observed at CFTRI during 6-12 November, 2007. Sri Bhaskar Rao, Commissioner of Police, Mysore City, was the Chief Guest in the valedictory function held on 12th November, 2007. In his address, the commissioner called upon the scientists to be vigilant in their pursuit of higher science. "Being vigilant assists innovation. It is also necessary to be vigilant in scientific and research fields as current S&T is highly competitive in nature". he opined. Dr. V. Prakash, Director, CFTRI, presided.



Ph.D. degree awarded

The following research students and scientists received Ph.D. degree from the University of Mysore during October - December 2007.

- Lohith K
Enzymatic synthesis of selected amino acid esters of sugars
(Guide: Dr. Divakar S)
- Vijayakumar GR
Enzymatic synthesis of selected glycosides
(Guide: Dr. Divakar S)
- Mehran Aalami
Physico-chemical properties and spaghetti making quality of Indian *Durum* Wheat
(Guide: Dr. Leelavathi K)
- Harish R
Isolation of bioactive molecules from the roots of *Decalepis hamiltonii* and their mode of action
(Guide: Dr. Shivanandappa T)
- Mohammed Shafiul Mustak B
Studies on metal-DNA interaction induced DNA conformations in relevance to neurological disorders
(Guide: Dr. Jagannatha Rao KS)

Forthcoming events

Short term training programmes (Feb. - Mar. 2008)

- Advances in the Science and Technology of baking (4 - 8 Feb. 2008)
- Food quality and safety management in meat and poultry processing (11 - 15 Feb. 2008)
- Sensory analysis of aroma and flavour of food ingredients and packaged foods (20 - 22 Feb. 2008)
- Product development and marketing strategy for food processing industry (25 - 29 Feb. 2008)
- Microbiological and chemical analysis of water (3 - 7 Mar. 2008)
- Nutrition perspective of food : The current scenario (10 - 14 Mar. 2008)
- Post-harvest management of fisheries for quality and value addition in the food chain (17 - 21 Mar. 2008)

For the details on the short term courses,

Please contact :

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email : hrd@cftri.res.in**

Visitor(s) to CFTRI

- Dr. Masanori Kohmura, Director, Scientific & Regulatory Affairs, Ajinomoto Co. Inc., ASEAN Regional Headquarters, Bangkok on November 29, 2007
- Dr. T. Manoharan, Managing Director, Ajinomoto India Pvt. Ltd., Chennai on November 29, 2007
- Dr. Banibrata Pandey, Business Head, Nagarjuna Fertilisers and Chemicals Ltd., Hyderabad on November 29 - 30, 2007
- Dr. Ravi Arudi, Principal Scientist, Food Chemistry, Cargill Food System Design, USA on December 19, 2007



CFTRI: An ISO 9001:2000, 14001:2004 and 17025:2005 (NABL) Organisation

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LEADING IN INNOVATIVE R&D IN FOOD
SCIENCE AND TECHNOLOGY FROM
INDIA WITH A GLOBAL REACH OUT . . .

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