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Nutraceutical Meet

The 4th Nutraceutical Summit organised by MM Activ Sci-Tech Communication Co. in Collaboration with Council of Scientific & Industrial Research (CSIR), Govt. of India, New Delhi and Central Food Technological Research Institute (CFTRI), Mysore was held at World Trade Centre, Mumbai from February 21-23, 2008. The focus of the Summit was "**NU FUNDAS IN HEALTH AND FOOD EXPO**".

The Summit and Expo were inaugurated by His Excellency, Shri S.M. Krishna, Hon'ble Governor of Maharashtra. Dr. V. Prakash, Director, CFTRI; Mr. T.C. Venkat Subramanian, CMD, Exim Bank; Dr. Antonio Di Giulio, European Commission, Directorate General for Research



H.E. SM Krishna, Hon'ble Governor of Maharashtra, inaugurating the Expo. Dr. V. Prakash, Director, CFTRI; Dr. Antonio Di Giulio, European Commission's Director General for Research; Mr. Dhanraj Khamatkar, FDA Commissioner, Maharashtra; Mr. Jagadish Patanker, CEO, MM Activ are seen

& Head, Food, Health and Wellbeing Unit, Shri Dhanraj Khamatkar, FDA Commissioner, Maharashtra; and Mr. Jagadish Patankar, Director, MM Activ were present. The Governor in his address said that health is a primary concern of every government and providing nutritious food to poor should be a top priority. He also opined that Maharashtra being the hub of Nutraceutical and Pharmaceutical industries, there is an enormous potential for value addition. Dr. V. Prakash in his remarks emphasized the need for global interaction with synergy among all the players. "Nutraceuticals would cascade into food, health and nutrition leading to food as a route of medicine in near future" he said. Shri Dhanraj Khamatkar hinted at the economics of pharma business and its closeness to nutraceuticals can be of great potential within the new food safety act.

More than 400 delegates from nutraceutical and associated industries including a 12 member delegation from European Union participated in the summit. In the Expo, 25 domestic and international companies showcased their nutraceutical products. In the CEO conclave, R & D Heads, Biotech Companies,

Policy makers, Venture Capitalists and Investment bankers participated.

The Summit covered various topics such as New Developments in Functional Foods for enhanced Nutrition; Bridging Traditional Knowledge & Modern Nutraceuticals; Nutraceuticals in Disease prevention and Treatment & Aftercare; Claims, Labelling & Policy Issues.



Dr. Dirk Pottier, Scientific Officer from EU delegation delivering a special lecture. Others on dias are Dr. Elizabeth Balzi, International Cooperation Officer, Dr. Antonio Di Giulio, European Commission's Director General for Research & Head and Dr. V. Prakash, Director, CFTRI

59th Republic Day Celebrations at CFTRI

CFTRI celebrated the 59th Republic Day of the Nation on January 26, 2008. Dr. V. Prakash, Director, CFTRI, hoisted the tricolor amidst the bugles and music of the CFTRI School Band. National song was played on the occasion and Dr. Prakash received salute from the Scouts, Guides and NCC cadets.

While addressing the staff and other invitees, Dr. V. Prakash, recalled the achievements of CFTRI since its inception. He urged the staff to benchmark their performance against the best in the world and strive for higher quality standards in their endeavours. 'Globalization meant a shift in emphasis from individualistic achievements to collective pursuits', he said and urged the scientists to network among like-

minded institutions to put India on a high pedestal of science and technology.



Dr. Prakash, Director, CFTRI receiving the salute at the Republic Day parade

National Science Day

The National Science Day, in commemoration of the discovery of Raman Effect by renowned Indian Nobel laureate, Sir C.V. Raman, was celebrated in the institute on February 28, 2008. Dr. N. R. Rajagopal, Former Head, HRDG, CSIR HQ, New Delhi graced the occasion. As a part of the Science Day, two students of M.Sc. (Food Technology) presented glimpses of Dr. Raman's scientific achievements through an interactive narration. Dr. Rajagopal distributed prizes to winners of essay competition that was held for high school students.

Dr. Rajagopal in his address said, "Values and qualities of Dr. C.V. Raman is worthy to be emulated by all". He also recalled the great communication skills of the Nobel laureate and urged the students to develop better communication skills besides doing good research. Dr. V. Prakash, Director, CFTRI, presided over the function.



Dr. N.R. Rajagopal presenting award to a winner of the Essay Competition held for School students

Chocolate Pasta

Pasta products, noodles, spaghetti and vermicelli which are excellent in nutritional quality are consumed world wide. The use of wheat in pasta products is more widespread because these products are easier to prepare and quick to serve. Upon drying, they can be conveniently stored for a relatively long period without deterioration.

CFTRI has developed a chocolate pasta formulation, which could act as a tasty supplement to the nutritional requirements of growing children in India, as cocoa flavour is widely accepted by children. The chocolate pasta has 15-16% protein content, which is 4-5% higher than the normal pasta. The product can be consumed along with milk as breakfast cereals/snacks or dessert.

The chocolate pasta packed in polypropylene pouches stored at ambient temperature has a

shelf-life of 9-12 months. The nutrient composition per 100 gm pasta (dried) contains 15-16% protein, 400 - 425 calories and 1-1.5% fat. The cooked cocoa pasta has acceptable sensory characteristics in terms of overall quality and mouthfeel, as well as appealing brown colour and chocolate flavour.

The raw materials used for the product are durum sooji, milk powder and low fat cocoa powder. The process of preparing chocolate pasta include mixing, resting, extrusion and kneading. Extruded and dried strands are packed in PP pouches. The equipments required are mixer, extruder and tray dryer.

The process for the chocolate pasta is ready for commercialization.

Water soluble turmeric colourant (odourless) formulation

Curcuminoids enriched colourant (CEC) is prepared from spent turmeric oleoresin or Curcumin-Removed-Turmeric-Oleoresin (CRTO). CEC obtained after removing the turmeric oil is converted into a water-soluble formulation using a novel technique. Being water-soluble and odourless, this could be used as a natural colourant in food products as a replacement for synthetic yellow colour. Further, the formulation has applications in nutraceuticals and pharmaceutical industry.

The major processing steps involved are refining the CRTO to get rid of turmeric oil and enrichment of colour components followed by suitable processing and blending to get a product of desired characteristics.

The necessary plant and machinery are process vat, pressure filter, distillation unit, blending and bottling units. Boiler, generators, quality control laboratory facilities, effluent treatment systems are the other auxiliary needs. The process know-how is available from the institute for commercial exploitation.



Process for preparation of thermostable enzyme (US Patent No. 7267971)

Thermal stability of enzyme is an important aspect of immobilized enzyme based biosensors. These systems can be used for monitoring various fermentation and biochemical processes. Most of the enzymes and biologically derived materials are heat labile and not viable for use beyond 50°C.

The institute has developed a process for the preparation of thermostable enzyme glucose oxidase useful for biological processes at high temperature.

The main advantages of this process are:

- This system can be used in the preparation of heat stable enzyme.

- The stabilized enzyme system can be used in the applications of biocatalysts at higher temperature, for biotransformations and biosensors.
- The glass beads, which are used as a support for immobilization of enzyme, can be used for application in packed bed reactors and bioreactor columns flow injection analysis system for on-line measurement of analytes in fermentation.
- Heat labile enzymes or biological materials can be stabilized using appropriate concentration of silane. This method of stabilization using silanization has the potential to be used for other silicate-containing materials as immobilization matrix.

Research Cooperation with National Food Institute, Bangkok

A twenty member delegation from Ministry of Industry, Thailand visited CFTRI on January 08, 2008. The delegation was led by Mr. Chakramon Phasukavanich, Permanent Secretary, Ministry of Industry. The objective of the visit was aimed at cooperation and exchange in research and training related to Food Science, Food Technology and Nutritional Science. An MoU was signed on this occasion. Dr. Yuthasak Supasorn, Executive Director, National Food Institute of Thailand, Bangkok and Dr. V. Prakash, Director CFTRI, Mysore signed the MoU.

The delegates were taken around various facilities of excellence in the Institute. The delegation interacted with the scientists and technologists on ongoing R&D activities as well as human resource development activities in the Institute.

MoU with Agricultural Research Development Agency, Thailand

A delegation of 12 members from Agricultural Research Development Agency (ARDA), Bangkok, visited CFTRI on January 28, 2008. The visit was intended to promote collaboration and capacity building between the two organisations through research cooperation, human resource development, technology transfers and information exchange in the areas of Agriculture and Food Technology. An MoU was signed on this occasion by Dr. Napavarn Noparatnaraporn, Director, ARDA and Dr. V. Prakash, Director, CFTRI.

The ARDA delegation was lead by Dr. Banpot Hongthong, Advisor to Minister of Agriculture and Cooperatives. The delegates were taken around the Institute including Food Engineering Centre, Central Instruments Facility and Services, Nodal Codex Food Laboratory and International School of Milling Technology. The delegation later interacted with Director and Senior Scientists of the Institute.



ARDA delegation with CFTRI team - CFTRI Main Mansion in the background

Delegation from NSTDA, Bangkok

A delegation of 5 members lead by Dr. Sakarindr Bhumiratana, President, National Science and Technology Development Agency, Bangkok visited CFTRI, Mysore on March 5, 2008. The visit was undertaken by the Thai Government to help them formulate a national policy and strategy on science and technology innovations with a futuristic vision. The team had discussions and exchange of thoughts on S&T developments and HR activities with CFTRI team.



NSTDA delegation from Bangkok at CFTRI, Mysore

Team from INRA, France

A scientific and technical delegation of nine members from INRA - French National Institute for Agricultural Research and CIRAD - French Agricultural Research Centre for International Development visited CFTRI on January 3, 2008. The team was lead by Dr. Xavier Lerveve, Scientific Director for Human Nutrition and Food Safety. The team discussed with CFTRI team on

the human nutrition, food safety, knowledge sharing and societal impact through long term scientific linkages. The delegation visited various facilities of technological excellence in the Institute.

Team from Toulouse Agriculture Campus

The team consisting of Dr. Marie Lummerzheim, Dr. Fargier and Dr. Picavet from Toulouse Agriculture Centre (France) made a visit to CFTRI on January 16, 2008. The discussion was mainly on forging a consortium for collaborative research projects which could strengthen linkages between Toulouse Agriculture

Campus and CFTRI in areas of Human Resource and Capacity Building programmes related to food science and technology.

University of Wisconsin Faculty at CFTRI

A seven member delegation from University of Wisconsin, River Falls, USA made a study visit to institute on January 12, 2008 as part of their curriculum activities. The delegation consisting of Dr. Madsen, Dr. Nechville, Dr. Carlson, Dr. Kroutil and Dr. Gallenberg went around some of the facilities such as CFTRI Show case, Central Instruments & Service Facility and Food Engineering Centre.



Faculty members with CFTRI team

Ph.D. degree awarded

The following research students and scientists received Ph.D. degree from the University of Mysore during January - March 2008.

- Mahesh HG
Studies on the interaction of soy isoflavones with proteins
(Guide: Dr. AG Appu Rao)
- Jyothi TC
Low molecular weight proteins of mustard seed (*Brassica juncea*): structure, function and interaction with intrinsic ligands
(Guide: Dr. AG Appu Rao)
- Ganapathi Patil
Integration of aqueous two phase extraction with membrane processes for purification and concentration of selected colours and biomolecules
(Guide: Dr. KSMS Raghava Rao)
- Roshni Srivastava
Development of an ELISA to detect the incipient stage of *Triboleum castaneum* in food commodities
(Guide: Dr. BE Amita Rani)
- Ritesh Narayanpur
Detection of biomolecules induced at sublethal levels of pyrethroids
(Guide: Dr. BE Amita Rani)

Indian Science Congress Award to CFTRI Scientist

Dr. G.A. Ravishankar, Head, Plant Cell Biotechnology Department, Central Food Technological Research Institute, Mysore was conferred with Prof. S.S. Katiyar Endowment Award in New Biology at the 95th Session of Indian Science Congress held at Vishakapatnam (Andhra Pradesh).

The award was given in recognition to Dr. Ravishankar's extensive work on metabolic engineering and genomic studies related to secondary metabolites in plants. The award was presented by Prof. P.R. Sudhakaran,

Sectional President, New Biology, Indian Science Congress Association.



Dr. G.A. Ravishankar receiving the award from Prof. P.R. Sudhakaran at the 95th Session of Indian Science Congress held at Vishakapatnam

Forthcoming events

Short term training programmes (April - June 2008)

- Plant biotechnology and genetic engineering (21 April - 2 May 2008)
- Animal and plant model systems in R & D (12 - 16 May 2008)
- HPLC: A practical tool for food analysis (26 - 30 May 2008)
- Fumigation, prophylaxis and pest management techniques for stored products (6 - 20 June 2008)
- Sensory analysis and consumer science: A newer perspective for reaching the consumer better (23 - 27 June 2008)

For the details on the short term courses,

Please contact :

**Head, HRD Dept.
CFTRI, Mysore - 570 020**

Visitor(s) to CFTRI

- Board of Directors of AMUL, Gujarat on a study visit to understand the developments in food processing industry on January 3, 2008.
- Prof. T. Ramasarma, Former Faculty, Indian Institute of Science, Bangalore delivered a technical talk, "Is Coenzyme Q a vitamin?" on January 21, 2008
- Dr. Abdullah Al Hinai, Director General - Industry, Ministry of Commerce & Industry, Sultanate of Oman and Mr. Hilal Al Hasani, Chief Executive Officer, Public Establishment for Industrial Estates, Sultanate of Oman on February 29, 2008.



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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