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A Constituent Laboratory of Council of
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NEWSLETTER

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CFTRI Foundation Day

The annual event of CFTRI – “CFTRI Foundation Day” was celebrated on November 8, 2006 in the institute. Prof. K. Sudha Rao, Vice Chancellor, Karnataka State Open University, Mysore was the Chief Guest. The function was presided over by Dr. V. Prakash, Director, CFTRI, Mysore.

The chief guest while complimenting the institute’s efforts in the scientific and technological arena for past five decades, emphasized that the results should reach the common man for the betterment of society. The staff and students were presented CFTRI Foundation Day Awards on this occasion.



Prof. K. Sudha Rao, VC, Karnataka State Open University, Mysore addressing the audience

Nutraceutical Summit

The 3rd Nutraceutical Summit, India's leading event of the nutraceutical industry was jointly organized by Council of Scientific and Industrial Research, New Delhi; Central Food Technological Research Institute, Mysore and MM Activ Sci-Tech Communication Co., Mumbai during November 15-17, 2006 at Mumbai. The Summit included an international conference, Nutra Expo, Doctors' and Nutritionists Forum, Poster Session and a Special Networking CEO meet. Dr. R.A. Mashelkar, Director General, CSIR and Secretary, DSIR inaugurated the

summit followed by a keynote lecture by Dr. V. Prakash, Director, CFTRI, Mysore. Mr. Amitabh Chandra, Commissioner, FDA, Maharashtra and Dr. Ashok B. Vaidya, Medical & Research Director, Bhavan's SPARC, Mumbai were also present.

Professionals from industries, research institutions, academia and business houses deliberated on the focal theme, "Uncorking the health revolution through cutting edge R&D, vibrant marketing and quality assurance"



Dr. R.A. Mashelkar, Director General, Council of Scientific & Industrial Research, New Delhi inaugurating the summit in Mumbai. Dr. V. Prakash, Director, CFTRI, Mysore is also seen



A view of the Nutra Expo held during the summit

Malting & Brewing Short Term Course

The 7th course on the 'Malting and Brewing series' jointly organized by Council of Scientific & Industrial Research, New Delhi; Central Food Technological Research Institute, Mysore and ICBF, Heriot-Watt University, Edinburgh, Scotland was conducted during December 4-8, 2006 at CFTRI, Mysore. The course entitled "Contemporary developments in the science and technology in Brewing & Distilling" was attended by

twenty four participants. Distinguished faculty for the course comprised of Prof. Graham Stewart, ICBF, Heriot-Watt University, Prof. Charlie Bamforth, University of California, USA, Dr. John Andrews, Briggs of Burton, UK and Mr. Trevor Roberts, Steiner-Hops Ltd. The participants were presented certificates at the end of the programme.



Participants of the short term course with faculty members

CFTRI Foundation Day 2006 Awards

Awards for excellence in various categories for the year 2005-06 were distributed by prof. K. Sudha Rao, Vice Chancellor, Karnataka State Open University, Mysore, Chief guest of the day, during CFTRI Foundation Day celebrations in the institute.

- **Best research paper published by staff**

Basic Research:

- Dr. G. Muralikrishna
Biochemistry & Nutrition Department

Applied Research:

- Shri. A. Ramesh Yadav
Fruit & Vegetable Technology Department

- **Best technology transferred to industry**

- Dr. S. Yella Reddy and team

- **Individual award for scientific and technical contributions**

Group IV:

- Dr. V. Baskaran, *Biochemistry & Nutrition Department*
- Dr. P.V. Salimath, *Biochemistry & Nutrition Department*

Group III:

- Smt. M.L. Sudha
Flour Milling, Baking & Confectionery Technology Department

- **Individual award for best technical support**

Group II:

- Shri K. Javaraiah, *Food Engineering Department*
- Shri D. Prem Kumar, *Food Engineering Department*

Group I:

- Shri M. Javarappa
Engineering & Mechanical Maintenance Department
- Shri C. Seetharam, *Food Engineering Department*

Group D (NT)

- Shri G. Vijay Prasad Raju
Engineering & Mechanical Maintenance Department



The Chief guest presenting a memento to Dr. R.N. Tharanathan, Senior Scientist, CFTRI; Dr. V. Prakash, Director, CFTRI is also seen

- **Best contribution award for general administration, finance & accounts and stores & purchase staff**

- Shri S. Prakash, *General Administration*
- Shri M. Ramachandraiah, *General Administration*
- Smt. Sujatha Ravikumar, *Finance & Accounts*
- Shri Nagaraju, *Stores & Purchase*

- **Best research publication award for Research Fellows and Project Trainees**

- Dr. A.B. Vishu Kumar
Biochemistry & Nutrition Department

- **Best student award**

- Mr. Sitanath Misra, *M.Sc. (Food Technology) Course*
- Mr. Get Net Tesfa Biazen
International School of Milling Technology Certificate Course

- **Best award for contribution towards intellectual property**

- Fruit & Vegetable Technology Department

- **Special award for outstanding contribution**

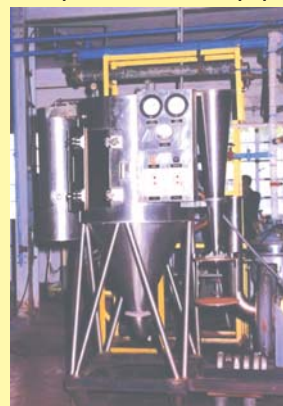
- Engineering & Mechanical Maintenance Department
- CFTRI Departmental Canteen

Spray Dried Coconut Milk Powder

Coconut has been associated with divinity and viewed with reverence in many communities. Large share of coconut is utilized in the primary stage itself for the production of coconut oil, without much value addition. CFTRI has developed a process for spray dried coconut milk powder as a value added product from coconut benefiting the large number of farmers.

The Coconut milk is a white milky produce extracted from the endosperm of coconut and constitutes into an emulsion stabilized by proteins. The milk has a characteristic nutty flavour and is known to have many nutritional advantages. It is one of the prime ingredients in the preparation of sweets, confectioneries, vegetable curries, beverages and non-vegetarian dishes. The spray dried coconut powder can be used in flavoured

milk, milk shake, lassi, coconut rice, coconut puddings, coconut burfi and other savoury products. The processing involve dehusking, paring and grating of ripened coconuts. The grated coconut is comminuted and milk which is extracted is homogenized and spray dried under optimum conditions. The dried powder is later packed in the laminated pouches with or without nitrogen. Disintegrator, screw-press, vibrating screen, homogenizer, spray drier, vibro fluidized bed dryer, pasteurizer and oil expeller are the equipments required.



Spouted Coffee Bed Roaster

The spouted bed roaster technique is an alternative to fluidized bed roaster. Though the areas of application of a spouted bed overlap with fluidized bed, the mechanism of operations are different. The method results in good solid mixing and effective gas particle contacts facilitating high temperature short time (HTST) processing. The importance of the spouted bed roasting is that the heat could be applied quickly resulting in enhanced aroma and flavour, retention of high organoleptic and nutritional attributes in the final product. Since the roasting chamber is transparent, degree of roasting (colour analysis) could easily be regulated. Spouted bed roaster which works on HTST principle removes unwanted materials in turn ensuring the quality product. Also the techniques provides higher percentage of soluble solids, swelling ratio and breaking strength compared to any commercial drum roaster.

When the coffee seeds are roasted with this machine, quality of the coffee has been excellent. The roaster could be used for roasting of other food grains like bengal gram, ground nuts, cowpea, cashew and makhana seeds. The resultant product will have better organoleptic properties. The design drawings of the process could be availed from the institute.



Bio-decaffeination of caffeine containing solutions (US Patent No. 7141411)

Caffeine is a purine derivative having structural similarity to the DNA base Guanine. It is chemically known as 1,3,7-trimethyl xanthine. Due to its structural relationship with DNA bases and adenosine, its excess consumption is associated with health risks. With the increased awareness about the ill effects of caffeine, the demand for decaffeinated coffee, tea and other beverages is on the increase.

Conventionally, decaffeination is carried out using chemical solvents like methylene chloride and ethyl acetate. The residual solvent even in traces can affect sensory quality of the product and it is also matter of concern to health. Supercritical carbon dioxide process is also commonly used for decaffeination, but it involves high processing costs.

CFTRI has developed a novel process using microbial technology for the complete decaffeination of caffeine containing solutions. The process is economical, safe, environment friendly and retains the flavour of essential components of tea and coffee and other caffeine containing beverages.

Some of the advantages of this invention include:

- Degradation of caffeine occurs in neutral pH
- Decaffeination occurs rapidly
- Hazardous organic chemicals are not used
- Prevents loss of flavour elements and oil
- Easy to perform and least labour intensive

The process is ready for technology transfer.

Colloquium on "Frontiers in Glycoscience"

Mysore Chapters of Society of Biological Chemists (India) and Association of Carbohydrate Chemists & Technologists (I) in collaboration with Central Food Technological Research Institute, Mysore organized half a day colloquium on "Frontiers in Glycoscience" on November 2, 2006. The chief guest, Prof. Y.V. Anjaneyulu, former Head, Dept. of Studies in Chemistry, University of Mysore, highlighted the importance of carbohydrates in various facets of life. Dr. V. Prakash, Director, CFTRI who presided over the function, touched upon the importance of glycobiology in health and diseases in the current context. Later in the technical session, Dr. S.G. Ambekar, former Head, DoS in Chemistry, University of Mysore; Prof. Loganathan, IIT, Chennai; Dr. Prema and Dr. Emilia Abraham, Scientists from Regional Research Laboratory, Thiruvananthapuram

presented papers on the current developments in carbohydrate and glycobiology. Dr. R.N. Tharanathan, Senior Scientist, CFTRI was felicitated on this occasion.



(from L to R): Dr. MC Varadaraj, Head, HRD Dept., Dr. R.N. Tharanathan, Senior Scientist, B&N Dept., Dr. V. Prakash, Director, CFTRI, Prof. Y.V. Anjaneyulu, former Head, DoS in Chemistry, University of Mysore and Dr. PV Salimath, Head, B&N Dept., CFTRI.

Ph.D. degree awarded

The following students received Ph.D. degree from University of Mysore during the period.

- Vinod Kumar
Genetic transformation studies on *Coffea* sp.
(Guide: Dr. G.A. Ravishankar)
- Pradeep Kumar
Structural studies of the proteinase inhibitors of germinated horsegram (*Dolichos biflorus*) seeds
(Guide: Dr. Lalitha R. Gowda)
- Sijo Mathew
Effect of selected pretreatments during frozen storage on the properties of proteins from Indian Oil Sardine (*Sardinella longiceps*)
(Guide: Dr. V. Prakash)
- Anand P. Kulkarni
Bioactive molecules from pomegranate fruit waste (pith and carpellary membrane)
(Guide: Dr. S.M. Aradhya)
- Anup Srivastava
Antioxidant properties and chemopreventive potential of the bioactive constituents of the roots of *Decalepis Hamiltonii*
(Guide: Dr. T. Shivanandappa)
- Shyama Prasad Rao R.
Studies on water extractable feruloyl polysaccharides from native and germinated rice (*Oryza sativa*) and ragi (*Eleusine coracana*)
(Guide: Dr. G. Muralikrishna)
- Udaya Kumari C.G.
Immunochemical studies directed towards the detection of low level insect contamination in stored foods (Guide: Dr. N.G.K. Karanth)

Forthcoming events

Short term training programmes (January - March 2007)

- Sensory analysis of aroma and flavour of food ingredients and packaged foods
(3 - 5 Jan. 2007)
- Current advances in the development of technologies for value added bakery products
(8 - 12 Jan. 2007)
- Strategies towards improvement of industrial microorganisms for metabolite production
(8 - 12 Jan. 2007)
- Isolation of lactic acid bacteria with special reference to probiotics (29 Jan. - 2 Feb. 2007)
- Development of design and drawings for traditional food processing machineries - an overview (5 - 9 Feb. 2007)
- Quality control and safety aspects in alcoholic beverages (5 - 9 Feb. 2007)
- Business and technology management of food processing industries (12 - 16 Feb. 2007)
- Microbiological and chemical analysis of water (19 - 23 Feb. 2007)
- Nutraceuticals / functional foods (26 Feb. - 2 Mar. 2007)
- Food safety in food chain establishments (5 - 9 Mar. 2007)
- Food fortification and regulatory aspects (12 - 16 Mar. 2007)

For the details on the short term courses,

Please contact :

**Head, HRD Dept.
CFTRI, Mysore - 570 020
email : hrd@cftri.res.in**

Prof. S.R. Vyas Memorial Award to CFTRI Scientist

Dr. G.A. Ravishankar, Scientist and Head, Plant Cell Biotechnology Department, Central Food Technological Research Institute, Mysore was conferred the Prof. S.R. Vyas Memorial Award of Association of Microbiologists of India at the 47th Annual Conference of AMI at Barkatullah University, Bhopal for his contributions in the field of cell culture research, enhancement of useful metabolites through microbial agents and the studies on microalgal technologies for the production of natural pigments and nutraceuticals.

Dr. Ravishankar was also recently honoured as Fellow of Indian Society of Agricultural Biochemists. The award was conferred on him by His Excellency Sri T.V. Rajeswar, Governor, Uttar Pradesh at the

International Conference on Post Harvest Technology at Kanpur. This is in recognition of his work in the area of Food Biotechnology and Agri-process technologies for industrial applications.



Dr. G.A. Ravishankar being honoured by H.E. Sri T.V. Rajeswar, Governor, Uttar Pradesh in the international conference at Kanpur

Awards & Honours

- Dr. K.S. Jagannatha Rao, Scientist, Biochemistry & Nutrition Department, CFTRI got elected as a Fellow of National Academy of Sciences in the area of Medical Sciences. This recognition is for his significant contribution in understanding the role of metals and genomics in neurodegenerative diseases like Alzheimer's and Parkinson's diseases.
 - Shri T. Ramesh, Technical Officer, Engineering & Mechanical Maintenance, CFTRI was selected for Shri Subash Bhatnagar Award of Association of Food Scientists and Technologists (India) for his outstanding achievements as a technical support personnel and contribution to the development of food processing in the country. The award was conferred to him during ICFOST 2006, held in Hyderabad recently.
- Best Poster Awards in ICFOST 2006**
- Nakkeeran E, Kumaresan N, Subramanian R and Vijayalakshmi G, for the paper entitled "Purification and concentration of xanthophylls from *Aspergillus carbonarius* using nonporous and nanofiltration membrane" (Session: Novel & Emerging Areas - 2nd prize)
 - Umesh SS, Yella Reddy S and Sakina Khatoon, for the paper entitled "Zero trans-plastic fats by enzymatic interesterification for food uses" (Session: Edible oils & Oil based products - 2nd prize)
 - Sudeepa ES, Rashmi HN, Tamil Selvi A and Bhaskar N, for the paper entitled "Proteolytic bacteria associated with fish processing wastes with special reference to a protease producing *Bacillus sp.*" (Session: Animal & Dairy Products-3rd prize)
 - Mamatha SS and Venkateswaran G, for the paper entitled "Optimization of extraction methods for lipid yield with special reference to gamma-linolenic acid from *Mucor rouxii* CFR-G15" (Session: Food Microbiology & Biotechnology- 1st prize)

Visitors to CFTRI

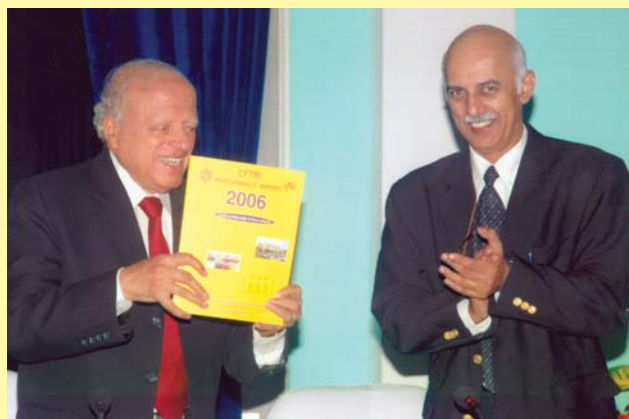
- Prof. Nina Fedoroff, Willaman Professor and Pugh Professor, Department of Biology, Penn State University, USA (October 9, 2006)
- Dr. Vessela Kortenska Kancheva, Associate Professor, Bulgarian Academy of Sciences, Institute of Organic Chemistry with center of Phytochemistry, Sofia, Bulgaria (November 21, 2006)
- Dr. Velitchka Gotcheva, Senior Asst. Professor, Dept. of Biotechnology, University of Food Technology, Plovdiv, Bulgaria (November 22, 2006)
- Dr. Diego Mora, Research Scientist, Dept. of Food Science and Microbiology, University of Milan, Milano, Italy (December 6, 2006)
- Dr. Nicole Ranganath, Director, International Initiatives, Offices of the Chancellor and Provost, University of California, USA (December 20, 2006)
- His Excellency Mr. Chirasak Thanasant, Ambassador of Thailand (December 22, 2006)



CFTRI: An ISO 9001:2000 & ISO 14001 Organisation and NABL Accredited Laboratory

CFTRI Performance Report 2006 Released

Dr. M.S. Swaminathan, Chairman, MS Swaminathan Research Foundation, Chennai and Chairman, CFTRI Research Council, released the CFTRI Performance Report 2006, recently during the Research Council Meeting of CFTRI on November 25, 2006. An abridged electronic version of the report can be accessed at institute's website, www.cftri.com.



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