



# cftri

A Constituent Laboratory of Council of  
Scientific & Industrial Research  
New Delhi

## NEWSLETTER April - June 2007

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### National Technology Day

CFTRI celebrated the National Technology Day on May 11, 2007 in a novel way. The entrepreneurs who had obtained licences for CFTRI know-how were felicitated in recognition of their important role in reaching out the R&D efforts of the institute to the society. The entrepreneurs were presented mementoes by M.Sc. (Food Technology) and International School of Milling Technology students of CFTRI.

Presiding over the function, Dr. V. Prakash, Director, CFTRI, remarked that "the occasion is significant as it has brought the technology users and the future technology providers face-to-face". He also called for greater interaction between industry and research institutions to make the fruits of research and development available to the common man. During the year



One of the entrepreneurs with dignitaries of the National Technology Day celebration

2006-07, licenses were given to 53 entrepreneurs (listed below). Technologies ranging from jams and jellies to novel products, such as virgin coconut oil, were transferred to the industries during this period.

Shri T. R. Prabhu, Head, Technology Transfer and Business Development, CFTRI, gave the introductory remarks and Dr. K. N. Gurudutt, Head, Food Safety Analysis and Quality Control Laboratory, CFTRI, proposed vote of thanks.



A view of the audience on National Technology Day

### Partners in CFTRI Outreach through Technology Commercialisation for the year 2006-07

- A R Rukmani Trading Limited  
Kumbakonam (Andra Pradesh)
- A Chellappan  
Tharamangalam (Tamilnadu)
- Anoop Enterprises  
Tumkur (Karnataka)
- B Basheer Amamed  
Nagapattinani District (Tamilnadu)
- Bakeman's Confectioneries Limited  
Malawi, Africa
- Bell Hotels (P) Ltd.  
Sivakasi (Tamilnadu)
- Biju P G  
Kollam (Kerala)
- Biosourcing.Com Pvt. Ltd.  
Orissa
- Delicifood Exports  
Tamilnadu
- District Panchayath  
Thiruvananthapuram (Kerala)
- Forsberg Agritech (India) Pvt. Ltd.  
Vadodara (Gujarat)
- Geetha Jairaj  
Bangalore (Karnataka)
- Guru Krupa Products  
Bijapur (Karnataka)
- Hygrevar Agencies  
Tiruchirappalli (Tamilnadu)
- Indira Devi Foods  
Nagpur (Maharashtra)
- ITC Limited  
Bangalore (Karnataka)
- Jain Spices & Agro Products  
Aurangabad (Maharashtra)
- Joint Committee of Panchayths of Aryad and  
Kanjikuzhy Block Panchayaths  
Alappuzha (Kerala)
- Koastal Coconut Foods & Oil Byproducts  
Mangalore (Karnataka)
- L T Overseas Ltd.  
New Delhi (Delhi)
- Laila D'mello  
Brahmavar (Karnataka)
- M Ravinder  
Hyderabad (Andra Pradesh)
- Mahesh Elastomers Private Limited  
Madurai (Tamilnadu)
- Maryam Agro Industries  
Mysore (Karnataka)
- Medik India Phytoceuticals Private Limited  
Chennai (Tamilnadu)
- Mehak Se Agencies  
New Delhi (Delhi)
- Milltec Machinery Pvt. Ltd.  
Bangalore (Karnataka)
- Minerva Softech Pvt. Ltd.  
Visakhapatnam (Andra Pradesh)
- Mohi Foods  
Hyderabad (Andra Pradesh)
- Manju Rathod  
Raipur (Chattisgarh)
- Sindhu Thomas  
Kerala
- Mysore Food Corporation  
Bangalore (Karnataka)
- Nature Fresh Agro Products Private Limited  
Pune (Maharashtra)

- Nirmala Y  
Bellary (Karnataka)
- North Bengal Phytoche  
Jalpaiguri (West Bengal)
- Om Shakthi Consultancies  
Ahmedabad (Gujarat)
- P Palaniswamy  
Sullippalayam (Tamilnadu)
- S S Hukkeri Enterprises  
Bijapur (Karnataka)
- Sabi Food Industries  
Chennai (Tamilnadu)
- Santosh T Patil  
Sangli (Maharashtra)
- Savera Hotels Ltd  
Chennai (Tamilnadu)
- Shakthi Rubber Products Pvt. Ltd.  
Mysore (Karnataka)
- Savita C Kadapatti  
Bagalkot (Karnataka)
- Sona Products  
Ajmer (Rajasthan)
- Souza Hatcheries  
Mangalore (Karnataka)
- Sree Adhi Lakshmi Food Products  
Proddatur (Andra Pradesh)
- Sunrise Spices Limited  
Kolkata (West Bengal)
- Thayar Food Products  
Chennai (Tamilnadu)
- The Dhampur Sugar Mills Ltd.  
Bijnor (Delhi)
- Vineet Saxena  
Kanpur (Uttar Pradesh)
- Viswas Sales Corporation  
Kerala
- Yari Food Industries  
Indore (Maharashtra)
- Yogi Foods  
Dolatpara – Junagadh (Gujarat)

## Parliamentary Standing Committee on Science & Technology, Environment & Forests visits CFTRI

Parliamentary Standing Committee on Science & Technology and Environment & Forests, Govt. of India under the Chairmanship of Shri P.G. Narayanan visited the institute on June 26, 2007. The members were taken around various facilities of the institute such as the CFTRI Showcase, Central Instruments Facility & Services, Food Engineering Pilot Plant and International School of Milling Technology.



Members of the Parliamentary Standing Committee on S&T with **Team CFTRI** during their visit

Demonstrations were arranged on automatic and semi-automatic processing of traditional foods and mango juice concentrate preparation using scraped surface evaporator.

Later, Dr. V. Prakash, Director, CFTRI briefed the committee about various ongoing and future R&D programmes of the institute. Members of the Committee appreciated the R & D efforts by CFTRI and the outcome from these projects in reaching out to the society.



Shri P.G. Narayanan (extreme right), Chairman, Parliamentary Standing Committee and other members near *Automated Dosa Making Machine* in the Food Engineering Pilot Plant

### Continuous *vada* making machine

*Urad vada* is a popular snack food of India prepared from black gram *dhal*. The black gram *dhal* is soaked in water at ambient temperature for about 2 hours and ground to a thick viscous batter with the addition of salt for taste. The prepared batter is made into a doughnut shape and deep fat fried. A commercial scale automatic continuous *vada* making machine has been developed and the design drawing is available for commercialization.

The machine can manufacture doughnut shaped *urad vada* continuously, consistently and hygienically in a predetermined form, shape and size. The frying time can be regulated electronically using the controls available in the unit. The unit is simple to operate, hygienic and economically viable. The unit can also be used

for other products similar to *urad vada*. The fryer unit can be used for the preparation of french fries, potato chips and other products with an attachment.

As there is no mounting hassles or extended parts to the device, it can be suitably fixed wherever it is necessary. The machine can produce approximately 700-800 *vadas*/hour.



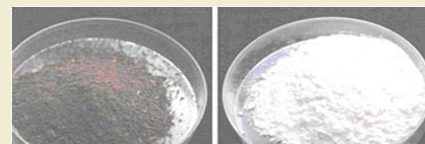
### Stevioside: A non - calorific sweetener

Steviosides are sweet glucose bearing diterpenoids produced by the Paraguayan plant, *Stevia rebaudiana*. The plants have been traditionally consumed in South American countries, such as Argentina, Brazil, Paraguay and Mexico. Steviosides vary in their composition based on the number, position and type of sugar attached to the terpenoid backbone. The two major forms are stevioside, which has two glucose units, and the other one rebaudioside with three glucose rings. These compounds are about two hundred times sweeter than sucrose. Hence, they are used as sweeteners. Stevioside in pure form is a white, crystalline material and does not impart any color. These compounds have a lingering taste in the mouth.

Heat and pH stability widens the scope of its use in many food preparations where other conventional sweeteners cannot be used. The contribution of the steviosides to our energy is

minuscule, since it is not metabolized and a very small quantity is such as 25 mg of stevioside is almost equal to 1 table spoon of sugar.

CFTRI has developed a process for the production of stevioside extract and crystals from dry stevia leaves. The institute has the necessary expertise to provide technical assistance and guidance to industries for commercialization. The suggested economic capacity is 1000 kg of dry leaves per day and yield is around 2%.



Stevioside leaf powder and white crystalline extract



*Stevia rebaudiana* plant

### Preparation of radical scavenging conserve from tea leaves - normal, coarse and pruned

India is the largest producer of tea, approximately contributing to 30% of the total world production. In the tea plantations, the coarse tea leaves are not plucked for tea making and they are pruned periodically every 2-3 years. These coarse / pruned tea leaves contain substantial amount of polyphenols. Polyphenols are known for several health benefits. Fresh coarse / pruned tea leaves are dried to inactivate the enzymes, which lead to green teas. A radical scavenging conserve enriched with polyphenols was prepared from these tea leaves using a suitable solvents. The conserve showed a very good radical scavenging properties in a model system. The conserve contains mainly catechins, which have antioxidant, anticancer

and antimutagenic properties. The conserve can be used as a nutraceutical in food and confectioneries. Further, it has the potential to be used in various pharmaceutical formulations.

Main advantage of this process is the utilization of wastes from tea plantations as the raw material. Also the process could be also employed for the preparation of conserves from fresh normal tea leaves.

CFTRI has filed a patent on this process and it is available for commercial exploitation.

### Emulsifier composition for cakes and a method of making improved quality cakes thereof (US Patent No. 7172784)

Emulsifiers are an important functional additives in modern food processing. They are used extensively to improve the product volume, tenderize crumb and to delay crumb firming.

The functionality of an emulsifier is related to its amphiphilic character and the resulting surface activity.

The use of emulsifiers are guided by their hydrophilic lipophilic balance and physical forms. Proper dispersion of emulsifier is crucial to enhance batter aeration, increased cake volume with finer and more even structure and improved storage qualities.

CFTRI has developed and patented a new emulsifier composition for use in cakes with improved functional properties.

The advantages of this composition are improved crumb cell characteristics and textural characteristics, such as optimum moistness, tenderness, softness and improved cake volume. Also there is a substantial amount of cost savings, as there is no replacement of fat while the cake is prepared.

## EDP in Jharkhand

CFTRI participated in an **'Awareness - cum - Training Programme on Fruit & Vegetable Processing'** at Ranchi organized by Jharkhand Pradesh Kisan Mahasabha during June 21 – 25, 2007. The programme was sponsored by Ministry of Food Processing Industries (MFPI), New Delhi. Shri Subodh Kant Sahai, the Hon'ble Minister of State for Food Processing Industries, Government of India, inaugurated the programme.

A total of 182 participants including entrepreneurs and members of the various societies under Kisan Mahasabha attended the programme. The other participants included officials from state government departments, industries, agriculture and financial institutions.

Demonstrations and lectures on the processing of mango pickle, lime pickle, mixed pickle, mango squash, mango RTS beverage, lime squash, mixed fruit jam, tutti-fruity, tomato sauce and chilli sauce were conducted. Certificates were distributed by the Minister Shri Subhodh Kant Sahai, to the participants on the concluding day. The Minister lauded efforts of the organizers and wished success to the participants in their endeavours.

An interactive session with the officials of District Industries Centre, Small Industries Development Bank of India, Khadi & Village Industries Commission, Tribal Cooperative Marketing Federation of India Ltd., were also arranged on the final day for the participants to get familiarized with the various aspects of setting up a food processing unit and investment options available from promotional agencies.

## Sri Lankan delegation visits CFTRI

A delegation from the Ministry of Irrigation and Water Management, Govt. of Sri Lanka visited CFTRI for scientific and technological interaction recently. The delegation was led by the Hon'ble Minister of Irrigation, Govt. of Sri Lanka, Shri. M.I. Anver Ismail. The team included Mr. P.U. Wickremaratne, Director, Engineering and Mr. P.M. Nimal Dayaratne, Deputy Director, Agriculture and Mr. S.L.M. Thowfeek, PS to the Hon'ble Minister.



Sri Lankan delegation at **CFTRI Showcase** (from L to R) Dr. V. Prakash, Director, CFTRI; Shri Anver Ismail, Hon'ble Minister for Irrigation; Mr. P.U. Wickremaratne, Mr. P.M. Nimal Dayaratne and Mr. S.L.M. Thowfeek

The delegation interacted with Director and staff of CFTRI with a major focus on sharing the expertise and knowledgebase of the institute in establishing modern rice mills, rice-based products such as rice bran oil and other related aspects.

The delegation was also taken to a modern rice mill in Mysore. Summing up their visit to CFTRI, the Hon'ble Minister expressed their desire to have collaboration with the institute in the areas of food science and technology.



Showcasing CFTRI products to the Members of the delegation

## Ph.D. degree awarded

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

- Chethana S  
Field assisted separation and downstream processing of biomolecules and natural colours  
(Guide: Dr. Raghavarao KSMS)
- Shadanaika  
Mycotoxigenic fungi in spices: Molecular methods of detection and control  
(Guide: Dr. Rati Rao E)
- Venkatesh Murthy K  
Heat transfer studies of equipments for production of Indian traditional foods  
(Guide: Dr. Raghavarao KSMS)
- Narasimha Prasad B.C.  
Characterization of capsaicin synthase and its regulation in *Capsicum frutescens* Mill  
(Guide: Dr. Ravishankar GA)
- Alireza Sadeghi Mahoonak  
Studies on quality improvement of mustard proteins  
(Guide: Dr. Bhagya Swamylingappa)
- Sistla Srinivas  
The interaction of cosolvents, proteolytic enzymes and selective metal ions with alpha casein - the structure-stability relationship  
(Guide: Dr. Prakash V)

## Forthcoming events

### Short term training programmes (Sept. - Dec. 2007)

- Value addition to fruit and vegetable products: Holistic approach in food chain (17-28 Sep. 2007)
- Calibration for mass and temperature measurements (3 - 5 Oct. 2007)
- Trends in post-harvest management of fresh horticultural produce (8 - 12 Oct. 2007)
- Biotechnological approaches for the exploitation of food and industrially important microorganisms (8 - 12 Oct. 2007)
- Thermal processing of foods: Principles, practices & packaging aspects (15 - 17 Oct. 2007)
- Fermentative production of microbial enzymes and their applications (22 Oct. - 2 Nov. 2007)
- Sensory and instrumental methods for the textural analysis of processed foods (5 - 7 Nov. 2007)
- Strategies towards improvement of industrial microorganisms for metabolite production (12 - 16 Nov. 2007)
- Trends in food packaging (Bangalore) (16 Nov. 2007)
- HPLC & GC: Operation, maintenance & troubleshooting (19 - 23 Nov. 2007)
- Fumigation, prophylaxis and pest management techniques for stored products (10 - 24 Dec. 2007)

***For the details on the short term courses,***

***Please contact :***

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

## Visitor(s) to CFTRI

- Dr. Nayan Trivedi, AFB International, USA visited the institute on 9<sup>th</sup> May 2007 and held discussions with the project team of the sponsored project titled "Studies on enzymatic hydrolysis of four different types of proteins".
- Dr. Ravi Arudi, Principal Food Chemist, Cargill Global Food Technology Development Centre, USA visited on 21<sup>st</sup> May 2007 to have discussion with a group of scientists on technologies of mutual interest.



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