



Central Arid Zone Research Institute

# CAZRI NEWS

Year: 2012-2013

No. 2, July-September

## From the Director...

Nano science and nanotechnology have emerged as a potential area to enhance agricultural productivity through reduced dependence on fertilizers, pesticides and water. The materials reduced to the Nano scale, which is about 1 to 100 nanometers ( $1 \text{ nm} = 10^{-9} \text{ meter}$ ) show very different properties enabling unique applications. Research in this area has already resulted in applications across a wide range of areas like medicine, personal care products and other utilities etc. and by 2020 the number of such products is expected to reach 3400. The production of engineered nanoparticles is expected to increase from 2000 tons in 2004 to 58000 tons by 2020.



The application of nanotechnology in agriculture is expected to increase input use efficiency on account of high solubility, stability and effectiveness; controlled release in response to specific stimuli besides targeted delivery of fertilizers, plant growth regulators and a variety of biocides. Also, specifically devised nano-sensors linked with GPS system will lead to real time monitoring of soil conditions and crop growth. However, detailed studies are required to fully understand the toxicological and health implications of nano particles Thus, issues related to social, economic and ethical challenges are to be addressed more vigorously.

It is, therefore, important to impart higher priority to development of nanotechnologies that contributes in meeting the food security in the country but at the same time are safe from the environmental and human/livestock angles as well.

-M.M. Roy

## RESEARCH ACTIVITIES

### Minute Tree-Fungus Beetles Devour *Ganoderma* Fruiting Bodies

Generally, genus *Ganoderma* causes extensive white rots to live trees, dead trunks and stumps. Sudden drying of arid zone trees particularly of family Fabaceae caused by *Ganoderma* is a serious problem in various districts of Rajasthan. Large-scale mortality of Khejri trees is a cause of concern for the farmers, environmentalists and scientists. Studies conducted at CAZRI revealed that *Cerambycid* beetle (*Acanthophorus serraticornis*) and fungus (*G. lucidum*) are the major causes for mortality of the trees. *G. lucidum* impairs the nutrient and water transport system of the trees leading to their drying and death.

During recent survey, minute beetles were found on *Ganoderma* fruiting bodies, which made holes on the lower and upper sides of the fruiting bodies and later on completely devoured the internal tissues (Plate 1: A-D). These beetles are 1.5 to 3 mm long with short and cylindrical body, often convex and covered with a smooth coat of fine short bristly hairs. They are mostly dark brown or blackish having short antennae, and also known as minute tree-fungus beetles. *Ceracis cucullatus*, *Cis bilamellatus*, *C. boleti*, and *C. chinensis* (Ciidae-Minute tree-*Ganoderma* fungus beetles) are also reported to be pests and invasive organisms (Plate 1: E).

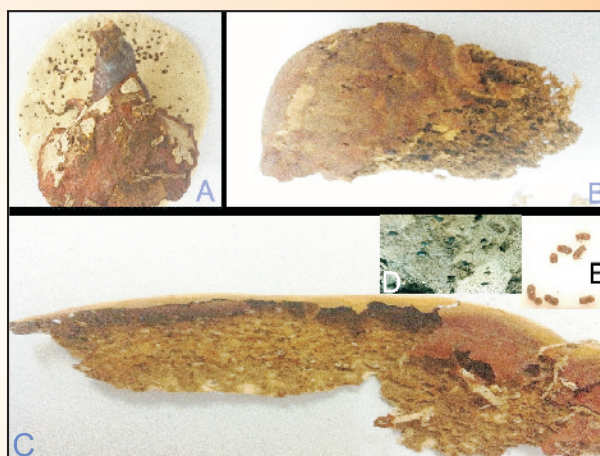


Plate 1. A. Large number of holes made by the beetles on lower side of *Ganoderma* fruiting body. B. and C. Damaged fungal tissues by the beetles. D. Burrowed fungal tissues E. Tiny beetles

R. Raj Bhansali

## Process Technology for *Prosopis juliflora* Syrup, Fine Flour and Fiber Processing

Ripe pods (350 g) were selected, washed and broken into small pieces and boiled in one liter of water for two hours at 80°C. The product was then sifted to separate the coarse particles. To obtain the syrup, the liquid was boiled until it reached the required consistency. This thick liquid was yellowish brown in colour and can be used as a beverage. It can also be mixed with milk and fruit juices. This syrup is widely used in Latin and South American countries. The residue left after preparing the syrup was used for processing fine flour and fine fiber. The quantum of syrup, fine flour and fiber obtained from 350 g pods were 100 ml, 62 g and 26 g, respectively. The flour obtained by this process was quite fine, which may be potentially useful in confectionary items.



- J.C. Tewari and Pratibha Tewari

## OTHER ACTIVITIES

**Field Day in Nagaur:** On 30<sup>th</sup> September a field day was organized at Sant Bhuriya Baba Gaushala at village Harsolav in Nagaur district under National Rainfed Area Authority sponsored project 'Pilot Study on Livestock Centric Interventions for Livelihood Improvement'. Dr. V.N. Sharda, Member, ASRB, New Delhi was the Chief Guest of the function. He also inaugurated the Feed Block Making Machine and handed over the unit to the farming community. The main aim of installation of this machine in the village is to demonstrate the significance of feeding of complete feed blocks especially under scarcity and drought periods. Farmers of 12 villages of Merta and Jayal Tehsils of Nagaur District will be benefited with this unit. Dr. M.M. Roy, Director, CAZRI requested the farmers for working more closely with CAZRI and stressed the need for livestock and pasture development and other high value horticultural crops for getting higher income. Drs. A.K. Patel, M. Patidar and T.K.Bhati organized the field visit, exhibition, farmers-scientists interaction and Kisan Gosthi. About 300 farmers including farm women, scientists and officers from other departments participated. Three progressive farmers were honoured for their innovative steps in drought management and adoption of CAZRI technologies.



**National Brainstorming Workshop:** Rehabilitation of Degraded Rangelands for Sustainable Livelihoods of Thar Desert under UNESCO funded SUMAMAD project was organized at RRS, Jaisalmer on September 5. The Chief Guest, Dr. T.S. Rathore, Director, AFRI, Jodhpur emphasized importance of indigenous shrubs and trees along with grasses for improving productivity of rangelands through community participation.



**Short course:** Efficient Use of Organic Wastes for Sustainable Agriculture and Enhancing Soil Health in Low Rainfall Areas, sponsored by ICAR, was held at CAZRI, Jodhpur from September 17-26. Seventeen persons from different universities and ICAR institutes participated.

**Foundation Stone Laying of RRS for Cold Arid Region at Leh, Ladakh (J&K):** Shri Rigzin Spalldar, Chief Executive Counselor, Ladakh Autonomous Hill Development Council along with Dr. S. Ayyappan, Director-General, ICAR and Secretary, DARE and Dr. A.K. Singh, DDG (NRM), ICAR, New Delhi laid the foundation stone on 18<sup>th</sup> August. LAHDC, Leh allotted 23 ha land at village Stakena for the station.



## Meetings / Celebrations

**Sangosthi on “Hamari Beti Hamari Shaan”** was organized on 19 July. The consensus was that daughters need to be educated and made self-reliant so that they are blessings and not burden on the society.

Scientific Advisory Committee Meeting KVK, Jodhpur (20th July)

Programs and Planning of SUMAMAD Phase II (23<sup>rd</sup> July)

**Agriculture Education Day:** It was organized on 7<sup>th</sup> August. 128 students from various local schools and colleges participated. On this occasion Smt. Kanupriya Harish, Project Director, Jal Bhagirathi Foundation, Dr. S. Ramasubramanian, ISRO, Jodhpur and Dr. T.K. Bhati delivered the lectures. A quiz was also organized. Dr. M.M. Roy, Director, CAZRI chaired the function.

**Independence Day (15<sup>th</sup> August):** On this occasion various sports activities were held for the CAZRI employees and their children. Prizes were distributed by Dr. M.M. Roy, Director, CAZRI to the winners. A cultural programme was also organized on the eve.

**Hindi Week (September 14-22):** Mr. R.K. Jain, Divisional Commissioner, Jodhpur inaugurated the function. 'Kavi Sammelan' and various competitions were arranged.

**Participation in Kisan Gosthi:** CAZRI, RRS, Bikaner participated in Kisan Gosthi organized by Rajasthan University of Veterinary and Animal Science at village Dhani Pandusar tehsil Lunkarnsar, District Bikaner on August 24. The Chief Guest of function, Shri Virendra Beniwal, State Minister, Home and Transport, Govt. of Rajasthan, Dr. A.K. Gahlot, V.C., RAJUVAS, Dr. J.P. Poonia, AD (Ag. Extn.), DoA, Bikaner and farmers visited the stall and interacted with the scientists.

**CAZRI - Farmers' Fair-cum-Farm Innovation Day:** It was organized on 12th September. More than 2000 farmers including 650 farm women from Jodhpur, Jaisalmer, Barmer, Pali, Sirohi, Jalore, Nagaur and Udaipur districts of Rajasthan participated. The innovative farmers were honoured by the Chief Guest of the function, Dr. A.K. Dahama, Vice Chancellor SKRAU, Bikaner. Smt. Durga Devi Balai, the Guest of honour and Zila Pramukh, Jodhpur emphasized the need for horticulture crops especially date palm for higher farm income. 45 stalls on improved technologies and products were displayed by the ICAR institutes - CAZRI, NRCC, NRCSS, CIAE, NRCE, CSWRI, DRMR, NBPGR; SKRAU, State Departments - Agriculture, Horticulture, Animal Husbandry, Anti Locust, Ayurveda University, Central Wool Board, NGOs, Agricultural Industry and others. Dr. M.M. Roy, Director CAZRI presided over the function and asked the farmers to work more closely with CAZRI, and stressed the need for high value crops like cumin, isabgol, medicinal plants and other traditional horticultural crops for getting higher income. Eight innovative farmers also shared their experiences during the scientists-farmers interaction.

**ATIC Activities:** 1378 farmers visited the ATIC for farm advisory, purchase of seeds, plants and other products. The services related to the testing of soil and plant samples were also provided.



## Exhibitions

- September 5: National Brainstorming Workshop on Rehabilitation of Degraded Rangelands for Sustainable Livelihoods of Thar Desert at Jaisalmer
- September 12: Kisan Mela and Krishi Navachar Diwas at CAZRI, Jodhpur
- September 14-21: Hindi Week at CAZRI, Jodhpur
- September 30: Kisan Mela at Village Harsolav, Nagaur

## Distinguished Visitors

- July 19: Dr. Radhe Shyam Sharma, Vice-Chancellor, Ayurveda University, Jodhpur; Dr. Sudhi Rajeev, Director Kamla Nehru College, Jodhpur; Dr. Rajni Lakhota, Paota, Jodhpur; Dr. Kailash Koshal, Jodhpur
- August 1: Dr. Panjab Singh, Ex-Secretary, DARE, Govt. of India & Ex-DG, ICAR
- August 5: Dr. T.S. Rathore, Director, AFRI, Jodhpur; Dr. R.P. Dhir, Ex-OIC Director, CAZRI, Jodhpur; Dr. R.S.Mertia, Ex-Head, CAZRI, RRS, Jaisalmer visited RRS Jaisalmer
- August 7: Dr. Kanupriya Harish, Project Director, Jal Bhagirathi Foundation, Jodhpur
- August 18: Dr. S. Ayyappan, Secretary, DARE & DG, ICAR; Dr. A.K. Singh, DDG (NRM); Dr. J.C. Dagar, ADG (NRM); Sh. Rigzin Spalldar, Chief Executive Counselor, Municipal Council, Leh Ladakh; Dr. N.V. Patil, Director, NRCC, Bikaner and Dr. R.K. Singh, Director, NRC Equines, Hisar visited CAZRI RRS, Leh Ladakh
- September 12: Dr. A.K. Dahama, VC, SKRAU, Bikaner; Smt. Durga Devi Balai, Zila Pramukh, Jodhpur; Dr.Y.V. Singh, Project Director Zone-VI, Jodhpur
- September 14: Shri R.K. Jain, IAS, Divisional Commissioner, Jodhpur
- September 17: Dr. R.P. Dua, ADG (FFC); Dr. J.S. Sandhu, ADG (Seed) ICAR, New Delhi
- Group visits: Farmers-70, Farm women-20, Students/Trainees Police/Forest etc-246, Central/State Department Officers-24

## Appointments

- Ms. Sumti Ela, Assistant on 20.07.2012
- Dr. Mahesh Kumar Gaur, Sr. Scientist (Geography) on 5.9.2012
- Sh. Virendra Charan, Assistant on 7.9.2012 at KVK, Bhuj

## Transfers

- Dr. M.M. Azam, Sr. Scientist (Organic Chemistry) transferred to Directorate of Rice Research, Hyderabad on 13.7.2012
- Sh. Dipankar Saha, Scientist (SG) (Economic Botany) transferred from RRS, Sorbhog of CRIJAF, Barrackpore, Kolkata (WB) on 17.8.2012
- Dr. Poonam Kalash, SMS (Home Sci.) from KVK, Vejapur, Gujarat to KVK, Jodhpur on 20.9.2012

## Promotions

- Dr. S.M. Deb, Head, RRS Pali to Director, NRC on Yak, Dirang (Arunachal Pradesh) on 27.8.2012
- Sh. Hemant Kumar, Sr. Clerk to Assistant, w.e.f. 23.7.2012
- Sh. Bhanwar Singh, SSS to T-1, w.e.f. 21.07.2012
- Sh. Ramesh Chandra, SSS to T-1, w.e.f. 21.07.2012
- Sh. Surendra Kumar, SSS to T-1, w.e.f. 21.07.2012
- Sh. Dungar Ram, SSS to T-1, w.e.f. 21.07.2012

## Superannuations

- August 2012: Sh. M.L. Sharma, T-5; Sh. Chander Darwani, Assistant
- September 2012: Shri Bal Kishan Soni, PS; Murli Manohar Singh, T-4 (F/A); Sh. Gani Khan, SSS; Smt. Laxmi/Ganga Ram, SSS; Khamisha Khan, SSS

## Resignation

- Sh. S. Gopalsundaraja, Scientist (Economic Botany) on 22.8.2012 to join IAS.

Published by : Director, CAZRI, Jodhpur 342003  
Contact : Ph.: 91-0291-2786584 (O), 91-0291-2788484 (R), Fax: +91-0291-2788706  
E-mail: director@cazri.res.in; Website: http://www.cazri.res.in  
Editorial Committee : S.K. Jindal, D.V. Singh, Nisha Patel and Ajayvir Singh Sirohi  
Compilation : S.B. Sharma