



ILRI Newsletter

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JAN-JUN 1999

From the Director's Desk

The Platinum Threshold

Indian Lac Research Institute, one of the oldest research institutes of the ICAR, will be entering the 75th glorious year of its foundation on September 24, 1999. Three-quarters of a century is quite significant a period when we should take stock of our past to plan a better future. Being exclusively devoted to research on lac, the institute had to face many ups and downs with fluctuating fortunes of the commodity. The very fact that lac is an export-oriented commodity with our country being a key player in the world lac production, has put a greater onus on the institute for developing a strong base for lac in the global market. It is heartening to see that the institute has always come out with flying colours from these testing circumstances. Though the institute can boast of many an achievement to its credit in the fields of lac production, lac processing & product development and transfer of technology, we do not intend to rest on our laurels. As usual, it would be our earnest endeavour to work towards the stiff targets which we have set for ourselves.

The institute is planning to organise a series of activities like *kisan melas*, exhibitions, seminars etc. spread over the whole year to commemorate the golden history of research on lac. We feel proud to be associated with this unique institution of the country.



S.C. Agarwal
(S.C. Agarwal)

RESEARCH HIGHLIGHTS

Hot-melt adhesive based on lac

A hot-melt adhesive based on lac without incorporating any synthetic resin has been developed. The adhesive was evaluated at IICT, Hyderabad and it was found that composition could be used in packaging industry for joining similar surfaces e.g. stainless steel, MS, copper, aluminium, wood, paper, cotton etc. It is expected to boost utilization of lac as it has immense scope in the packaging industry.

Quick-drying baking-type high-thermal and water-resistant shellac-based insulating varnish

A new baking-type insulating varnish has been developed based on shellac and synthetic resins, which possesses very high dielectric strength and thermal resistance of the order of 230°C. The films show a very high value of dielectric strength (75-80 kV/mm) after immersion in water for 24h compared to that required (35 kV/mm) as per IS:10026-1982, a quality rarely observed in shellac-based insulating varnishes. It also produces flexible films. The varnish is suitable for coating of coils/armatures of electric motors/transformers and is superior to a similar varnish developed earlier.

Insect sex pheromone component from lac resin

9,11-dodecadien-1-yl acetate, the insect sex pheromone component of *Diparopsis castanea* Hmps. (red ball worm moth), an insect pest of cotton, has been synthesized from aleuritic acid, a principal constituent acid of lac resin.

Biological control of lac predators

Small scale field release of egg parasitoids for management of lac predators was carried out during *aghani* 1998-99 lac crop reared on *kusum* (*Schleichera oleosa*) in the Institute farm. Weekly releases were made of three egg parasitoids viz., *Trichogramma pretiosum*, *T. barasiliensis* and *T. chilonis*. Caging study of mature lac sticks has indicated 88.3 and 51.9% reduction over control, in the emergence of adults of two major predators viz., *Eublemma amabilis* and *Pseudohypatopa pulvereana* respectively.

Comparative performance of collected lac insect germplasm

Productivity of two naturally occurring stocks viz., LR-5312 and LR-5313 of *Kerria nagoliensis* collected from West Bengal was found to be 40% superior to the mean performance of eight different stocks on *kusum*. Performance of LR-5312 was also found to be better with respect to yield ratio (1:6) when tested at different locations in Orissa and Bihar. Another stock, LR-5316, which ranked lowest on *kusum* during winter season performed best on *ber* with its productivity 84.4% higher than the mean of eleven stocks tested.

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TRANSFER OF TECHNOLOGY

ILRI Organizes Meet with NGOs

A one-day NGOs' meet was organized at the Institute on 16 June, 1999 with a view to establishing more linkages between ILRI and NGOs for promotion of lac cultivation and finalizing modalities for working together.



Mr. Verma delivering his inaugural address

The meet was inaugurated by the Chief Guest Mr. S S Verma, IAS, Commissioner, South Chhotanagpur Division. In his inaugural address Mr. Verma said that NGOs can play an important role to take the achievements of the research to rural masses and areas. While welcoming the delegates Dr. S C Agarwal, Director, ILRI hoped that this meet would serve as a launching pad for establishing new relationship with NGOs so that they can work together with the Institute for the upliftment of economically weaker sections, particularly tribals, through lac cultivation.



Forty representatives from 30 NGOs and some invited officials from 11 GOs including NABARD, TRIFED, BAU, IFP etc. participated in the meet. Some of the important points emerging out of the meet were :

- The NGOs who were not working in the area of lac cultivation expressed their determination to take it up with the support of ILRI.
- Many NGOs expressed desire to send their workers and farmers from their operational areas for training at ILRI.
- The NGOs also expressed their desire to sign MoUs with ILRI for cooperation in promoting lac production and lac based cottage industries.



Director distributing certificates to trainees sponsored by State Forest Department



Launching of on-farm training for lac growers sponsored by TRIFED

The following courses were conducted during the period under report :

Course	Period	Sponsored by/Venue	No. trained
Certificate course			
Modern methods of lac cultivation	Three months	Institute of Forest Productivity Private	9 7
Short term courses			
Improved methods of lac production and utilization	One-week	TRIFFED, Ranchi, Bihar Forest Dept. Adim Jati Sewa Mandal and Jagriti Vikas Kendra, Gumla	288
Orientation Programme on lac	One-day	-	633
On-farm training	One-day	Balarampur (WB)	14
Off-campus education	One/ two-day(s)	Social Development Centre, Baridih, Gumla MESSO Office, Pakur R. K. Mission, Balarampur (WB) Forest Dept., Bilaspur (MP) Integrated Tribal Development Agency (Orissa)	199 800 71 25 70
Product demonstration			
Preparation of Aleuritic acid	5.4.99 to 13.4.99	Vijay Shellac and Chemicals, Gondia (Maharashtra)	1
Determination of life, flow and impurities of lac	8.4.99 to 13.4.99	- do -	
Preparation of sealing wax	4.5.99 to 10.5.99	Integrated Tribal Development Agency, Nilgiri (Balasore), Orissa	5

OUTREACH PROGRAMMES

Training-cum-workshop on lac

Subject Matter Specialists of the Institute participated in a two-day training on lac cultivation-cum-workshop on lac products design and development at Nilgiri, Balasore (Orissa) organized by Kishore Chandrapur Lac Industrial Cooperative Society Ltd. and financed by Integrated Tribal Development Agency, Orissa on 10-11.01.99. GM, DIC; AGM NABARD; PA, ITDA and other Govt. officials were also present. The workshop was inaugurated by Mrs. Jayanti Patnayak, NAC, Nilgiri. 60 farmers including 30 women participated in the workshop. Preparation of sealing wax was demonstrated and some literature on lac products was distributed among the participants.



An exhibition depicting various aspects of lac cultivation, processing and utilization was also organized at the venue.

Training on lac cultivation

A two-day awareness-cum-training programme on lac cultivation was organized at village Udala, District Mayurbhanj (Orissa) on 25-26.06.99 which was attended by about 70 farmers. The participants were acquainted with scientific



Joint stall put up by ILRI and BISCOLAMF at Kisan Mela held at Jaipal Singh Stadium, Ranchi

Participation in kisan melas and exhibitions

Organized by	Venue	Date
Kishore Chandrapur Lac Industrial Coop. Soc. Ltd.	Workshop-cum-exhibition at Nilgiri, Balasore (Orissa)	Jan. 10-11, 1999
Regional Sericultural Research Station	Resham Krishi Mela at Hehal, Ranchi	Jan. 19, 1999
Regional Development Commissioner, Ranchi	Kisan mela at Jaipal Singh Stadium, Ranchi	Jan. 24-26, 1999
Deputy Commissioner, Gumla	Gumla Mahotsava-cum-Vikas mela at Paramvir Albert Ekka Stadium, Gumla	Feb. 2-4, 1999
RK Mission Ashrama, Divayan KVK, Morabadi, Ranchi	Kisan mela at Getalsud, Angarha Block, Ranchi	Feb. 5-6, 1999
INDALCO, Chhotamuri	Kisan mela at S. S. High School, Silli	Feb. 10, 1999
Gramin Vikas Kendra, Patrahatu, Silli	Exhibition-cum-Farmers' Camp, Patrahatu, Silli	Apr. 11, 1999

methods of lac cultivation and were given demonstration on proper methods of tree pruning and spraying of insecticides. They were also provided with extension literature on modern methods of lac cultivation.

Awareness through Lac Museum

The Lac Museum was visited by 591 trainees, six VIPs and 218 other visitors during the period.

Literature published

- Kaise Karen Kusum Vriksh par Lakh ki Kheti, a booklet, 8 pp.
- ILRI Newsletter Jul-Dec 1998, a booklet, 4 pp.

A total of 5060 copies of seven publicity literature published by the institute were reprinted and distributed during various training programmes and in kisan melas, exhibitions etc.

Papers published

- Agarwal SC, Jaiswal AK and Sharma KK 1998. Problems and prospects of lac culture in India. *J. Non-Timber Forest Products* 5(3/4) : 127-132.
- Bhattacharya A, Mishra YD, Sharma K Krishan and Sushil SN 1999. Effect of Different pesticide combinations on crop yield under intensive lac cultivation on *Flemingia macrophylla*. *J. Appl. Zool. Res.* 10(1) : 59-61.
- Bhattacharya A, Jaiswal AK, Mishra YD and Choudhary SG 1999. A method for estimating shoot length of *Schleichera oleosa* (Lour.) Oken for lac crop inoculation. *J. Appl. Zool. Res.* 10(1) : 62-63.
- Jaiswal AK and Saha SK 1998. Growth analysis of lac production. *J. Non-Timber Forest Products* 5(1&2) : 62-64.
- Saha SK, Jaiswal AK and Singh BH 1998. Pre-harvest forecasting of sticklac yield from culture of lac insect, *Kerria lacca* (Kerr) on *Butea monosperma* (Lam.) Taub. *J. ent. Res.* 22(3) : 273-282.

Radio/TV talks

- "Lah Keet Palan ke Adhunik Tareeke" by Dr KK Sharma was broadcast from AIR, Ranchi on 09.01.99.
- "Lakh Keet Palan ke Poshak Vriksh avam Unki Dekh-rekh" by Dr BP Singh was broadcast from AIR, Ranchi on 13.03.99.
- "Lakh Keet Palan mein Vipnan Vyavastha ki Samasyayen avam Samadhan" by Dr AK Jaiswal was broadcast from AIR, Ranchi on 16.05.99.
- "Paricharcha - Chhotanagpur ke Vikas mein Lah ki Bhumika" by Dr. SC Agarwal and Dr KK Sharma was telecast from DDK, Ranchi on 10.06.99.

Quality Testing Lab

The laboratory carried out 187 tests of 59 samples received from entrepreneurs/business houses/different Divisions of the Institute during the period under report. An amount of Rs. 9465/- was realized as testing charges.

INFRASTRUCTURE DEVELOPMENT

A video camera with accessories has been procured for in-house production of short video films on the activities of ILRI and on different aspects of lac.

Ad-hoc project

Work on ad-hoc project, "Polyblends of Shellac with Synthetic resins/polymers-formulation, characterisation and application" sanctioned under AP Cess Fund has been initiated w.e.f. 01.12.98.

Final patent applied

Complete specifications have been submitted for obtaining final patent on, "A method for preparing anti-tracking, air-drying type shellac based insulating varnish".

EVENTS

RAC meeting

A meeting of Research Advisory Committee was held on 28-29th January, 1999 under the chairmanship of Dr BL Amla, Ex Director, CFTRI, Mysore. The other members present were : Dr RP Kachru, ADG (PE), ICAR; Dr SC Agarwal, Director, ILRI, Dr M Yaseen, Rt.



Dy. Director, IICT, Hyderabad; Dr DRC Bakheta, Head, Dept. of Entomology, PAU, Ludhiana; Mr M Agarwal, Secretary, Maharashtra Rajaya Lah Utpadan & Chapra Nirmata Sangh, Gondia; Mr RL Sharma, MD, Tajana Shellac (P) Ltd., Khunti, Ranchi and Mr. R Ramani, Sr Sc, ILRI (Member-Secretary). Twenty-five major recommendations were recorded in the proceedings drawn, on which the Institute has already initiated action for their implementation.

IMC meeting

The 27th meeting of IMC was held on 13.05.99 under the chairmanship of Dr SC Agarwal, Director, ILRI. The other members present



ILRI takes initiative to revive lac cultivation in NEH Region

North Eastern Hill states particularly Assam and Meghalaya used to produce substantial quantity of lac a few decades back, but it has declined over the years to a negligible quantity. Indian Lac Research Institute has made a modest but determined bid to revive lac cultivation in the region. Over the past two years, scientists of the Institute have visited the area many times to conduct



Inoculation of lac crop on Flemingia chappar near Namgaon

surveys regarding availability of lac insect and their hosts and to assess the potentiality of the area in lac production through systematic cultivation.

A number of organizations in the region have come forward to join hands with ILRI in this effort:

- Defence Research Laboratory, Tezpur, Assam
- TRIFED, Guwahati, Assam
- State Forest Research Institute, Itanagar, Arunachal Pradesh
- North Eastern Council, Shillong, Meghalaya
- State Forest Department, Guwahati, Assam
- Arunachal Vikas Parishad (an NGO), Itanagar, Arunachal Pradesh

Survey of the region has revealed that lac is still being collected by the local people from the forests in small quantities but its cultivation

has been abandoned. Large number of different lac host plants occurring in the region, such as *Samanea saman*, *Acacia auriculaeformis*, *Ziziphus mauritiana*, *Butea monosperma*, *Albizia sp.*, *Ficus*



Kusmi lac crop on ber

spp., *Grewia sp.* and *Cajanus cajan* have been found to hold potential for initiating lac cultivation. To start with, some *kusmi* broodlac was distributed among tribals and inoculated on *ber*, Rain tree etc. at Tezpur, Itanagar and Namgaon (Karbi Anglong District). Some literature on lac cultivation was also provided to the collaborating agencies for distribution.

were: Dr RP Kachru, ADG(PE), ICAR; Dr KK Kumar, Head TOT Div.; Dr PC Gupta, Head LP&PD Div.; Dr JB Tomar, Sr Sc, Incharge, NBPGR Station, Ranchi; Dr G Singh, Sr Sc; Mr RK Singh, F&AO and Mr A Rastogi, AO (Member-Secretary). The committee reviewed the progress of research projects, Ad-hoc Projects, Revolving Fund Scheme and lac-culture work at NEH Region. The committee also considered the items of work to be carried out and the equipment to be purchased during the IX Plan along with the items under one-time catch-up grant.

Institute Grievance Committee

Institute Grievance Committee was reconstituted on 23.06.99 consisting of the following members for a period of two years :

Dr KK Kumar, Head TOT Division	- Chairman
Dr DN Goswami, Sr Sc	- Member
Administrative Officer	- Member
Finance & Accounts Officer	- Member
Dr AK Jaiswal, Sc (SS)	- Member
Sri Binod Kumar, T-II-3	- Member
Sri KL Chowdhury, Sr Clerk	- Member
Sri Anil Kumar Sharma, Welder	- Member
Sri Nagendra Mahto, AAO	- Member-Secretary

PERSONALIA

Honours / Awards

Mr PC Sarkar, Sc (Org. Chem.) of LP&PD Division was awarded the degree of Ph.D. by Ranchi University, Ranchi for his thesis on, "Infra-red spectroscopic studies on lac resin and its constituents".

Wedding bells

Sri AK Yadav, Security Officer on 10.03.99

Sri SK Yadav, Scientist on 30.06.99

We all wish them a very long and happy married life.

HRD

Sri SK Yadav, Sc (Agronomy) of Lac Production Division successfully completed 66th Foundation Course for Agricultural Research Service (FOCARS) conducted by National Academy of Agricultural Research Management, Hyderabad from January 6, '99 to May 5, '99.

Appointments

Dr PC Gupta, Principal Scientist as Head, Lac Processing & Product Development Division, w.e.f. 30.03.99

Dr P Kumar, Principal Scientist as Head, Lac Production Division, w.e.f. 22.06.99

Sri R K Singh as F&AO, w.e.f. 28.12.98

Sri Ashish Rastogi as AO, w.e.f. 30.01.99

Sri Anil Kumar Yadav as Security Officer, w.e.f. 30.12.98

Sri Shatrughan Kumar Yadav as Stenographer Grade-I, w.e.f. 19.06.99

Sri Mandeshwar Singh as Driver (T-I), w.e.f. 19.06.99

Sri Rajesh Kumar Yadav as Driver (T-I), w.e.f. 22.06.99

Ms Kalpana Mahto, M.Sc. (Chem.), M.Tech. as Research Associate, w.e.f. 07.05.98

Mr Praveen Chandra Jha, M.Sc. (Chem.), PGDPPT as Research Associate, w.e.f. 07.05.98

Retirements

Dr SK Saha, HOD (LP&PD), w.e.f. 28.02.99

Sri Bandhu Oraon, Beldar, w.e.f. 28.02.99

Sri Ajmer Hussain, T-II-3, w.e.f. 31.05.99

Transfers

Sri S Veeraswamy, AO to ILHR, Bangalore, w.e.f. 30.01.99

Sri Ghanshayam Das, T-I-3 to CIAE, Bhopal, w.e.f. 22.05.99

Sri KA Nagruar, T-I-3 to RFRS, Balarampur, w.e.f. 19.02.99

Resignation

Sri Anadi Mallick, Research Associate, w.e.f. 25.06.99 to join as T-II-3 at CHES, Chaithali (ILHR, Bangalore)

Obituary

Sri H Bhengra, T-4 passed away on 12.01.99. The Director and the staff of the institute extend their heartfelt condolences to the bereaved family.