ILRI Newsletter

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From the Director's Desk .....

Chhotanagpur, i.e., plateau region of Bihar and adjoining states is a treasure-house of natural bioresources. The region abounds in large number of minor forest produce, aromatic plants yielding products of commercial importance and medicinal plants used by local people, especially the tribals. The area is also the abode of the beneficial insects producting lac, tasar and honey and thus, has immense potential for its development. However, due to lack of any systematic knowledge, these bioresources have remained unexploited/ underexploited and if used judiciously can work wonders for the overall development of this economically backward region. In this light ILRI took the lead to organise a symposium on, "Bioresources of Chhotanagpur and Their Industrial Significance" on its Foundation day, the 20th September to mark the Golden Jubilee Year celebrations of our country. It is hoped that implementation of the recommendations which emerged after deliberations would lead to allround development of the region.

The Institute has launched a vocational training programme for self-employment of rural youth, on lac-based enterprises.

(S.C. Agarwal)

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RESEARCH HIGHLIGHTS

Egg parasitoids in lac pest management

Screening of five egg parasitoids viz., *Trichogramma brasiliensis, T. chilonis, T. pretiosum, T. bactreae and Telenomus remus* - has been carried out to assess their parasitising efficiency against dreaded lepidopterous predators viz., *Eublemma amabilis and Pseudohypatopa pulverea eggs* in laboratory. All the five parasitoids were able to parasitise eggs of both the predators. Although the parasitoids completed their life cycles on the eggs of *P. pulverea,* the performance of *T. bactreae* and *T. remus* on *E. amabilis* differed where the adults of these parasitoids were unable to hatch out from the parasitised eggs even after complete development of embryo.

Parasitisation affects fecundity and resin production

Study of cell size, resin weight and fecundity of healthy and parasitised female lac insect cells collected at random from the field from *Butea monosperma (Palas)* and *Schleichera oleosa (Kusum)* revealed that the amount of resin secreted by the insect and its fecundity are adversely affected by parasitisation. Incidence of parasitisation was 31.4% and 27.0% respectively for *rangeeni* and *kusmi* strains. There was no significant difference in the size of healthy and parasitised cells. However, the losses recorded in terms of resin production were 15.6% and 17.8%, while fecundity decreased by 33.7% and 32.3% for *rangeeni* and *kusmi* strains respectively.

Lac is not a truly thermosetting resin

Comparative study of the melting profiles of heat polymerised lac and the lac polymerised due to storage, employing a Differential Scanning Calorimeter, has confirmed that shellac is not a truly thermosetting resin. While the lac polymerised due to storage (for more than 13 years) did not show any melting of the resin, heat polymerised lac (heated at 150°C for more than 1 hr above Heat Polymerisation Time) - on the other hand, showed presence of some quantity of uncrosslinked resin. The chemical processes of polymerisation during storage and during heating are known to be different.

A baking type high thermal resistant shellac based insulating varnish

Low thermal resistance and poor flexibility are the two main weaknesses of shellac which limit wider application of shellac based varnishes in the electrical industry. Improvement in the above properties is achieved when shellac is reacted with a drying oil in presence of an accelerator and a catalyst, which is a cumbersome process and often leads to batch failures. A baking type insulating varnish has been developed which is based on shellac, a small quantity of synthetic resin and commonly used solvents. Films of the varnish possess adequate dielectric strength (62-72 kV/mm), flexibility, resistance to transformer oil and increased resistance towards tracking when tested as per IS:10026-1982. The films possess thermal resistance upto 200-220°C. The varnish can be used for coating of coils/armatures of electric motors, transformers etc.

Recovery of lac dye

The conditions in the existing method of recovery of lac dye from the waste water effluents obtained from processing of lac has been optimised at different stages. Pure lac dye with an average yield of 0.25% on the weight of sticklac taken, having about 90% dye content and 0.8% solubility in water at 30±5°C has been recovered on lab. scale. The standardised method of preparation of Ca-salt of lac dye, crude lac dye and pure lac dye is ready to be tested for its recovery on large scale.

TRANSFER OF TECHNOLOGY

Symposium

Mr. B. Kapthuama, Prof. G. Singh, Dr. S. C. Agarwal and Mr. Prasad (left to right)

As a part of celebrations to mark the Golden Jubilee year of our independence, a one-day Symposium on "Bioresources of Chhotanagpur and Their Industrial Significance" was organised on 20th September, the Foundation Day of the Institute. The inaugural ceremony was chaired by Prof. Gajendra Singh, DDG (Engg) and Sri B. Kapthuama IAS, Director General, Sri Krishna Administrative Training Institute, Ranchi was the Chief Guest. Sri Binod Kumar Prasad, President, Chhotanagpur Chamber of Commerce presented the key-note address appreciating the activities of the Institute. Twelve lead papers were presented in two technical sessions. Sixtyfive-representatives from various organizations and the Institute participated in the Symposium. The Symposium projected the vast bioresource reserve of the Chhotanagpur region and stressed at the need for its conservation and optimum exploitation for the economic development of the region. The major recommendations which emerged after deliberations are :

* Systematic survey, identification, collection and conservation of bioresources of the region.
* Optimum exploitation of the trees yielding products of commercial importance and the medicinal plants used by local people especially the tribals.
* Minimum support price, assured purchase mechanism, increasing domestic consumption and development of extension machinery especially for lac and tasar.
* Regular interaction among those who are involved in lac production, marketing and the industry.

Institute Seminars

Improved method for preparation of lac dye - Dr. K M Prasad on 28.10.1997

Jalaric acid and its scope for use in synthesis - Dr. N Prasad on 15.11.1997

Means of improving TOT programmes of the Institute - Sri R Ramani on 24.12.1997.

Training

* One candidate successfully completed four months certificate course in "Modern methods of Lac Cultivation".

* One week Training was organised for one batch of farmers consisting of 19 participants.

* One day orientation programmes on lac were conducted for five batches of 189 farmers and four batches of 140 students.

* Procedure for synthesis of isoambrettolide (9-hexadecenolide) used as fixative in perfumery industry has been supplied to M/s FFC Aromas Pvt. Ltd., Mumbai under MOU basis. Institute earned a revenue of Rs. 50,000/=

* Under the programme for training-cum-demonstration, one trainee from M/s FFC Aromas Pvt. Ltd., Mumbai received the training in recovery of aleuritic acid from seedlac.

* Training-cum-demonstrations were given for preparation of melfolac to three trainees and of dewaxed bleached lac to two trainees and a sum of Rs. 32,500 was realised from them.

* A training-cum-demonstration of the standardised method of recovery of lac dye, was given to one trainee from M/s P. Das & J. Lal, Daltonganj, Bihar.

* Method of preparation of Shellac Gasket Cement Compound has been demonstrated to an entrepreneur Sri Bijay Kumar Bhattacharya of Purulia (W.B.).

Farmers Education Programme

* 16 batches consisting of 743 farmers sponsored by various NGO's visiting the Institute were shown around the museum and plantation to motivate them for adopting scientific methods of lac cultivation.

* The Museum entertained 380 general visitors during the period.

Exhibition

* A stall on lac was put up in the International Trade Fair held at Pragati Maidan, New Delhi during 14th Nov. to 27th Nov. 1997.

Research papers published

Goswami DN, Majee RN, Saha SK and Agarwal SC 1997. Characterisation of threo-aleuritic acid and its derivative by Differential Scanning Calorimeter. *J. Inst. Chem.* (India), 69 (Part 1) : 12-15.

Majee RN and Ramani R 1997. Syntheses of (*Z*)-7-tetradecen-1-yl acetate (*Z*)-9-tetradecen-1- ol and its acetate from aleuritic acid. *J. Indian Chem. Soc.*, 74 : 727-728.

Majee RN, Saha SK and Agarwal SC 1997. Ferric chloride an esterification catalyst for aleuritic acid and derivatives. *J. Inst. Chem.* (India), 69 (Part 5) : 137-139.

Mishra YD, Bhattacharya A and Sushil SN 1997. Effect of some systemic fungicides on the nymphs of Indian lac insect, *Kerria lacca* (Kerr), for their protection against fungal infection. *J. ent. Res.*, 21(3) 291-293.

Sharma K Krishan 1997. Occurrence of lac insect on *Thevetia peruviana* (Pers.) Merrill. *Insect Environment*, 3(2):29.

Sharma K Krishan and Ramani R 1997. Suitability of pumpkin (*Cucurbita moschata* Duchesne ex Poir) fruits for laboratory

हिन्दी दिवस समारोह

संस्थान में दिनांक 16 सितम्बर 97 को हिन्दी दिवस समारोह के आयोजन के साथ "हिन्दी पखवाड़ा" सम्पन्न हो गया। समारोह में मुख्य अतिथि के रूप में योगदा सत्संग महाविद्यालय, राँची के हिन्दी विभागाध्यक्ष डॉ. श्रीकृष्ण पाण्डेय उपस्थित थे।

मुख्य अतिथि का स्वागत करते हुए संस्थान के निदेशक डॉ. सतीश चन्द्र अग्रवाल ने हिन्दी दिवस की उपादेयता के संदर्भ में कहा कि प्रत्येक वर्ष हिन्दी दिवस का आयोजन हिन्दी के प्रति आस्था एवं हिन्दी में कार्य करने की प्रतिबद्धता को दोहराने के लिए किया जाता है।

डॉ. श्रीकृष्ण पाण्डेय ने कहा कि हिन्दी दिवस के आयोजन की सार्थकता तब होगी जब इसे "आत्मालोचन दिवस" के रूप में लिया जायेगा। उन्होंने कई देशों का उदाहरण देते हुए बताया कि प्राय: सभी देश अपनी भाषा का प्रयोग गर्व के साथ करते हैं। उन्होंने सभी भारतीय भाषाओं की जोरदार वकालत की।

इस अवसर पर संस्थान के सहायक निदेशक (रा.भा.) श्री लक्ष्मीकान्त ने सूचित किया कि राजभाषा में सरकारी कार्य के उत्कृष्ट निष्पादन हेतु संस्थान को नगर राजभाषा कार्यान्वयन समिति द्वारा द्वितीय पुरस्कार एवं ट्रॉफी प्रदान की गई है।

हिन्दी पखवाड़े के पूर्व विभिन्न हिन्दी प्रतियोगिताओं का आयोजन किया गया एवं प्रतियोगिताओं में प्रथम एवं द्वितीय स्थान प्राप्त करने वाले प्रतिभागियों को मुख्य अतिथि डॉ. श्रीकृष्ण पाण्डेय के कर कमलों से पुरस्कृत किया गया। कार्यक्रम का संचालन डॉ. अंजेश कुमार एवं धन्यवाद ज्ञापन हिन्दी दिवस समारोह आयोजन समिति के अध्यक्ष डॉ. अजय भट्टाचार्य ने किया।

निदेशक डॉ. सतीश चन्द्र अग्रवाल मुख्य अतिथि का स्वागत करते हुए, बीच में बैठी हैं श्रीमती रोजलीन लकड़ा, केन्द्र निदेशक आकाशवाणी राँची तथा बायें ओर डॉ. अजय भट्टाचार्य

- राँची नगर राजभाषा कार्यान्वयन समिति के तत्वाधान में केन्द्रीय सरकार के कार्यालयों के कर्मचारियों के बीच आयोजित हिन्दी टिप्पण व प्रारूपण प्रतियोगिता में संस्थान के कनीय लिपिक श्री शरत चन्द्र लाल द्वारा द्वितीय स्थान प्राप्त करने पर उन्हें नगद पुरस्कार एवं प्रमाण पत्र से सम्मानित किया गया - बधाई!

- 19 नवम्बर से चल रहे कौमी एकता सप्ताह का समापन समारोह डॉ. के. के. कुमार की अध्यक्षता में सम्पन्न हुआ जिसमें जाति, धर्म, क्षेत्र और भाषा का भेदभाव किये बिना भावात्मक एकता एवं सद्भावना के लिये कार्य करने की भावना को जागृत करने की प्रतिबद्धता पर बल दिया गया।

rearing of two strains of Indian lac insect, *Kerria lacca* (Kerr) (Coccoidea : Tachardiidae). *J. ent. Res.*, 21(2):169-174.

Sushil SN, Mishra YD, Bhattacharya A, Jaiswal AK and Sharma KK 1997. Safety of Endosulfan and Dichlorvos to four parasitoids of lac insect predators. *Pest Management in Horticultural Ecosystems*, 3(1):39-41.

EVENTS

Special Committee for Technology Transfer

The Special Committee for Technology Transfer on Agricultural Development constituted by Ministry of Agriculture under the chairmanship of Sri DP Yadav, former Central Education Minister visited Ranchi and hosted by the Institute. Other

members of the Committee were Smt. Rita Sharma, Joint Secretary, Ministry of Agriculture and Shri Sita Ram Yadav. The Committee visited the Institute Museum and the Farm to learn about the role of lac in agriculture development of the region. A Press meet was also arranged on 19.8.97 at the Institute to apprise the public about the scope of agriculture development in the region and the recommendations emanating out of the deliberations held by the Committee with various groups at B.A.U. Ranchi.

QRT visits ILRI

The second review meeting of QRT was held at the Institute during 11-14 Oct., 1997. Prof. GK Veeresh, Chairman, Dr. M Yaseen, Dr. VR Mamdapur and Sri Roshan Lal Sharma, members and Dr. N Prasad Sr. Sc., Member-Secretary. QRT attended the review meeting to finalise the draft report.

Institute Management Committee (IMC) Meeting

The 25th Meeting of the IMC was held on 11.12.97. The meeting was chaired by Dr. SC Agarwal, Director and attended by Dr. R P Kachru, ADG (PE), Dr. SK Saha, Pr. Sc. & Head LPPD, Dr. SK Jaipuriar, Sr. Sc., Dr. A Bhattacharya, Sr. Sc., Dr. KM Prasad, Sr. Sc. and Sri S Veeraswamy, A.O. Welcoming the IMC members, the Director apprised them of the important activities of the Institute. The IMC approved the list of equipments to be purchased and works to be executed during 1997-98 & 1998-99. It reviewed the progress of research of the regular projects, adhoc projects and revolving fund scheme. The IMC also considered the list of hospitals for medical treatment of ILRI staff and their dependents.

PERSONALIA

Appointments

Dr. KK Kumar,
Pr. Sc. & Head, TOT
Div. on 8.10.97

Dr. Niranjan Prasad, Scientist
(Farm Machinery & Power) on 30.8.97

30 Temporary Status Beldars
were appointed as Supporting Grade-I w.e.f. 2.7.97

Promotions

Sri NK Sharma, T-6 to T-7 w.e.f. 1.1.95

34 Staff of Supporting Grade I to IV were promoted to respective next higher grades.

Retirements

Sri A K Choudhury-Suprintendent	on 30.9.97
Sri Barna Ekka - Chowkidar (SG III)	on 30.9.97
Sri Nathanial Lakra, Beldar (SG III)	on 30.9.97
Sri Mahadeo Mahto, Peon (SG IV)	on 31.10.97

Transfers

Sri S Veeraswamy, A.O.
from DRR, Hyderabad joined ILRI, Ranchi
on 21.7.97

Sri I Rajendran, Scientist (Sr. Scale) to CMFRI, Cochin on 8.8.97
Sri RC Mishra, Sr. Sc. to NRCRM, Bharatpur on 16.8.97

HRD

* Dr. AK Jaiswal attended a Summer School on "Assessment of Modelling of Soil and Crop growth parameters using remote sensing and GIS" at Division of Agricultural Physics, IARI, New Delhi during 9-29th July, 97.

* Dr. SN Sushil attended a Summer School on "Recent Advances in Insect Pest Management in Major Crops" held at G. B. Pant University of Ag. & Tech., Pantnagar during 7-27th July 97.

* Dr. S Ghosal completed the training on "Use of Computer in Agricultural Research" conducted by IASRI, New Delhi, during 13.10.97 to 25.10.97.

* Sri Ramesh Prasad and Sri Dipankar Ganguly underwent a computer training on Windows 3.11, MS-Office & Netware 4.11 (LAN) at National Institute of Research on Jute & Allied Fibre Technology, Calcutta from 28th August to 5th September, 97.

OBITUARY

Sri AK Das Gupta, Scientist (Sr. Sc.) expired on 4.7.97. The Director and Staff of the Institute deeply condole the sudden and untimely demise.

Sri Sanicharwa Oraon, Chowkidar passed away on 8.8.97. The Director and Staff of the Institute extend their heartfelt condolences to the bereaved family.

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