



के.रे.ज.सं.के.सूचना-पत्र CSGRC-NEWSLETTER

Vol XII, No. 1, 2011

Half Yearly

June 2011

केरेजसंके छवि गैलरी , होसूर

केन्द्रीय रेशम जननद्रव्य संसाधन केन्द्र (केरेजसंके) की स्थापना 1990 में हुई । केरेजसंके ने दुनिया के विविध भौगोलिक क्षेत्रों तथा देश में से सेरी आनुवंशिक संसाधनों को इकट्ठा करने का अथक तथा सतत प्रयास किया और उसे बाह्य स्थाने हालत के अधीन संरक्षित किया । इन आनुवंशिक संसाधनों को परमपरागत तथा उन्नत आणविक उपकरणों के जरिए लक्षण चित्रण , मूल्यांकन व दस्तावेजीकरण किया गया । इससे उत्पन्न डेटा को रेशम उत्पादन जननद्रव्य सूचना प्रणाली तथा प्रकाशनों के जरिए अच्छी तरह से दस्तावेजीकरण किया गया है । अधिदेश के अनुसार केन्द्र बारह विभिन्न परियोजनाओं पर अनुसंधान का कार्य कर रहा है । अन्वेषण तथा सर्वेक्षण यात्राओं के जरिए 18 शहतूत आनुवंशिक संसाधनों को पंजाब व हरीयाणा से एकत्रित किया गया। दीर्घकालिक संरक्षण के रूप में शहतूत निष्क्रिय कली के शीत संरक्षण हेतु प्रोटोकॉल विकसित किया गया और 342 चुनिन्दा पी.जी.आर.एस को नई दिल्ली के एन बी पी जी आर में शीत संरक्षण किया गया । 928 शहतूत अभिगमों के फोटो दस्तावेजीकरण के साथ पौधे , पत्ते , फूल और फल की छवियाँ देखने की सुविधा व लक्षण वर्णन डेटा सहित शहतूत जननद्रव्य डेटाबेस सी डी विकसित की गई । सभी रेशमकीट आनुवंशिक संसाधन अभिगमों को गवाए बिना सही तरह से संरक्षित किया गया । दो नए रेशमकीट प्रजाति (एम एच 1 और डब्लू यू 8) को जीन बैंक में शामिल कर रेशमकीट आनुवंशिक की संख्या 443 से 450 तक बढ़ाई गई । पी.टी.एच रेशम प्रोटीन तथा पीतक प्रोटीन के तीन ई एस टी प्राइमर्स के साथ व एंजाइम कैनेटिक्स के जरिए 30 बहुप्रज रेशम अभिगमों के लक्षण निर्धारण किया गया । रेशमकीट आनुवंशिक संसाधनों में रेशम की फाइब्रोस जीन की एलेलो विविधता का दस्तावेजीकरण किया गया । रेशमकीट के अंडों के डीकोरीयोनेशन में शीत संरक्षण प्रोटोकॉल के निर्माण सर्व प्रथम हमारे देश में हुआ । सेरी आनुवंशिक संसाधन के उपयोग में रेशम सुधार कार्यक्रम हमारे देश की एक प्राथमिक आवश्यकता है। तदनुसार केन्द्र ने चार अनुसंधान संस्थानों को 38 बहुप्रज तथा 13 द्विप्रज अभिगमों की आपूर्ति की । कई वैज्ञानिक-, अनुसंधान विद्वान और छात्र सेरी आनुवंशिक संरक्षण तथा प्रबंधन हेतु ज्ञानसम्पन्न हुए । इसके अलावा केन्द्र के वैज्ञानिकों ने राष्ट्रीय संगोष्ठीयों में भाग लिया तथा वैज्ञानिक लेख / शोध पत्र प्रकाशित किया ।

IMAGE GALLERY OF CSGRC, HOSUR



The Central Sericultural Germplasm Resources Centre (CSGRC) was established in 1990 and has made untiring and continuous efforts to collect seri-genetic resources from different geographical zones in the country and across the world as well and conserved them under *ex-situ* condition. These genetic resources are being characterised, evaluated and documented by using traditional as well as advanced molecular tools. The data generated are well documented through publications and also Sericultural Germplasm Information System. The centre is carrying out research work under 12 different projects as per mandate. Recently, 18 mulberry genetic resources were collected through survey and exploration trips to Punjab and Haryana. For long term conservation, protocol for cryopreservation of mulberry dormant bud was developed and 342 selected PGRS were cryo preserved at NBPGR, New Delhi. Mulberry Germplasm data base CD is developed with photo documentation of 928 mulberry accessions with the viewing facility of images of plant, leaf, flower and fruit along with characterization data. All silkworm genetic resources were conserved true to type without loss of any accessions. Two new silkworm races (MH1 and WU8) were accessioned and added to gene bank raising status of silkworm genetic resources from 443 to 450. Thirty multivoltine silkworm accessions were characterized through enzyme kinetics and also with 30 EST primers of PTT, silk protein and yolk protein. Allelic diversity of fibroin gene of silk in the Silkworm Genetic Resources was documented. Under cryopreservation protocol for dechoriation of silkworm eggs was developed for the first time in our country. Utilization is one of primary prerequisite for silk improvement programme; accordingly, the centre supplied 38 multivoltine and 13 bivoltine accessions to four research institutions. Many scientists, Research scholars and students who visited the centre were enlightened on Seri genetic conservation and management. In addition, the scientists of the centre participated in national seminars and published scientific article/research papers.

STATUS OF SERIGENETIC RESOURCES AT CSGRC, HOSUR



CSGRC, Hosur holds rich biodiversity of mulberry and silkworm genetic resources in its gene bank. The centre hold 1180 mulberry accessions and enriched from 443 silkworm accessions to 450. The centre is recognized as National Active Germplasm Site for mulberry. Most of the mulberry accessions were assigned with National accession

numbers by NBPGR, New Delhi. Similarly, the centre has initiated action to get recognition as NAGS for silkworm genetic resources through NBAII, and also to obtain National accession numbers.

SILKWORM LITTER AN ALTERNATE BASE IN AGARBATHI MANUFACTURE

With a view to exploit the silkworm litter, a byproduct; an attempt was made at CSGRC, Hosur to prepare the base for agarbathi by using well pulverized silkworm litter along with charcoal



powder, gum, oil and other ingredients as alternate media for its use in agarbathi / mosquito repellent manufacture. It is inferred from the study that silkworm litter can be effectively used for such purposes.

A NEW BOX FOR TRANSPORTATION OF SILKWORM GENETIC RESOURCES



A plastic box for transportation of silkworm genetic resources for longer destination was devised. The container has got all facilities to provide appropriate environment for eggs during transit period. The box costs about Rs. 10/- and user friendly.

METEOROLOGICAL INFORMATION RECORDED THROUGH AWS



| Weather data of CSGRC Hosur (AWS) | | | | | | | |
|-----------------------------------|-------------|-------|------|------|------|------|-----|
| ° C | Jan | Feb | Mar | Apr | May | Jun | |
| ☀ | 29.1 | 29.4 | 31.9 | 33.7 | 34.6 | 29.1 | |
| ☁ | 12.7 | 11.6 | 15.6 | 19.9 | 21.9 | 20.2 | |
| ☔ | 70.1 | 68.9 | 65.6 | 68.3 | 71.8 | 82.2 | |
| ☀ | 50.3 | 51.4 | 52.5 | 48.8 | 49.5 | 62.5 | |
| ☔ | -0 | -42.3 | 54.7 | 69.5 | 93.8 | 59.5 | |
| ☀ | days | -0- | 3 | 1 | 8 | 5 | 10 |
| ☀ | mm | 2.1 | 2.1 | 1.9 | 2.2 | 3.1 | 3.4 |
| ☀ | WE | SH | WE | SH | WE | SW | |
| ☀ | Evaporation | 6.7 | 6.6 | 8.5 | 7.1 | 4.9 | 6.7 |

NEW PROJECTS AWARDED TO CSGRC

A new project entitled " Evaluation of elite bivoltine silkworm germplasm under different agro climatic conditions: All India Silkworm Germplasm Evaluation Programme - Phase-II" was approved by Central Silk Board with the code AIP-3454.



Under the project selected 10 elite bivoltine accessions with local checks will be evaluated at 8 network centres in different zones of the country.

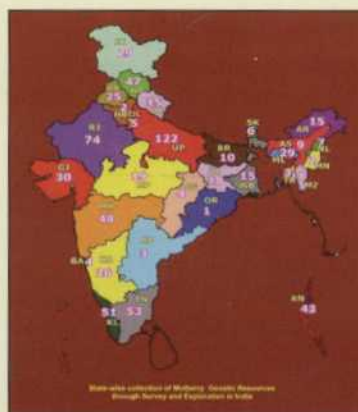
MULBERRY ACCESSIONS FOR ALKALINITY AND SALINITY



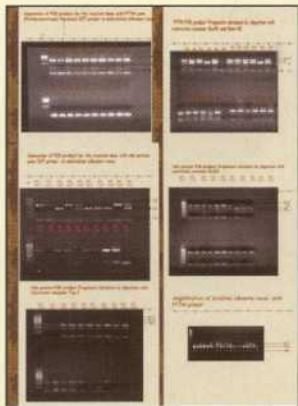
Potted plants of short listed 20 mulberry accessions raised for screening of accessions against alkalinity and salinity under project PIE-3443. The growth of plant indicates difference in treatments Vs control.

FOCUSED IDENTIFICATION OF GERmplasm STRATEGY FOR MULBERRY GERmplasm (FIGS)

Focused Identification of Germplasm Strategy is used to describe the environments from which genetic resources were originally collected which allows us to predict where selection pressures may have occurred for specific adaptive traits. This in turn gives us a rational basis upon which to select tailor made best-bet subsets of germplasm from mulberry genetic resources collected at CSGRC, Hosur through survey and exploration trips since establishment.



MOLECULAR CHARACTERISATION OF SERI-GENETIC RESOURCES THROUGH EST PRIMERS



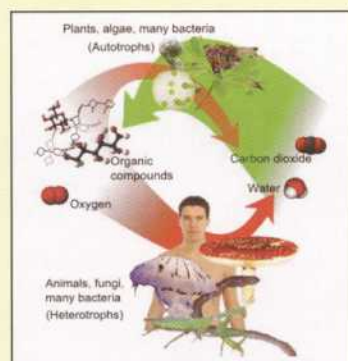
The centre initiated the molecular characterization of seri-genetic resources of 30 multivoltine and 20 bivoltine accessions through larval serum protein gene, Silk protein gene (Fibroin and Sericin), yolk protein gene Vitellogenic protein gene. Prothoracicotropic hormone (PTTH) EST markers to draw the inference of high yielding silkworm accessions.

MULBERRY PLANTATION CAN BRING DOWN GREEN HOUSE GASES

Carbon dioxide in earth's atmosphere is considered a trace gas currently occurring at an average concentration of about 390 ppm (0.039%) by volume or 591 ppm (0.059%) by mass. The total mass of atmospheric carbon dioxide is 3.0×10^{15} kg (3,000 gigatonnes). Its concentration varies seasonally and also considerably on a regional basis, especially near the ground. In urban areas concentrations are generally higher and indoors they can reach 10 times. Carbon dioxide is a greenhouse gas which yearly increases due to burning of fossil fuel, or the burning of vegetable matter, among other chemical processes etc., the average annual increase was 37%. A carbon sink is a natural or artificial reservoir that accumulates and stores some carbon-containing chemical compound for an indefinite period. The process by which carbon sinks remove



carbon di-oxide from the atmosphere is known as carbon sequestration. Photosynthesis, is means of a natural sink. Mulberry plantation is also a natural carbon sink, the mulberry plantation is vast land area may serve as CO₂ natural sink, further soil is also



carbon di-oxide from the atmosphere is known as carbon sequestration. Photosynthesis, is means of a natural sink. Mulberry plantation is also a natural carbon sink, the mulberry plantation is vast land area may serve as CO₂ natural sink, further soil is also

a natural sink current practices of soil management through tilling, use of pesticides and chemical fertilisers, burning the soil to control weeds lead to carbon loss from the soil. The regenerative agriculture farming by adoption of organic farming in mulberry in way could sequester up to 40% of current CO₂ emissions and has the potential to mitigate global warming.

MULBERRY GERmplasm DATABASE CD RELEASED

Mulberry Germplasm database CD is having accession profile of 928 mulberry accession with morphological, anatomical, reproductive, growth behavior, biochemical and propagation parameters with images of plant, leaf, and flower and fruit. Also query based searching facility is also available to choose the germplasm accessions for further specific study. Similar Photo documentation of silkworm germplasm resources is under progress.



NEW RESEARCH ADVISORY COMMITTEE OF CSGRC, HOSUR

New RAC of CSGRC, Hosur is formulated by Central Silk Board for the period of three years. The RAC will review and recommend the projects of CSGRC, Hosur. The committee will meet twice in a year.



The first meeting was held on 1st June 2011 chaired by Dr Kailash Chandra Bansal, Director, NBPGR, New Delhi. The committee visited the gene bank of seri-genetic resources and appreciated the efforts on conservation of mulberry and silkworm germplasm and maintenance.

DR. C.K. KAMBLE, DIRECTOR RETIRES



Dr. C.K.Kamble, Director, CSGRC, Hosur retired after attaining the age of superannuation on 30th June 2011. He was holding the charge as the Director of CSGRC for a period of three years.



Dr. N. B. Vijayaprakash, Director, SBRL, Bangalore took over the additional charge of the centre.

Dr. R.P. Saraswat, Scientist-C of the centre retired on attaining age of superannuation at the end of January 2011.

Shri. H.V.Vijayakumar, Scientist-D, **Smt. P.Saraswathi**, Scientist-C and **Sri Narayan Bisarahalli**, Assistant Director(A & A) joined the CSGRC, Hosur on transfer.

FRUITING MULBERRY BLOSSOMS IN BANGALORE

The article in the previous issue of the Newsletter invited Dr. A.N.Yellappa Reddy, retired Secretary of Environment, Govt of Karnataka, who is heading a NGO, Bangalore



Environment Trust, Bangalore visited the CSGRC on 13-6-2011 along with its Directors to get on hand information on the mulberry germplasm suitable for plantation in parks of Bangalore city and made arrangement for collection of saplings of fruit yielding and other mulberry varieties for plantation as avenue trees to pave the way for balancing of ecosystem.

POST COCOON EVALUATION FACILITIES AT CSGRC, HOSUR



CSGRC Hosur in collaboration with CSTRI Bangalore completed the task of evaluating the silkworm genetic resources for all the sixteen post cocoon parameters. The reeling unit of CSGRC, Hosur extended its service for testing & grading of the silk of cocoon samples of DOS Tamil Nadu under a study entitled "Effect of Pulsed magnetic Field on the silkworms". The facilities for post cocoon evaluation of CSGRC, Hosur can be exploited and utilized for benefit of industry.

Scientist-C, Reeling, CSGRC, Hosur

LIBRARY OF CSGRC HOSUR



Library of CSGRC, Hosur has vast collection of over 1000 scientific books, International and National journals, Catalogues on the characterization of serigenetic resources, DVDs. Many scientists, Research scholars and students used the library

from January to June 2011. The catalogues and DVDs are available on sales.

NEW CRYOPRESERVATION LABORATORY AT CSGRC, HOSUR

A cryopreservation laboratory with state of art facilities has been created at CSGRC, Hosur for long term conservation of serigenetic resources. Already the centre has achieved a substantial progress in dechoriation of silkworm eggs for the first time under DBT sponsored project.



VISITORS GALLERY



Rich biodiversity of serigenetic resources attracted a broad cross section of Researchers, school/college students, farmers, NGOs and policy makers to have enlightening knowledge on management of gene bank. More than 300 beneficiaries have visited the center.

AWARD OF Ph.D. TO SCIENTIST OF CSGRC, HOSUR

Mrs. K. Jhansilaksmi, Scientist-C of CSGRC, was awarded Ph.D degree in Sericulture from University of Mysore, Mysore for the thesis entitled "Studies on drought resistance in mulberry" under guidance of Dr. S.B.Dandin, Vice Chancellor of Horticulture University, Bagalkot.



" INVITED "

REGISTRATION OF NEW SILKWORM AND MULBERRY GERmplasm

New silkworm /mulberry pure breeds developed under different institutions are invited for registration of germplasm at CSGRC, Hosur to protect Intellectual Property Rights.

visit www.silkgermplasm.com

Published by: **Dr.N.B. Vijayaprakash, Director**

Edited and compiled by: **Dr. G.K.Srinivasa Babu, H.V.Vijayakumar, Dr. S.R. Ramesh and S. Sekar**

Hindi Editing: **V.S. Sheeba and Bairwa Narendra Kumar Mhorilal**

Central Sericultural Germplasm Resources Centre

Central Silk Board (Ministry of Textiles, Govt. of India)

P.B. No. 44, Thally Road, Hosur – 635 109

Phone : 04344 – 222013, 221148, Fax : 220520

e-mail : director@silkgermplasm.com, website : www.silkgermplasm.com