

**MINUTES OF THE 46th RESEARCH COUNCIL MEETING HELD ON 12th & 13th
JUNE, 2017 AT CSR&TI, BERHAMPURE, WEST BENGAL**

The 46th Research Council meeting of CSR&TI, Berhampore was held on 12th & 13th November, 2017 to review the progress of on-going and concluded research projects/ programmes of the Main Institute besides considering new research project/ programme proposals submitted by the scientists. The meeting was presided over by Dr. Kanika Trivedy, Director, and the Chairperson, Research Council (RC), CSR&TI, Berhampore.

Dr. D. Pandit, Scientist-D (PMCE) welcomed Dr. Kanika Trivedy, Director and the Chairperson, RC and all participant Scientists of the Institute in the 46th RC meeting. At the outset, he expressed sincere thanks to the Director for her dynamic leadership and inspiration to the scientists for their involvement in projects/ programmes for development of sericulture industry in the Eastern & North-Eastern regions. Thereafter, he requested the Chairperson to address the scientists and take up the agenda for discussion.

Dr. Kanika Trivedy, Director welcomed all participant scientists in the meeting and expressed happiness for their commendable efforts and responsibilities to maintain the Institute as ISO 9001:2015 standards on R & D interventions. She stressed upon that a team of Nodal Officers with respect to different disciplines of Sericulture should be framed for the review of new project proposals. The new project proposals should be reviewed by the Nodal officers concerned and they should give their critical comments. The scientists should modify their project proposals and incorporating the suggestions made by the Nodal officer concerned before placing in the Research Council meeting.

The list of the participants is appended in **Annexure - I.**

Agenda-wise discussions were held as follows:

ITEM NO. 1: CONFIRMATION OF THE MINUTES OF THE 46th RESEARCH COUNCIL MEETING HELD ON 25th – 26th NOVEMBER, 2016.

Since no comments received from any corner, the minutes was confirmed.

ITEM NO.2: REVIEW OF THE FOLLOW UP ACTION TAKEN ON THE DECISION OF THE RESEARCH COUNCIL MEETING HELD ON 25th – 26th NOVEMBER, 2016.

Regarding concluded programme **BAR(VP) 016: “Ghar Sodhan- Aroom and appliances”**, the PI was advised to standardize on quality control parameters of the developed product immediately as suggested.

[Action: Shri. Rahul. K, Sci-B, Silkworm Pathology Section]

Regarding concluded programme **BPP (VP) 015: “Validation of E³ WM © SH/PM Weed Mower cum Shoot Harvest / Pruning Machine”**, the chairperson advised Dr. R. Mahesh, Scientist-B to discuss the issue with Dr. Soumen Chattopadhyay, Sci-D and proceed accordingly with the purchase of farm implements following the rules in consultation with store & purchase committee. Furthermore, Dr. Mahesh was advised to do validation of new farm machineries after procurement.

[Action: Mr. Krishna Murthy, AD (Store) and Dr. R. Mahesh, Sci-B, Mori-I]

Regarding the concluded project, **PPS 3504: “Study on root rot disease of mulberry its control measures”**, the chairperson advised Shri. Anil Pappachan, Sci-B to take up the study with respect to validation of pathogen.

[Shri.Anil Pappachan, Sci-B, Mulberry Pathology Section]

Regarding the concluded programme **BMO (P) 042**, the chairperson found that the concluded report was not submitted as per the prescribed format (Instead of actual expenditure against budget, only budget was shown) and the PI was advised to take a note of this.

[Shri. D. Das, Sci-D, Extension & Publicity Division]

Regarding the new project proposal entitled **“Development of new productive bivoltine breeds/ hybrids suitable to Eastern and North- Eastern India”** the house advised the PI to submit the project in detail by 15.07.2017, for sending to C.O., Bangalore for concept approval.

[Action: Dr. V. Lakshmanan, Sci-D, SBG Section]

Regarding the two following new projects proposal entitled,

- **Development of a silkworm rearing seat disinfectant with special emphasis on control of viral diseases**
- **Identification of pathogens from pests of mulberry causing disease in silkworm and development of a broad spectrum room disinfectant for control of silkworm diseases.**

As per CO letter, the PI was suggested to restrict the studies only to develop a suitable general disinfectant for the sericulture industry and it can be clubbed with above two proposals. The Chairperson advised the PI to submit the project entitled "**Development of room and silkworm bed disinfectant through screening of potential chemicals**" as per CO suggestion in detail at the earliest for obtaining the Referees comments; it may be presented in the forth coming RAC meeting.

[Action: Mr. Zakir Hossain, Sci-D, SW Pathology Section]

Regarding the project, **Development of promising mulberry (*Morus spp.*) genotypes through polyclonal seed orchard**", the PI was advised to submit the project in detail at the earliest, for obtaining the Referees comments, it may be presented in the forth coming RAC meeting.

[Action: Shri. D. Chakravarty, Sci-D, MBG Section]

Regarding the project proposal "**Molecular characterization, assessment and validation of the efficacy of the low molecular weight peptides isolated from mulberry leaf against major silkworm and its host plant diseases**", the PI was advised to modify the concept note keeping in view of the suggestions given by the CO and accordingly submit the same within 10.07.2017 for onward trasmission to CO for further assessment and necessary approval.

[Action: Ms. Pooja. M, Sci-B, Biotechnology Section]

Regarding **Adarsh Resham Gram**, the PI was advised to plan activities for every month in consultation with the Director and to plan meticulously for utilization of the sanctioned grant. It was also advised to design a plan for development of Seri activities in the village.

[Action: Mr. Shafi Afroz, Sci-B, Extn. & Publicity Division]

The chairperson advised Sci-D, Training Division to conduct a 45 day training program on Mulberry silkworm rearing activities for all the 16 project assistants that were recruited under NERTPS and other programmes. The TAs of REC Balijan should also be included in the training program.

[Action: Smt. Chandana Majee, Sci-D, Training Division]

ITEM No.3: CONSIDERATION OF NEW PROJECTS:

The following pilot study proposal was discussed and decisions were as follows:

1. **Title: Integrated pest management module for suppression of sucking pests of mulberry for Eastern regions of India**, presented by Dr. Subhra Chanda, Sci-D, Entomology Section.

Duration: 1 Year

Observations/ Suggestions: Regarding the pilot study, the PI was advised to take the study as a full fledged project for a period of 3 years rather than a pilot study. It was also advised to modify the objectives as suggested and increase the budget accordingly. Moreover, the PI was advised to consult Dr. Manjunatha, Sci-B in designing the experiment. After necessary modifications the same may be submitted for onward transmission to CO.

Decision: Approved as a 3 years Project. The PI was advised to consider aforementioned suggestions and submit the project in detail at the earliest, for sending to C.O., Bangalore for approval.

[Action: Dr. (Mrs.) Subhra Chanda, Sci-D, Entomology Section]

ITEM No.4: REVIEW OF CONCLUDED PROJECTS:

The following four projects were concluded during the period and presented in the meeting.

1. **Title of the project: PIB 3515:** Evaluation of newly developed triploid mulberry varieties under irrigated condition.

Duration: June, 2014 to March, 2017

Observation/Suggestion: The PI was advised to re-look the data analysis as suggested and accordingly present in forthcoming RAC meeting.

[Action: Shri. D. Chakravarty, Sci-D, MBG section]

2. **Title of the project: CSS 2107:** Forewarning of mulberry diseases in Eastern and North eastern India.

Duration: April, 2012 – March, 2017

Observation/Suggestion: The Incharge and Scientist-B, Mulberry Pathology were advised to re look into the statistical analysis of the data obtained and accordingly present in the forthcoming RAC.

[Shri. D. Chakravarty, Sci-D and Shri Anil. P., Sci-B, Mul. Pathology section]

3. **Title of the project: PPS 3504:** Study on root rot disease of mulberry in the Gangetic plains of West Bengal and development of its control measures.

Duration: April, 2014 – March, 2017

Observation/Suggestion: The Incharge was advised to present in the forthcoming RAC meeting.

[Shri. D. Chakravarty, Sci-D, Mul. Pathology section]

4. **Title of the project: PPF 3532:** Assessment, development and management of area under mulberry in major sericulture districts of West Bengal using geo-spatial technique.

Duration: Feb., 2015 – Jan., 2017

Observation/Suggestion: The PI was advised to submit the concluded report for onward transmission to CO. and present the concluded project in the forthcoming RAC meeting.

[Dr. Monica Chaudhuri, Sci-D, Mori-I Division]

ITEM No. 5: REVIEW OF THE PROGRESS OF THE ONGOING RESEARCH PROJECTS/ PROGRAMMES OF THE MAIN INSTITUTE:

Progress of ongoing research projects/ prog./ pilot study of different sections of the Institute was reviewed critically and suggestions/ recommendations were as follows:

MULBERRY BREEDING & GENETICS SECTION:

Progress of following 04 ongoing research projects and 01 program was reviewed.

- **PIB 3481-** Evaluation of mulberry varieties suitable for low input soil,
- **PIB 3505-** Development of Drought Tolerant Mulberry variety for Rainfed Sericulture [Collaborative project with CSGRC, Hosur],
- **PIC 3554-** Candidate gene based molecular marker(s) for screening promising recombinants in mulberry,
- **PIB 3576-** Evaluation of New Mulberry Genotypes for Improvement in Productivity and Quality
- **BPI (P) 025-** Maintenance of Mulberry Germplasm Bank at CSR&TI, Berhampore (WB)

Regarding the project **PIB 3481**, the PI was advised to keep the title as "Evaluation of mulberry varieties suitable for low input soil".

Regarding the programme **BPI(P) 025**, the PI was advised to list exotic/ accessions lines and do all cultural operations in time and maintain the accessions in good condition.

Progress of rest 03 projects [**PIB 3505**, **PIC 3554** & **PIB 3576**] was found as per the milestones.

[Action: Shri. D. Chakravarty, Scientist-D, MBG Section]

MORICULTURE-I DIVISION:

Progress of following 06 ongoing research projects was reviewed.

- **PPF 3532-** Assessment, development and management of area under mulberry in major sericulture districts of West Bengal using geo-spatial technique
- **PPF 3585-** Application of Growing Degree Days as a model driver for developing mulberry yield weather model
- **PPF 3598-** Arsenic contamination in mulberry sericulture of Bengal Plain and its alleviation through application of zinc in soil
- **PPA 3588-** Evaluation of Low Cost Drip Fertigation Systems on Yield and Quality of Mulberry Leaves
- **PIN 3587-** Improvement of leaf quality and productivity through external application of seaweed extracts in mulberry
- **PPS 3600-** Soil health card preparation for mulberry growing soils in Eastern and North-Eastern India, were reviewed and progress was as per the milestone.

Regarding the project **PPS 3600**, the PI was advised to circulate the final approved copy of the project to the concerned units for their reference.

[Action: Dr. Monica Chaudhuri, Sci-D, Mori-I Division]

Regarding the project **PPF 3598**, the PI was advised to keep in view the time line of the project as CO is not considering requests for extension of the time line for research projects.

[Action: Dr. Vijay. V, Sci-B, Mori-I Division]

Regarding the project "**PPA 3588**: the PI was advised to place a request in the forthcoming RAC for changing of project title to "Evaluation of low cost sub surface drip fertigation systems on yield and quality of mulberry leaves" in place of "Evaluation of low cost drip fertigation systems on yield and quality of mulberry leaves" as PI informed that drip laterals was damaged by the Jackles if it is opened on the surface.

[Action: Dr. Mahesh. R., Sci-B, Mori-I Division]

Progress of rest 04 projects [**PPF 3532, PPF 3585 & PIN 3587**] was as per the milestones.

[Action: Dr. Monica Chaudhuri, Sci-D, Mori-I Division]

MULBERRY PATHOLOGY SECTION:

Two nos. of projects just concluded [**CSS-2017 & PPS 3504**] and currently no projects/progs. are running under this section. Regarding the project **CSS-2107**, though it has concluded in March 2017, the mulberry disease data collection should continue as it comes under the purview of routine program. The Incharge and Scientist-B of Mulberry Pathology were advised to submit a detailed routine programme with respect to survey, surveillance and monitoring of mulberry diseases in collaboration with the nested units for onward transmission to CO for necessary approval and coding.

[Action: Shri. D. Chakravarty, Sci-D and Shri Anil. P., Sci-B, Mul. Pathology section]

SILKWORM BREEDING AND GENETICS SECTION:

Progress of following 06 ongoing research projects and 01 ongoing programme was reviewed.

- **AIB 3602-** "Development of thermotolerant bivoltine breeds / hybrids of silkworm, *Bombyx mori* L through marker assisted selection"
- **AIB3547-** "Development of high temperature and high humidity tolerant bivoltine breeds of silkworm (*Bombyx mori* L)"
- **AIB 3545-** "Authorization trials of silkworm hybrids in Eastern and North Eastern states"
- **AIB 3514-** "Development of multivoltine based Congenic /Nil breed of silkworm *Bombyx mori* L through introgression of *Id* gene and its uses"
- **AIB 3577-** "Evaluation of multivoltine germplasm to identify potential parents for developing cross breeds suitable for Southern and Eastern India."

- **AIB 3578-** “Evaluation of exotic bivoltine silkworm breeds to identify promising parental genetic resources”
- **BAI(RP) 003-** “Maintenance of multivoltine and bivoltine germplasm”, were reviewed and progress was as per the milestones.

Regarding the project **AIB 3602** the PI was advised to go for DNA profiling before using the lines for further proceeding of the work. Furthermore, the PI was suggested to do heterosis to understand the hybrid vigor in the F₁ lines.

Regarding the project **AIB-3547** the PI was advised to present the concluded project in the forth coming RAC meeting as the project concluded on June 2017. It was also advised to that hybrids showing survivability of above 65% should be reared again.

[Action: Mr. N. Chandrakanth, Sci-B, SBG Section]

Regarding the project **AIB 3514** the PI was advised to present the concluded project with cocoon characteristic data in the forth coming RAC meeting as the project concluded on June 2017.

In addition to above,

- The PI along with Dr. S. Sarkar, Shri. G.C. Das and Mr. N. Chandrakanth were advised to develop a preservation and hibernation schedule for Multi x Bi. It was also advised to present the comparative data of Bi x Multi and Multi x Bi with hatching percentage. Moreover, the PI was also advised to take up a pilot study to compare the efficiency of PM x (BCon1 xBCon4) with N x (SK6 x SK7) and N x (BCon1 xBCon4) because the ICB, PM x (BCon1 xBCon4) has lot of demand in the Tripura state.
- Regarding the project **AIB-3545** the PI was advised to present the concluded project with cocoon parameters in the forth coming RAC meeting as the project will be concluded on July 2017. Furthermore, the PI was suggested to give output of the concluded project with special emphasis on treatment breed features over existing breeds features.

[Action: Dr. A. K. Verma, Sci-D, SBG Section]

Progress of rest 02 projects [**AIB 3577 & AIB 3578**] and 01 programme **BAI(RP) 003** was found as per the milestones.

[Action: Dr. V. Lakshmanan, Sci-D, SBG Section]

BV CELL:

One on ongoing research project **PPA: 3499** “Evaluation of field level performance of Vishala mulberry variety in different locations under irrigated conditions in West Bengal”, was reviewed and found as per the milestones.

[Action: Shri G.C. Das, Scientist-C, BV Cell]

SILKWORM PHYSIOLOGY AND REARING TECHNOLOGY & INNOVATION SECTION

The following 02 ongoing research projects were observed and the PI was advised to present the progress of said projects before placing to the forthcoming RAC.

- **AIT 3557-** “Multi locational field Trial on transgenic Bm NPV resistant Silkworm strains to establish their efficacy and generate data for their regulatory approval (Collab. CSGRC, Hosur)”
- **ARP 3605-** "Validation of the DNA markers in silkworm breed developed by introgression of DNA markers associated with NPV resistance using Marker Assisted Selection breeding and large scale field trial of the breed".[DBT funded Collaborative Project with Seri biotech Research Laboratory (SBRL), Bangalore, CSR&TI, Mysore & CSR&TI, Pampore]

[Action: Shri G.C. Das, Scientist-C, BV Cell]

SILKWORM PATHOLOGY SECTION:

Progress of following two research projects and one programme was reviewed and as per the milestones.

- **ARP3522** - "Isolation, cloning and characterization of antibacterial protein (s) from silkworm, *Bombyx mori* L"
- **ARP 3590**- "Studies on the efficacy of phototrophic bacterial extracts as feed supplement for management of diseases in silkworm, *Bombyx mori* L"
- **BAR (RP) 021**- "Survey, surveillance and monitoring of silkworm diseases in seed and commercial crops in Eastern and North Eastern India. (In collaboration with RSRSSs, RECs, DoS and NSSO)"

Regarding programme **BAR (RP) 021**, the Incharge Silkworm Pathology section pointed out that as there is a full time scientist incharge in REC Mothabari (Malda). So the name of Dr. S. Chakraborty, Scientist-C may be placed in place of Dr. D. Pandit, Scientist-D for Malda district which has been permitted by the Chairperson.

[Action: Mr. Z. Hossain, Sci-D, Sw. Patho. Section]

ENTOMOLOGY SECTION:

Progress of following 02 ongoing research projects and 01 ongoing programme was reviewed.

- **PPE 3517**- "Population interactions of pests and natural enemies in mulberry ecosystem"
- **PRE 3533**- "Identification of whitefly in mulberry germplasm accessions"
- **BAR (RP) 022**- "Survey and Surveillance of Mulberry Pests in the Eastern and North Eastern regions of India", were reviewed and progress was found as per milestones.

Regarding the project **PPE – 3517**, the PI was advised to relook into the data of abiotic factors and correlation analysis. Furthermore, the PI was advised to show the progress related to biological parameters of the parasitoids.

Regarding the project **PPE – 3533**, the PI was advised to change the title as advised in the 45th RAC meeting (or as cited above) and also to comply with the suggestions made in the 45th RAC meeting.

Regarding the programme **BAR (RP) 022** progress was found as per the milestones.

[Action: Dr. S. Chanda, Sci-D, Entomology Section]

BIOTECHNOLOGY SECTION:

Progress of following 03 research projects and 01 pilot study was reviewed.

- **PIB 3521**- Assessment of promising powdery mildew resistance lines for perspective commercial use
- **PIB-3548**- Evaluation of bacterial leaf spot resistant improved progenies of mulberry for field utilization
- **PRE 3589**- Assessment of designed antimicrobial peptides for mulberry protection against brown leaf spot and root rot: a biotechnological approach
- **BPI(PS)010**- Identification of biochemical markers for thermo tolerance in silkworm *Bombyx mori* L.

Regarding the project **PIB 3521**, the PI was advised to perform the estimation of protein (by Folin Lowry and micro Kjehadl method) and carbohydrates of mulberry varieties/genotypes viz., PMY-5, S1635 and C2038 of top, middle and lower leaves. Besides, the PI was advised to check the data of SSW and filament length and its relation.

Progress of rest 02 projects [**PIB-3548 & PRE 3589**] and 01 Pilot study [**BPI(PS)010**] was as per the milestones.

[Action: Dr. Soumen Chattopadhyay, Sci-D Biotechnology Section]

PROJECT MONITORING, CO-ORDINATION AND EVALUATION DIVISION

Progress of 01 ongoing research project "**MTS 3599** Study on mulberry sericulture production in West Bengal: A statistical approach" was reviewed and found as per the milestones.

[Action: Dr. Manjunatha, G.R., Sci-B, PMCE Division]

EXTENSION AND PUBLICITY DIVISION:

Progress of 01 ongoing research project "MOT-3601 Skill gap analysis and capacity building of sericulture extension workers and farmers in traditional and non-traditional states" was reviewed and found as per the milestones.

Regarding **Adarsh Resham Gram**, the PI was advised to submit the full project to CO for obtaining code number.

Regarding collaborative project with **IFFCO**, the PI was advised to submit the concluded report for onward transmission to CO Bangalore.

[Action: Dr. Shafi Afroz, Sci-B, Extn. Division]

The in-charge of extension & publicity division was advised to work actively with the nested units and achieve the targets of the annual action of extension activities for 2017-18 as some of the units are merged and closed and some are considered as multi tasking units.

[Action: Dr. T. Dutta (Biswas), Sci-D, Extn. & Publicity Division]

Regarding **BV CPP**, the Incharge was advised to take the help of respective Nodal Officer for effective monitoring of the programme and present the state-wise progress data before placing to forth coming BV CPP meeting and the RAC meeting.

[Action: Mr. G. C. Das, Sci-D, Bv Cell]

TRAINING DIVISION:

The activities of Training Division in organizing various training programmes under structured and Non-structured courses were reviewed and the incharge was advised to present the progress achieved against the targets set during the period in the forth coming RAC meeting.

General comments:

1. All the PIs of the project/Progs/PS should maintain a proper record of progress reports and expenditure incurred on the project/Progs/PS and present the expenditure of the projects/progs/PS against budget.
2. Concluded reports of the Projects/ Programmes/ Pilot studies during 2016-17 and till date should be submitted immediately for onward transmission to Central Office, Bangalore.
3. All PIs of the project/ Prog./ Pilot study were advised to submit the reports (progress (monthly/ quarterly/ yearly) / concluded) in quantifiable terms.

[Action: Scientist-D (I/c) and All concerned]

At the end, the Chairperson expressed her satisfaction on the R&D progress made and advised the scientists of main Institute to take need based projects/ prog and identify the new potential areas for the benefit of the sericulture industry in the Eastern & North-Eastern regions.

Meeting ended with a vote of thanks to the Chair.

(Dr. K. Trivedy)
Director & Chairperson,
Research Council
CSR&TI, Berhampore

Annexure - I

List of the participants attended the Research Council meeting held on 12th and 13th June, 2017 at CSR&TI, Berhampore

1. Dr. (Mrs.) K. Trivedy, Director, CSR&TI, Berhampore – **Chairperson, Research Council**
2. Smt. C. Maji, Scientist-D, Training Division, CSR&TI, Berhampore
3. Dr. D. Pandit, Scientist-D, PMCE Division, CSR&TI, Berhampore
4. Dr. (Mrs.) S. Chanda, Scientist-D, Entomology Section, CSR&TI, Berhampore
5. Dr. (Mrs.) Rita Banerjee, Scientist-D, MBG Section, CSR&TI, Berhampore
6. Dr. N. Lakshmanan Velusamy, Scientist-D, SBG Section, CSR&TI, Berhampore
7. Dr. S. Chattopadhyay, Scientist-D, Biotechnology Section, CSR&TI, Berhampore
8. Dr. (Mrs.) M. Choudhuri, Scientist-D, Mori-I division, CSR&TI, Berhampore
9. Dr. A. K. Verma, Scientist-D, CSR&TI, SBG Section, Berhampore
10. Dr. (Mrs.) T. Dutta (Biswas), Scientist-D, REC, Kamnagar, Murshidabad
11. Shri D. Chakravarty, Scientist-D, MBG/Mul. Pathology Section, CSR&TI, Berhampore
12. Md. Zakir Hossain, Scientist-D, Silkworm Pathology Section, CSR&TI, Berhampore
13. Shri. D. Das, Scientist-D, Extension and Publicity Division, CSR&TI, Berhampore
14. Shri. Gopal Chandra Das, Scientist-D, BV Cell/ Silkworm Physiology & RTI section, CSR&TI, Berhampore
15. Dr. Sukhabrata Sarker, Scientist-C, Training Division, CSR&TI, Berhampore
16. Dr. V. Vijay, Scientist-B, Mori-I division, CSR&TI, Berhampore
17. Dr. Manjunatha G.R., Scientist-B, PMCE Division, CSR&TI, Berhampore
18. Dr. R. Mahesh, Scientist-B, Mori-I division, CSR&TI, Berhampore
19. Shri. Suresh, K, Scientist-B, MBG Section, CSR&TI, Berhampore
20. Shri. Anil Pappachan, Scientist-B, Mori-I division, /Mul. Pathology Section, CSR&TI, Berhampore
21. Shri. N. Chandrakanth, Scientist-B, SBG Section, CSR&TI, Berhampore
22. Ms. Pooja Makwana, Scientist-B, Biotechnology Section, CSR&TI, Berhampore
23. Shri. Rahul, K, Scientist-B, Silkworm Pathology Section, CSR&TI, Berhampore
24. Md. Shafi Afroz, Scientist-B, Extension and Publicity Division, CSR&TI, Berhampore