केन्द्रीय रेशम जननद्रव्य संसाधन केन्द्र, केन्द्रीय रेशम बॉर्ड ,होसूर-635 109

Central Sericultural Germplasm Resources Centre
Central Silk Board, Hosur – 635 109

MINUTES OF THE 45TH MEETING OF THE RESEARCH ADVISORY COMMITTEE HELD ON 12TH OCTOBER, 2023

The 45th meeting of the Research Advisory Committee [RAC] of CSGRC, CSB, Hosur, was convened on October 12, 2023 under the chairpersonship of Dr. Chandish R. Ballal, Director (Retd.), ICAR-National Bureau of Agricultural Insect Resources [ICAR-NBAIR], Bengaluru. The list of participants is appended as **Annexure-I**.

At the outset, Dr. V. Nishitha Naik, Director, CSGRC, Hosur, welcomed all the members of the Research Advisory Committee and all other participants to the 45th RAC meeting. She requested the House for their valuable suggestions that would help in improving/streamlining the research projects. She informed the Committee that the review period of the meeting is from April to September, 2023 and then requested the Chairperson for her opening remarks.

The Chairperson welcomed all the participants to the last meeting of the present RAC Committee. She conveyed her deepest gratitude for the hospitality provided by the Institute. She opined that there has been a significant visibility and improvement in the activities of CSGRC over the period of last six years. She requested the Central Office to consider retaining some of the present RAC members during the constitution of the next RAC. With this, the Chairperson advised the house to commence the meeting and requested for fruitful deliberations.

Dr. M. Maheswari, Scientist-D & Head, PMCE Division, presented an overview of the activities, which were being carried out at CSGRC during the period under report. The committee appreciated the overall progress made during the period and the following suggestions were made by the committee:

a) The exploratory surveys for mulberry genetic resources may be planned well in advance, and the unexplored areas can be marked on the country map for future reference.
b) Serious efforts may be taken towards registration of trait-specific germplasm.
c) Each scientist should focus on publishing atleast one research article as first author in peer-reviewed NAAS rated/IF journals and avoid publishing in predatory journals.
d) The term ‘registration’ presently used for cataloguing of germplasm at CSGRC, may be appropriately changed as Calaloguing.

[Action: All concerned]

ITEM NO. I: CONFIRMATION OF MINUTES OF THE 44th MEETING OF RAC HELD ON 21st MARCH, 2023

As no comments were received, the House confirmed the minutes of 44th RAC meeting.

ITEM NO. II: REVIEW OF FOLLOW-UP ACTION ON THE DECISIONS TAKEN IN THE 44TH MEETING OF THE RAC HELD ON 21ST MARCH, 2023.

Follow-up action on the decisions/suggestions taken during 44th RAC meeting was presented and following suggestions were made:

1. Any type of proposals seeking approval from CO should be clear with detailed justifications.
2. A comprehensive exploration schedule may be prepared, highlighting mapped unexplored areas and the same may be presented to the Head, Exploration Division, NBPGR in a meeting mediated by Dr. Anitha Kodaru, RAC member. A draft schedule may be sent to Dr. Anitha Kodaru at the earliest.
3. Identity of the observed coleopteran pests of Mulberry may be confirmed with the help of NBAIR taxonomists.
4. The average of two years' data on termite/stem borer incidence may be published.
5. Follow-up action of RAC suggestions to be made more specific and quantifiable.
6. Silkworm accessions to be clustered based on quantitative characters.

[Action: All concerned scientists]

ITEM NO. III: REVIEW ON CONCEPT NOTES OF NEW RESEARCH PROJECTS

Two new research concepts were reviewed and the following suggestions were given:

1. Studies on the cytological status of mulberry genetic resources (Phase-II)

Germplasm characterization may be included as expected outcome. A membrane analyser may be added in the budget proposal. Objective 2 may be mentioned with the title of the project. With this, the concept note was approved and the PI was advised to submit the full research proposal to CO for approval and coding.

[Action: Shri. Raju Mondal, Sc-C]

2. Evaluation of promising mulberry fruit-yielding accessions

Dr. M.C. Thriveni, Scientist-C, was advised to take up the project as PI. The full research project proposal may be prepared and submitted to CO for approval.

[Action: Dr. M.C. Thriveni, Sc-C]

ITEM NO. IV: REVIEW ON THE PROGRESS OF THE ONGOING RESEARCH PROJECTS

The ongoing research projects were reviewed and the following decisions were taken:

1. **AIT-06006MI: Marker-assisted screening to identify silkworm genetic resources tolerant to *Bm*NPV and *Bm*BDV**

The corrected larval mortality under bioassay studies may also be calculated using Abbott's formula. The PI may contact Dr. Modhumita Dasgupta, RAC member for analysis of the RT-PCR data.
The Committee recommended three-month extension of the project upto January, 2024 for redesigning of primers for 2 more genes and carrying out the gene expression studies with 2 housekeeping genes and overall data analysis.

[Action: Dr. Ritwika, Sc-C & Dr. R. Saravanakumar, Sc-C, SSTL]

2. **AIG-06007MI: Molecular characterization and assessment of genetic diversity in silkworm (*Bombyx mori*) germplasm**

Variant calling may be carried out with Illumina data of 4 selected silkworm genomes, so that a comparative genome variant can be analyzed among the four silkworm breeds apart from reference genome based variant call. In addition, structural variations (SVs) can be analyzed with long read sequencing data generated by ONT. Hybrid assembly of Illumina and ONT sequence data of four silkworm genomes can be useful for the gene annotation and identification of novel genes. Cognizance of the delay in the process of approval for the ddRAD sequencing outsourcing and the present status, the Committee recommended for extension of the project for six months (w.e.f from March 2024) for completion of the outsourcing work, obtaining all data of 350 silkworm accessions from the outsourcing company as per specifications and their detailed analysis. Further, the third objective of the project, "Genetic diversity analysis of silkworm germplasm using SNP/ SSR markers" involves genotyping of 452 silkworm accessions using 20 SSR markers obtained after completion of hybrid assembly of four silkworm genome would take more time. Hence, committee suggested proposing the same as second phase of the project.

[Action: Dr. G. Lokesh, Sc-D]

6. **PIE-06008SI: Exploration, Collection, Characterization, Evaluation, Re-establishment, Conservation and Supply of Mulberry Genetic Resources (MGRs) (Phase-X)**

Taxonomical identity of mulberry pests, viz. stem borer, termites and bark-eating caterpillar to be confirmed in consultation with taxonomists. The bar graphs showing

incidence of pest should also indicate the standard deviation values. Measures need to be taken to prevent pest attacks in the MGRs. The scientist may explore the use of pheromone traps for stem borers. Data on foliar disease of mulberry may be generated to identify disease tolerant accessions.

[Action: Dr. G. Thanavendan, Sc-C]

7. AIE-06009MI: Collection, Characterization, Evaluation, Conservation and Utilization of Silkworm Genetic Resources- X phase

The Committee recommended for Co-PI status to be given to Smt. G. Punithavathy, Sc-D, considering the distinct nature of activity (Digitization of silkworm database). While taking photographs of different stages of silkworm, the lighting conditions should be uniform. The camera to be purchased for the purpose should be of high resolution with professional quality macro lens and budget for the same may be revised appropriately.

[Action: Smt. G. Punithavathy, Sc-D]

3. MTL01025MI: Life Cycle Assessment of Mulberry Silk: A National Assessment. (Multi-institutional project)

The house took note of the progress made under the project.

[Action: Shri. Raju Mondal, Sc-C]

ITEM NO. V: REVIEW ON PROGRESS OF CONCLUDED RESEARCH PROJECTS

PIG-06004 SI: Studies on cytological status of mulberry genetic resources.

The Committee appreciated the outcome of the project and recommended for second phase of the project focussing on ploidy-associated traits.

[Action: Shri. Raju Mondal, Sc-C]

ITEM NO. VI: ANY OTHER POINTS WITH THE PERMISSION OF THE CHAIR

1. It was suggested that for the benefit of the scientists, a workshop on the importance and steps to be followed for publication in appropriate and rated journals may be organised by inviting Dr. Yateendra Joshi, Associate Fellow, CRI, Canberra (Australia) subject to CO approval.
2. All scientists may participate in trainings and International conference/symposium for greater exposure.
3. The Committee opined that CSGRC should be reinstated as a Delegated Unit for smooth conduct of mandated and day-to day activities of the Institute.
4. The clauses viz. ‘Re-distribution of indented materials not allowed’, and ‘the mention of Accession nos. by the Indenters in their publication/report’ clauses to be included in the

Material Transfer Agreement, and to ensure due acknowledgement of CSGRC in the indentor's publications.

5. The existing data can be analysed to identify trait-specific accessions.
6. The website needs to be updated and improved in look and functionality.
7. Future research can be focussed towards identifying biotic and abiotic stress tolerant accessions in the germplasm bank.
8. Emphasis may be given on identifying silkworm accessions with superior single character.
9. The scientists need to come up with meaningful proposals in the next RC meeting.
10. Herbarium of mulberry species/accessions to be prepared for future reference.
11. Revalidation of the existing data in the database needs to be carried out.
12. All data including sequencing and marker data from the completed projects may be integrated with the current database.
13. Attempt should be made to register atleast 2 trait-specific mulberry accessions within a period of one year.

[Action: All concerned scientists]

Director, CSGRC, thanked all the RAC members for their critical comments and for providing valuable guidance to the scientists in formulation of the projects and scientific activities.

The Chairperson, Dr. Chandish Ballal, appreciated all RAC members for their highly relevant inputs and for the effective discussion held during the meeting. She appreciated the former Directors and the present Director of CSGRC for bringing about remarkable improvement in the centre.

The meeting ended with thanks to the chair and RAC members.

Dr. Chandish R. Ballal
Chairperson, RAC

Annexure-I

List of participants for the 45th Meeting of the Research Advisory Committee Of CSGRC, Hosur held on 12/10/2023

1. **Dr. Chandish R. Ballal,** Former Director, ICAR-NBAIR, Bengaluru, Chairperson, RAC.
2. Dr. P. Rajasekharan, Principal Scientist (Retd), ICAR-IIHR, Bengaluru, Member, RAC
3. Dr. Anitha Kodaru, Principal Scientist, NBPGR, Hyderabad, Member RAC.
4. Dr. Manjunath Gowda, Professor,Dept of Sericulture,UAS,GKVK,Bengaluru,Member RAC.
5. Dr. Ravindra Singh, Scientist-D (Rtd), Central Silk Board, Member RAC.
6. Dr. Modhumita Dasgupta, Scientist-G, ICFRE, Coimbatore, Member RAC
7. Dr. V. Nishitha Naik, Director, CSGRC, Hosur, Member Convener RAC
8. Dr. M. Maheshwari, Scientist-D& Head, Silkworm &PMCE Division, CSGRC, Hosur
9. Smt. G. Punithavathy, Scientist-D, CSGRC, Hosur
10. Dr. G. Lokesh, Scientist-D, CSGRC, Hosur
11. Sh. S. Nazeer Ahmed Sahab, Scientist-D, RCS, Central Silk Board
12. Dr. G.R. Manjunath, Scientist-C, RCS, Central Silk Board
13. Dr. Ritwika Sur Chaudhuri, Scientist-C, CSGRC, Hosur
14. Dr. G. Thanavendan, Scientist-C, CSGRC, Hosur
15. Dr. M.C. Thriveni, Scientist-C, CSGRC, Hosur
16. Shri. Raju Mondal, Scientist-C, CSGRC, Hosur
17. Dr. Himanshu Dubey, Scientist-C, SBRL, Kodathi
18. Shri. S. Sekar A.D (Comp), CSGRC, Hosur
19. Smt. Poonam R., Steno (Gr-I), CSGRC, Hosur
20. Shri. B. Narendrakumar Mhorilal, Lib & Info Asst, CSGRC, Hosur

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