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Scientist – D,

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D.O.B: 01-04-1973

EDUCATIONAL QUALIFICATION:

- ❖ M.Sc. Botany with specialization in Cytogenetics and Molecular Biology from University of Mumbai (1998).
- ❖ Ph.D. in Botany (Plant Breeding and Genetics) from University of Mumbai (2007).

SERICULTURE RESEARCH EXPERIENCE:

Ten years research experience in bivoltine sericulture (Mulberry Breeding and Genetics) and **Two & half years** experience in Vanya culture (Eri and Muga Host Plant improvement and Management).

- ❖ Working as **Scientist-D** w.e.f. **1st July 2018** [**Level 12 of Pay matrix (Pre-revised pay band-3 Rs. 15600 – 39100 with Grade pay of Rs. 7600/-)**] at Central Muga Eri Research and Training Institute (CMER&TI), Lahdoigarh, Jorhat (Assam).
- ❖ Worked as **Scientist-C** in Mulberry Breeding & Genetics at Central Sericulture Research & Training Institute, Central Silk Board Pampore, Kashmir, India from **26th February 2014 to 30th June 2018 (Pay Band-3: Rs. 15600 – 39100 with Grade Pay of Rs. 6600/-)**.
- ❖ Worked as **Scientist-B** in Mulberry Breeding & Genetics at Central Sericulture Research & Training Institute, Central Silk Board Pampore, Kashmir, India from **29th December 2008 to 25th February 2014 (Pay Band-3: Rs. 15600 – 39100 with Grade Pay of Rs. 5400/-)**.

OTHER RESEARCH & WORK EXPERIENCE:

- ❖ Worked as a **Junior Research Fellow (JRF)** from **April 2001 to March 2004** under the Department of Atomic Energy and Board of Research for Nuclear Science (**DAE-BRNS**) sponsored project entitled **“Development of high yielding genotypes with improved oil quality in niger (*Guizotia abyssinica* Cass.)”**. The project work was carried out at Institute of Science, Mumbai in collaboration with BARC, Mumbai and IARI, New Delhi. Project was completed successfully with evolution of 12 improved mutants of niger.
- ❖ Worked as lecturer of Botany on contractual basis at Degree College (Sri Pratap College, Srinagar, J & K, India) from **22nd June 1998 to 05th August 1999** with usual breaks.
- ❖ Worked as Lecturer of Botany on contractual basis at Govt. Degree College Pulwama, Jammu and Kashmir, India from **28th May 2007 to 31st December 2007**.
- ❖ Worked as Lecturer of Botany on contractual basis at Govt. Degree College Pulwama, Jammu and Kashmir, India from **1st April 2008 to 29th December 2008**.

PROJECTS BEING PURSUED/CARRIED OUT:

S. No.	Title & code of the project	Funding agency	Duration From - To	Total approved cost of the project (Rs. Lakh)
As Principal Investigator				
1	Genetic enhancement of Castor (<i>Ricinus communis</i> L.) germplasm as a source material for development of productive perennial varieties (PIB05005SI).	CSB, Bangalore	Oct 2019-Sep 2022	13.30
2	Acquisition, Conservation, Characterization and Utilization of mulberry germplasm under temperate conditions (PIB-Pam 1).	CSB, Bangalore	Continuous Programme (Associated upto June 2018)	86.02
3	All India Coordinated Experimental Trial for Mulberry (AICEM) Phase-III (AICEM-III)	CSB, Bangalore	2011-2017	5.40
4	Production of colchipooids in Mulberry (<i>Morus spp.</i>) for temperate region (PIB Pam-2).	CSB, Bangalore	April 2012-March 2016 (Project was stopped in Sept. 2014 due to loss of material in floods)	40.36
5	Evaluation of F ₁ selections of mulberry (<i>Morus spp.</i>) for their suitability under varied ecozones of temperate conditions of Jammu and Kashmir (OFT Pam-01)	CSB, Bangalore	2010-2014	7.63
As Co-Investigator				
1	Impact of elevated CO ₂ and temperature on muga silkworm and its primary host plant (AIP05013SI)	CSB, Bangalore	March 2020-Feb 2023	44.72
2	Inter and intra-specific hybridization for improvement of eri silkworm, <i>Samia ricini</i> Donovan (AIB05012SI)	CSB, Bangalore	March 2020-Feb 2024	19.20
3	Identification of cold tolerant genes for improvement of mulberry genotypes (PIB-3579)	CSB, Bangalore	June 2016-June 2018	24.00
4	Evolution of superior mulberry varieties suitable for temperate region through somatic hybridization (PIB-3571)	CSB, Bangalore	March 2016- Feb 2019 (Associated upto June 2018)	39.90
5	Development of superior mulberry varieties through controlled hybridization for North-West Indian states (PIB-3586)	CSB, Bangalore	Sept. 2016-Aug. 2021 (Associated upto June 2018)	35.00
6	Sustainability of soil health under temperate mulberry ecosystem (PPS-3490)	CSB, Bangalore	2012-2015	-

SIGNIFICANT RESEARCH ACHIEVEMENTS IN BIVOLTINE AND VANYA SERICULTURE:**✓ Evolution and Evaluation of New mulberry Variety PPR-1:**

1. For evolving a suitable mulberry variety for temperate climatic conditions, efforts of earlier breeders was taken into consideration to save time and take their efforts to logical conclusion. Accordingly, 03 selections were shortlisted out of 58 evolved mulberry selections by utilizing various evaluation techniques. These selections were subsequently subjected to Multilocational trial along with local check (Goshoerami) at three varied locations under temperate climatic conditions which included two test sites at Sericulture Development Department, J&K farms.

With all these efforts a **new mulberry variety (PPR-1)** was identified for commercial cultivation under temperate climatic conditions for its improved characteristics such as early sprouting nature, higher rooting ability, frost tolerance and enhanced leaf yield. The variety was recommended for regional level release by various RACs of CSR&TI, Pampore and was officially released for cultivation under temperate climatic conditions by Prof. A.R. Trag, the then Vice-Chancellor, Islamic University of Science and Technology, Awantipora, Kashmir on 21st March 2016 during National Seminar held at Srinagar which was attended by many other dignitaries including Commissioner Secretary, Agriculture Production Department, J&K and Director (Tech), CSB, Bangalore.

The variety (*PPR-1*) is presently being tested at National level under AICEM-IV. This is the **first mulberry variety from North India** selected for National level testing under AICEM. Inclusion of *PPR-1* mulberry variety in the AICEM-IV trials has opened a scope for assessing this variety at National level for its improved characteristics.

- ✓ **Conservation, Characterization, Evaluation and Utilization of Temperate Mulberry Germplasm:**
 1. Characterized 70 mulberry genotypes based on 65 morpho-metric and biochemical traits under temperate climatic conditions and Co-authored a book entitled “**Catalogue on Temperate Mulberry Germplasm**”, which is serving as a ready reference for the breeders to select mulberry varieties for utilization in various breeding programmes.
 2. Enriched germplasm bank with collections made during survey of extreme cold climatic regions such as Ladakh, Gurez and Lolab in Jammu and Kashmir. Collections made from Ladakh and Gurez regions have shown 100% frost tolerance and were utilized in an advanced breeding programme on **identification of cold tolerant genes**. Further, enriched the gene pool with 50 exotic mulberry accessions supplied by CSGRC, Hosur under safety backup of exotic accessions programme.
- ✓ **Establishment of Molecular Biology Laboratory at CSR&TI, Pampore:**

Established molecular biology laboratory at CSR&TI, Pampore by procuring various equipments, lab ware, chemicals etc. required in the laboratory. Remained incharge of the molecular biology section till June 2017. Remained associated with 02 projects on **somatic cell hybridization and identification of cold tolerant genes**.
- ✓ **All India Coordinated Experimental Trial for Mulberry (AICEM-III):**

Coordinated the AICEM (Phase-III) studies for 04 test centres in North West India and timely submitted various reports along with compiled data to National Coordinator for final recommendations. Identified mulberry variety **C2038** for propagation under Sub-tropical conditions of Jammu and **Tr-23** for Sub-tropical conditions of Uttarakhand.
- ✓ **Genetic enhancement of Castor (*Ricinus communis* L.):**
 1. Enriched gene pool with 22 castor accessions [14 perennial and 03 annual castor accessions collected from North East region, 03 annual castor varieties (DCS-9, ICH-66 and DCH-519) collected from IIOR, Hyderabad, Kalpi-6 (perennial) collected from UP and YTP-1 (perennial) collected from TNAU, Tamil Nadu].
 2. Geographical coordinates of 14 wild/cultivated perennial castor accessions growing in North East (Altitude ranging from 61 m to 1573 m) were collected for their utilization in the pre-breeding programme. Crossed these selected perennial castor plants with NBR-1 in 12 different cross combinations and presently F₂ generation plantation is maintained for selection.

PUBLICATIONS:

Research papers, reports	: 34
General articles	: 06
Books / book chapters	: 01 / 04
Booklets / Bulletins	: 03 / 02
Abstracts	: 45

IMPORTANT / RECENT PUBLICATIONS:

1. Kumar, A.; Jigyasu, D.K.; Kumar A.; Subrahmanyam, G.; Mondal, R.; **Shabnam, A.A.**; Cabral-Pinto, M.M.S.; Malyan, S.K.; Chaturvedi, A.K.; Gupta, D.K.; Fagodiya, R.K.; Khan, S.A.; Bhatia, A. (2021). Nickel in terrestrial biota: Comprehensive review on contamination, toxicity, tolerance and its remediation approaches. *Chemosphere*, 275 (2021). <https://doi.org/10.1016/j.chemosphere.2021.129996> (IF= 5.7).
2. Kumar, A.; Subrahmanyam, G.; Mondal, R.; Cabral-Pinto, M.M.S.; **Shabnam, A.A.**; Jigyasu, D.K.; Malyan, S.K.; Fagodiya, R.K.; Khan, S.A.; Kumar A.; Zhi-Guo, Y. (2020). Bio-remediation approaches for alleviation of cadmium contamination in natural resources, *Chemosphere*, 268. <https://doi.org/10.1016/j.chemosphere.20> (Impact factor = 5.7; Citation = 6)
3. Amit Kumar, Amit Kumar , Cabral-Pinto M.M.S., Ashish K. Chaturvedi, **Aftab A. Shabnam**, Gangavarapu Subrahmanyam, Raju Mondal, Dipak Kumar Gupta, Sandeep K. Malyan, Smita S.Kumar, Shakeel A. Khan and Krishna K. Yadav (2020). Lead toxicity: Health hazards, influence on food chain, and sustainable remediation approaches. *Int. J. Environ. Res. Public Health*, 17(7), 2179: 1-33. (NAAS Rating: 8.47, Impact factor: 2.849, Citation: 40). doi:10.3390/ijerph1707217.
4. Gulab Khan Rohela, Phanikanth Jogam, Mohammad Yaseen Mir, **Aftab Ahmad Shabnam**, Pawan Shukla, Sadanandam Abbagani and Azra Nahaid Kamili (2020). Indirect regeneration and genetic fidelity analysis of acclimated plantlets through SCoT and ISSR markers in *Morus alba* L. cv. Chinese white. *Biotechnology Reports* 25 (2020) e0041. (Citation Score: 4.56, Citation = 8, Elsevier and SCI indexed Journal). <https://doi.org/10.1016/j.btre.2020.e00417>
5. Pawan Shukla, Ramesha A. Reddy, Kangayam M. Ponnuvel, Gulab Khan Rohela, **Aftab Ahmad Shabnam**, Mrinal Kanti Ghosh and Rakesh Kumar Mishra (2019). Selection of suitable reference genes for quantitative real-time PCR gene expression analysis in Mulberry (*Morus alba* L.) under different abiotic stresses. *Molecular Biology Reports*. 46(1): 1-9. (NAAS Rating: 8.11, Impact factor: 1.402, Citation = 8, Springer journal). <https://doi.org/10.1007/s11033-019-04631-y>.
6. Subadas Singh, D K Jigyasu, Dinata Roy, **Aftab A Shabnam** and Ranjana Das (2019). Feeding behaviour of two important predator bugs *Eocanthecona furcellata* Wolff and *Sycanus collaris* Fabricius in Muga Ecosystem. *Research Journal of Agricultural Sciences*, 10 (1): 185-188 (NAAS Rating: 4.54).
7. Pawan Shukla, Ramesha A. Reddy, Kangayam M. Ponnuvel, Gulab Khan Rohela, **Aftab Ahmad Shabnam**, S. S. Chauhan, Mrinal Kanti Ghosh and Rakesh Kumar Mishra (2018). Comparative analysis of gene expression profiles among contrasting mulberry varieties under cold stress condition. *Journal of Experimental Biology and Agricultural Sciences*. 6(6): 973-982 (NAAS Rating: 5.07, Citation = 1, UGC approved). DOI: /10.18006/2018.6(6).973.982
8. Gulab Khan Rohela, **Aftab Ahmad Shabnam**, Pawan Shukla, Azra Nahid Kamili, and M.K.Ghosh (2018). Rapid one step protocol for the *in vitro* micro propagation of *Morus multicaulis* var. Goshoram, an elite mulberry variety of temperate region. *Journal of Experimental Biology and Agricultural Science*. 6(6): 936-946 (NAAS Rating: 5.07; Citation = 3, UGC approved). DOI: 10.18006/2018.6(6).936.946.
9. Gulab Khan Rohela, **Aftab Ahmad Shabnam**, Pawan Shukla, Ravindra, Mudasir Gani, Srinivasulu, Y. and Sharma S.P. (2018). *In vitro* clonal propagation of PPR-1, a superior temperate mulberry variety. *Indian Journal of Biotechnology*. Vol.17 (Oct.2018): 619-625. (NAAS Rating: 6.34; Impact Factor: 0.413, Citation = 8, SCI indexed Journal).
10. Gulab Khan Rohela, Phanikanth Jogam, **Aftab Ahmad Shabnam**, Pawan Shukla, Sadanandam Abbagani and M.K. Ghosh (2018). *In vitro* regeneration and assessment of genetic fidelity of acclimated plantlets by using ISSR markers in PPR-1 (*Morus sp.*): An economically important plant. *Scientia Horticulturae.*, 241 (2018): 313-321. (NAAS Rating: 7.96; Impact Factor: 2.769., Citation = 18, Elsevier and SCI indexed Journal).

11. **Aftab A. Shabnam**, S.S. Chauhan, Gulab Khan Rohela, Pawan Shukla, Pawan Saini and M.K. Ghosh (2018). Mulberry breeding strategies for North and North West India. *International Journal of Advance Research in Science and Engineering*. 7(Spl Issue: 04): 2124-2133 (Citation = 3).
12. **Aftab A Shabnam**, M S Rathore, Anil Dhar, Y Srinivasulu, S S Chauhan and S P Sharma (2016). Mulberry (*Morus spp.*) Diversity in Jammu and Kashmir. *Indian Horticulture Journal*; 6(1): 48-52. (NAAS Rating: 2.86, Citation = 2).
13. **Aftab A. Shabnam**, S.S. Chauhan, M.S. Rathore and S.P. Sharma (2016). . Improvement of Mulberry in North India: Prospects and Strategies. *Indian Horticulture Journal*; 6(Special): 123-126 (NAAS Rating: 2.86).
14. **Aftab A. Shabnam**, R.K. Fotadar, S. Baksh and M.A. Koul (2012). Evaluation technique for preliminary selection of F₁s under temperate conditions of Kashmir. *Research Journal of Agricultural Sciences*, 3 (6): 1303-1304. (NAAS Rating: 4.54).
15. **Aftab A. Shabnam**, R.K. Fotadar, Anil Dhar and A.H. Bhat (2012). A Comparative Analysis to Tropical And Temperate Genotypes And Behaviour of Five Species of Mulberry Under Temperate Conditions of Kashmir. *Research Journal of Agricultural Sciences*, 3 (1): 089-093. (NAAS Rating: 4.54, Citation = 4).

BOOKS:

1. Anil Dhar, Fotadar, R.K., **Aftab A. Shabnam** and Khan, M.A. (2011). Catalogue on temperate mulberry germplasm. CSR&TI, Pampore publication. Book No. 1.

BOOK CHAPTERS:

1. Fagodiya R.K., Kumar A., Kumari S., Medhi K., **Shabnam A.A.** (2020). Role of Nitrogen and Its Agricultural Management in Changing Environment. In: Naeem M., Ansari A., Gill S. (eds) Contaminants in Agriculture. Pp: 247-270. Springer, Cham. https://doi.org/10.1007/978-3-030-41552-5_12.
2. Rohela G.K., Mir M.Y., Shukla P., **Shabnam A.A.** (2020) Newly Identified Phenolic Compounds from Different Plant Families. In: Lone R., Shuab R., Kamili A. (eds) Plant Phenolics in Sustainable Agriculture. Pp: 157-181. Springer, Singapore. https://doi.org/10.1007/978-981-15-4890-1_7
3. Tyagi K., Shukla P., Rohela G.K., **Shabnam A.A.**, Gautam R. (2020). Plant Phenolics: Their Biosynthesis, Regulation, Evolutionary Significance, and Role in Senescence. In: Lone R., Shuab R., Kamili A. (eds) Plant Phenolics in Sustainable Agriculture. Pp: 431-449. Springer, Singapore. https://doi.org/10.1007/978-981-15-4890-1_18
4. Amit Kumar, Ashish K. Chaturvedi, U. Surendran, **Aftab A Shabnam**, Ajeet Singh, S.N. Vinodakumar, Borsha Tamuly, Sandeep K. Malyan, Shakeel A. Khan, M.M.S. Cabral-Pinto, P. Raja and Krishna K. Yadav (2020). Mechanistic overview of metal tolerance in edible plants: A physiological and molecular perspective. In: Mirza Hasanuzzaman and Majeti Narasimha Vara Prasad (Eds.) Handbook of Bioremediation (1st Edition). Pp: 23-47. Elsevier Academic Press. (ISBN: 9780128193822).

BOOKLETS:

1. Anil Dhar, **Aftab Shabnam**, Irfan Illahi and Mir Nisar Ahmad (2016). Intensive bivoltine sericultural technology package for North India. Published by Central sericultural Research and Training Institute, Central Silk board, Pampore. **Booklet No (01)**.
2. अनिल धर, आफताब अ. शबनम, इरफान इलाही एवं मीर निसार अहमद (2016) उत्तर – पश्चिम भारत हेतु गहन द्विप्रज रेशम उत्पादन प्रौद्योगिकी पैकेज। Published by केन्द्रीय रेशम उत्पादन अनुसंधान एवं प्रशिक्षण संस्थान, केन्द्रीय रेशम बोर्ड, पाम्पोर.

3. **Aftab A. Shabnam**, Shakeel Ahmad and K.A. (2014). Raising and Maintenance of Mulberry Kissan Nurseries Under Temperate Conditions. **Publication No. 01 (2014)** under ISDS, CSR&TI, Pampore.

BULLETINS:

1. **Aftab A. Shabnam** and S.P. Sharma (2016). Improved mulberry variety (PPR-1) for Temperate Region. *Published by Central sericultural Research and Training Institute, Central Silk board, Pampore. Bulletin No (20).*
2. Rathod, M.S., Srinivasulu, Y., **Aftab Shabnam**, Anil Dhar and Khan, M.A. (2010). Nutrient Deficiency symptoms in mulberry and its management. **Bull. No. 17.** CSR&TI, Pampore.

MEDIA PROGRAMMES:

I. Participation in Radio Programme:

1. Radio talk in the Live Programme as *Radio Counselor on Career Opportunities in the field of Sericulture* Broadcasted live on **FM-2 (103.5)** during 12:00 to 1:00 PM on 1st Oct. 2017.

II. Participation in TV Programmes:

1. A talk on “Moriculture activities of CSR&TI, Pampore” for 06.43 minutes. Telecasted on DD (Kashir) Krishi Darshan Programme between 5:30 to 6:00 PM on 13-09-2017 and repeat telecasted on 14-09-2017 at 6:30 AM. The programme is also available on Youtube.
2. A talk on “Autumn silkworm rearing and activities of Silkworm Breeding and Genetics section of CSR&TI, Pampore” for 05:00 minutes. Telecasted on DD (Kashir) Krishi Darshan Programme between 5:30 to 6:00 PM on 11-10-2017 and repeat telecasted on 12-10-2017 at 6:30 AM. The programme is also available on Youtube.

TRAININGS:

1. Attended Training course on “**Molecular Biology and Biotechnology Techniques**” from 10 – 20th December 2009 at Central Institute of Fisheries Education (CIFE), Versova, Mumbai (Maharashtra).
2. Attended “**Disciplinary Proceedings Training**” organized by Corporate and Enterprise Development Cell (C&ED), Central Silk Board from 24th – 27th February, 2011 at Dehradun (Uttarakhand).
3. Attended Training Course on “**Writing Wining Research Proposals**” organized by National Academy of Agricultural Research Management (NAARM) from 2 – 8th September 2011 at NAARM Campus, Rajendranagar, Hyderabad (Andrapradesh).
4. Attended One Day Training programme on “**Transgenic Silk worm Rearing and Biosafety Measures**” on 3rd May, 2017 at CSR&TI, Pampore (J&K).
5. Attended 02 days “**Orientation training on Seed Act implementation**” from 16 – 17th January 2019 at CMER&TI, Lahdoigarh, Jorhat, Assam.
6. Attended 03 days “**Orientation Programme on Administration related subject**” from 04 – 06th March 2021 at CMER&TI, Lahdoigarh, Jorhat, Assam.

PRIZES AND AWARDS:

- ❖ Awarded Best Paper Presentation prize for presenting a research paper at “International Conference on Biodiversity, Bioresources and Biotechnology” held at The Quorum Hotel, Mysore, Karnataka, India (30-31 January 2014).
- ❖ Awarded prize of appreciation for presenting a research paper at 2nd Jammu and Kashmir Science Congress, 2006 held at University of Kashmir, Srinagar, Kashmir, India (25th – 27th July 2006).
- ❖ Awarded many prizes in different sports activities, debates, elocutions, Hindi paragraph writing and quiz competitions.