

Bio-data of the scientist**Name: Dr. Arun Kumar K P****Designation: Scientist C****Present Office Address:**

Central Muga Eri Research & Training Institute

Central Silk Board

Ministry of Textiles: Govt. of India

Lahdoigarh, Jorhat-785 700, Assam, INDIA

Website: www.cmerti.res.in**Email ID: arunkumar.kallare@gmail.com****Mobile No.: 7013843265****Educational Qualification: (BSc/MSc onwards)**

- 2003 - 2009 **Ph. D** – Centre for DNA Fingerprinting and Diagnostics, Hyderabad, INDIA.
 - Construction, characterization and analysis of expressed sequence tags in the Indian golden silkworm, *Antheraea assama*.
 - Sequencing and analysis of silk genes in wild silkworms
 - Genetics and genomics of the silkworm, *Bombyx mori*
- 2000 - 2002 **MSc (Agril.)** – Department of Biotechnology, University of Agricultural Sciences, Bangalore, INDIA. [GPA 9.15 (91.5%) on 10.00 point scale]
 - Standardization tissue culture regeneration protocol for Field bean (*Dolichos* Sp.)
 - Molecular characterization and bioassay of novel Bt isolates
- 1996 - 2000 **BSc (Agril.)** – University of Agricultural Sciences, Bangalore, INDIA
 [GPA 8.38 (83.8%) on 10.00 point scale]

Area of research interest/working area:

Insect Genetics and Genomics, Phylogenomics, Ecology and Evolution

Professional Experiences:Jan 2011 – Dec 2017: **Scientist and Group Leader**, Centre for DNA Fingerprinting and Diagnostics, Hyderabad, INDIA**Projects undertaken:**

- Genomics of economically important insects including tobacco cutworm and Coffee white stem borer
- Development of viral resistant silkworm strains using miRNA and RNAi technology
- De novo assembly and transcriptome analysis of the mediterranean fruit fly *Ceratitis capitata* early embryos to understand sex determination mechanism
- Studies on dosage compensation in the domesticated silkworm *Bombyx mori*
- Evolution of sex chromosomes in *Bombyx mori* to study the domestication of silkworms
- Identification of genes involved in sex determination for manipulating insect sex ratios
- Wild silkworm genetics and genomics to study silk genes and adaptation

Mar 2009 – Jan 2011: **Postdoctoral Research Associate** – California Institute of Technology, USA**Projects undertaken:**

- Development of single allele under-dominance for population gene drive systems.
- Small RNA based gene regulation studies in insects for use in gene drive systems

Dec 2002 – Jul 2003: **Research Associate** – Institute of Agri-Biotechnology, University of Agricultural Sciences, Dharwad, INDIA

Awards/honour/Fellowship (if any):

2015	Founding Member, Indian National Young Academy of Science (INYAS)
2012	Best poster award in ‘International Consultative Meeting on Seribiotechnology’ held at Imphal, Manipur for the poster entitled, “Exploration of the diversity of wild sericigenous insects in Manipur”
2012	Innovative Young Biotechnologist Award (IYBA), Department of Biotechnology, Government of India
2011	Indian National Science Academy (INSA) Young Scientist Medal
2003 - 2008	Junior and Senior Research Fellowships (CSIR, Government of India)
2000 - 2002	Merit Scholarship for postgraduate studies awarded by Jindal Trust, Bangalore, India, for the period of 2 years (2000-2002)
2000	26 th rank in Indian Council of Agriculture Research (ICAR) examination for Junior Research Fellowship to pursue postgraduate studies.

Particulars of memberships in academies/societies/professional bodies

- 1) Member, Scientific Advisory Board, International Congress of Entomology 2024, Kyoto, Japan.
- 2) Member, Expert Group on biosafety and biosecurity issues arising from the research and environment release of GE insects, RCGM, Department of Biotechnology, Government of India 2020-
- 3) Member, Working Group on International Collaboration, Central Silk Board, Bangalore. 2019-
- 4) Editorial Board member, *Scientific Reports* Journal (Nature Publishing Group) 2017-2019
- 5) Member, Expert Group on ‘Research on Technology Development in Silk and its Applications in Biomaterials’ Department of Biotechnology, Government of India 2014-2018
- 6) Member, Research Advisory Committee, Seri-Biotech Research Laboratory, Central Silk Board, Bangalore, India 2014-2017
- 7) Member, Scientific Advisory Committee, NCLAS, National Institute of Nutrition, Hyderabad, India 2014-2019
- 8) Member, Fall Armyworm (*Spodoptera frugiperda*) International Public Consortium
- 9) Member, International Consortium on *Spodoptera litura* Genome Sequencing
- 10) Organizer of the symposium on ‘Genomics and genome engineering in the silkworm’ in the ‘International Congress of Entomology’ held in Orlando, USA from 25-30 September 2016.
- 11) Member, International Committee, The 5th Asia-Pacific Congress of Sericulture and Insect Biotechnology 2017.

Major/ongoing Projects:

Project code	Title	PI/CI	Period	Budget (Lakhs)
AIB05006SI	Breeding of muga silkworms for improved silk quality and disease tolerance	PI	Oct 2019 – Sep 2022	18.32
AIT05016MI	Integrating genomic and transcriptomics resources for functional insight into the biology of muga silkworm <i>Antheraea assamensis</i>	PI	Jan 2021 – Dec 2023	64.16

ARP05015SI	Development of chemical based control measures for management of pebrine disease in muga silkworm, <i>Antheraea assamensis</i> Helfer	CI	Jan 2021 – Dec 2023	19.92
AIT05011EF	Molecular investigation into the lingo-cellulolytic system of a few wild silkmoths of North East India	CI	Sep 2019 – Sep 2022	
APR05007	Standardization of chawki rearing practices for Eri silkworm, <i>Samia ricini</i> (Donovan)	CI	Oct 2019 – Sep 2022	

Number of Publications: 35

Journal papers (Important 10):

- 1) Meccariello A, Salvemini M, Primo P, Hall B, Koskinioti P, Dalikova M, Gravina A, Gucciardino M, Forlenza F, Gregoriou M, Ippolito D, Monti S, Petrella V, Perrotta M, Schmeing S, Ruggiero A, Scolari F, Giordano E, Tsoumani K, Marec F, Windbichler N, **Arunkumar KP**, Bourtzis K, Mathiopoulos K, Ragoussis J, Vitagliano L, Tu Z, Papatianos P, Robinson M, Saccone G (2019) Maleness-on-the-Y (MoY) orchestrates male sex determination in major agricultural fruit fly pests. *Science* 365: 1457-1460
- 2) Li S, Ajimura M, Chen Z, Liu J, Chen E, Guo H, Tadapatri V, GangiReddy C, Wang X, Feng L, Zhang J, Chakraborty S, Kishino H, Abe H, Xia Q, **Arunkumar KP** and Kazuei Mita (2018) A new approach for comprehensively describing heterogametic sex chromosomes *DNA Research* 25:375-382.
- 3) Chakraborty S, Muthulakshmi M, Vardhini D, Jayaprakash P, Nagaraju J and **Arunkumar KP*** (2015) Genetic analysis of Indian tasar silkworm (*Antheraea mylitta*) populations. *Scientific Reports* 5: 15728.
- 4) Cheng T, Wu J, Wu Y, Chilukuri RV, Huang L, Yamamoto K, Li F, Li W, Chen Z, Guo H, Liu J, Li S, Wang X, Li P, Liu D, Guo Y, Fu B, Li Z, Liu C, Chen Y, Tomar A, Hilliou F, Montagne N, Jacqin-Joly E, d'Alencon E, Seth RK, Bhatnagar RK, Jouraku A, Shiotsuki T, Kadono-Okuda K, Promboon A, Smagge G, **Arunkumar KP***, Kishino H, Goldsmith MR, Feng Q, Xia Q and Mita K (2017) Genomic adaptation to polyphagy and insecticides in a major East Asian noctuid pest. *Nature Ecology and Evolution* 1:1747-1756.
- 5) Gupta AK, Mita K, **Arunkumar KP*** and Nagaraju J (2015) Molecular architecture of silk fibroin of Indian golden silkworm, *Antheraea assama*. *Scientific Reports* 5: 12706.
- 6) Sackton TB, Corbett-Detig RB, Nagaraju J, Vaishna RL, **Arunkumar KP*** and Hartl DL (2014) Positive selection drives faster-Z evolution in silkmoths. *Evolution* 68: 2331-2342.
- 7) **Arunkumar KP**, Mita K and Nagaraju J (2009) Silkworm testis specific genes are enriched on Z chromosome and are evolutionarily conserved. *Genetics* 182: 493-501. (IF: 4.07)
- 8) **Arunkumar KP**, Kifayathullah L and Nagaraju J (2009) Microsatellite markers for the Indian golden silkworm, *Antheraea assama* (Saturniidae: Lepidoptera). *Molecular Ecology Resources* 9: 268-270.
- 9) **Arunkumar KP**, Metta M and Nagaraju J (2006) Molecular phylogeny of silkmoths reveals the origin of domesticated silkworm, *Bombyx mori* from Chinese *B. mandarina* and paternal inheritance of *Antheraea proylei* mitochondrial DNA. *Molecular Phylogenetics and Evolution* 40: 417-427.

- 10) Prasad MD, Muthulakshmi M, **Arunkumar KP**, Madhu M, Sreenu VB, Pavithra V, Bose B, Swaminathan S, Nagarajaram HA, Mita K, Shimada T and Nagaraju J (2005) Silksatdb: a microsatellite database of silkmoth, *Bombyx mori*. ***Nucleic Acids Research*** 33: D403-D406.

Papers published in proceedings:

1. **Arunkumar KP*** (2014) Role of biotechnology in seri-development. **Indian Silk** 5: 74-76
2. Nagaraju J, **Arunkumar KP**, Sriramana K, Muthulakshmi M, Satish V, Madhu M and Subbaiah EV (2004) Silkworm genomics on fast-track. In: Frontier Areas of Entomological Research (Eds. Subrahmanyam, B., Ramamurthy, V.V. and Singh, V.S.). Proceedings of the National Symposium on Frontier Areas of Entomological Research, IARI, New Delhi, India PP 471 - 485. (Book chapter).

Books (please don't list leaf lets/booklets): -

Patents: -

Any other important information:

Databases developed

SilksatDb: A microsatellite database of silkmoth, *Bombyx mori*

WildSilkbase: An EST database of wild silkmoths

Professional Service

Reviewer of manuscripts submitted to: PLoS ONE, BMC Genomics, Genetica, Genomics, Journal of Biosciences, Journal of Genetics, Insect Molecular Biology, International Journal of Biomedical Science, The Canadian Entomologist, Applied Biochemistry & Biotechnology, Current Science, Journal of Insect Physiology, Journal of Insects, Insect Science, Journal of Virological Methods, Molecular and Cellular Probes, Scientific Reports, etc., and grants submitted to The International Foundation for Science (IFS), Sweden, Department of Science and Technology (DST) and Department of Biotechnology (DBT), Government of India.