

## **RESUME**

**Prof. H.B. MANJUNATHA, Ph.D.,FRES.**  
Senior Professor,  
Department of Studies in Sericulture Science  
University of Mysore  
Mysore –570 006  
Karnataka, India.

**Res. Address**  
#825 V, 10B Cross  
Roopnagara,  
Mysore –570 026  
Karnataka, India.

**Contact Numbers:** +91-821-2419404, 2419716 [O]; 9449059147[M]

**E-mail:** [hbm@sericulture.uni-mysore.ac.in](mailto:hbm@sericulture.uni-mysore.ac.in); [manjunathahb@gmail.com](mailto:manjunathahb@gmail.com)

### **PERSONAL DETAILS**

Name	: Dr. H.B. Manjunatha
Sex	: Male
Date of Birth	: 08.02.1963
Nationality	: Indian

### **EDUCATIONAL QUALIFICATION : Ph.D.**

**Specialization** : Molecular Cytogenetics

### **AWARDS**

1. **Fellow of the Royal Entomological Society (FRES), London (2024).**
2. **Commonwealth Fellowship** - Wellcome Trust Sanger Institute, Cambridge UK.  
September 2000 to August 2001 (**12 months**).
3. **INSA-ASCR Scientists Exchange Fellowship** – Biology Center, Czech Republic.  
January 1 to March 30, 2008 (**3 months**).
4. **INSA-ASCR Scientists Exchange Fellowship** – Biology Center, Czech Republic.  
September 16 to December 14, 2015 (**3 months**).
5. **Life Time Achievement Excellence Award 2025** by Agri Innova – 2025, India.

**EXPERIENCE** : Research - 36 years  
Teaching - 36 years

## UNIQUE CONTRIBUTIONS

1. **Identification of four new species of Sphingidae-Lepidoptera** in collaboration with Sphingidae Museum, Czech Republic and Canadian Centre for DNA Barcoding, University of Guelph, Guelph ON, Canada.

A. *Psilogramma manjunatha* spec. nov.

([https://species.wikimedia.org/wiki/Psilogramma\\_manjunatha](https://species.wikimedia.org/wiki/Psilogramma_manjunatha))

B. *Dolbina manjunatha* sp. nov.

([https://species.wikimedia.org/wiki/Dolbina\\_manjunatha](https://species.wikimedia.org/wiki/Dolbina_manjunatha))

C. *Amplipterus panopus karnatakaensis* spp. nov.,

([https://species.wikimedia.org/wiki/Amplipterus\\_panopus\\_karnatakaensis](https://species.wikimedia.org/wiki/Amplipterus_panopus_karnatakaensis))

D. *Acosmeryx akanshi* sp. nov.

These species are recorded in “**WIKISPECIES**” directory (links in parantheses).

2. Development of novel technology “**Heat Shock Technology**” based on the concept of “**Heat shock response**” that led to evolve new silkworm breeds and hybrids, which are in field trail.
3. Development of Silk fibroin scaffolds and Bioink for biomedical applications.
4. Development of silkworm as a human dental caries and diabetic model system.
5. Development a mobile application “**SeriApp**” for precise application of disinfectants in the rearing house.
6. Developed a Database for mulberry garden soil for the benefit of farmers
7. Introduction of new concept of research “Silkworm thermal biology”.
8. Introduction of new terminology and concept of research “Seribioinformatics and Seri-Biomics”.
9. Development of silkworm as a model system for evaluation of medicinal compounds in India.

## **RESEARCH COLLABORATION and MoU**

1. **Memorandum of Understanding (MoU)** with Sphingidae Museum, Czech Republic. Knowledge and Assessment of the biodiversity and DNA barcoding of Lepidoptera/ Sphingidae, Coleopteran/Scarabaeoidea\_Buprestidae\_Cerambycidae in India. (Renewed by the National Biodiversity Authority – NBA/Tech Appl/9/631/12/20-21/3647 dated 11.01.2021 & NBA/Tech Appl/9/631/12/15-16/2820 dated 16.11.2015).
2. **Memorandum of Understanding (MoU)** with Accreate Additive Labs Private Limited for development of silk fibroin/sericin based novel bioink impregnated with specific additives for 3D bioprint scaffold for medical and dental applications (Period three years – July 27,2019 to July 26,2022).
3. **Memorandum of Understanding (MoU)** with Accreate Additive Labs Private Limited and JSS Academy of Higher Education and Research, Mysore for development of novel silk fibroin/sericin based bioink bioprinting to reconstruct Maxillofacial defects (Period three years – March 05,2020 to March 04,2022).
4. Collaborative Research with Laboratory of Molecular Cytogenetics, Biology Centre, ASCR, Institute of Entomology, České Budějovice, Czech Republic under INSA-ASCR for localization of heat shock proteins genes on the silkworm genome-chromosome. Eventually, we have successfully identified the position of BmHSP90 and BmHSP40 on the chromosome 27 and 5 respectively.

## **Member of Professional Bodies/Society**

### **International:**

1. Royal Entomological Society, London.
2. International Sericultural Commission, France - Associate member.
3. American Society for Cell Biology, USA.
4. Entomological Society of America, USA.
5. Korean Entomology Society, Korea.

## National :

### **Scientific Bodies:**

1. **Coordinator** - DST-FIST program in DOS in Sericulture, University of Mysore.
2. **Chairman** – Institutional Biosafety Committee (IBSC), University of Mysore, Mysore, approved by DBT, New Delhi.
3. Member and Subject matter expert - BIRAC-CRS & PACE, DBT, New Delhi.
4. DBT- Nominee, IBSC, JSS Academy of Higher Education and Research, Mysore.
5. External Expert – IBSC, CSR&TI, CSB, Mysore.
6. Member - National Network Project, Department of Biotechnology, New Delhi.
7. Member - National Academy of Sericultural Science, Bangalore, India.
8. Member - Karnataka State Sericulture Coordination Committee.
9. Member - Indian Society for Cell Biology.

### Academic Bodies

1. Served as **Chairman, NEP Syllabus Committee**, Govt. of Karnataka, Bangalore.
2. Served as **member, Steering committee - NAAC reaccreditations** University of Mysore.
3. **Worked as Co-ordinator** of a sub-committee and a member of Karnataka University-**NAAC reaccreditations committee**.
4. Served as **Chairman, Syllabus Committee**, Directorate of Vocational Education, Govt of Karnataka, Bangalore.
5. **Chairman - Syllabus committee** for Post Graduation (M.Sc.) and Graduate course (B.Sc.), in Sericulture at Karnataka University and University of Mysore.
6. **Chaired the Syllabus committee** for introduction of **Choice Based Credit System** and restructuring Syllabus for Post Graduation (M.Sc.), in Sericulture, Karnataka University, Dharwad and University of Mysore, Mysore.
7. **Chairman, Board of Studies in Sericulture** - University of Mysore, Karnatak University, Dharwad and Bangalore Central University, Bangalore.
8. **Chairman**, Board of Examiners, Karnatak University, Dharwad and UOM, Mysore.
9. **Member** - Board of Examiners, Bangalore University and University of Mysore.

10. **Examiner** for Bangalore University, Universtiy of Mysore, Sri. Padmavathi Mahila Viswavidyalm, Tirupathi, Sri. Krishnadevaraya University, Ananthapur, Kakatiya University, Warangal.
11. **Member of Board of Appointment** - Banglore University, University of Mysore and Sri. Krishnadevaraya University, Ananthapur, Andra Pradesh.
12. **Member – Academic Council of Autonomous college**, Yuvaraja’s college, University of Mysore, Mysore (2021-2022).
13. **Member** – ICAR Broad Subject Matter Area Committee, UAS, Bangalore.
14. **Member** – NAAC Steering Committee, University of Mysore, Mysore.

## EXPERIENCE DETAILS

### A. Teaching

- Lecturer/Assistant Professor : 1989-1994
- Sr. Lecturer : 1994-1998
- Reader/Associate Professor : 1999- 2006
- **Professor** : January 2007- June 2018
- **Senior Professor** : **July 2018 – till date**

### B. Administration

#### Chairman :

- Department of Studies : 1999 - 2011, 2017 - 2019, 2021 - 2023,
- Board of Studies : 1999 - 2012, 2018 – 2022.
- Board of Examiners : 2000 – 2010, 2023.

### C. Research : Research Experience at various Institutions

#### International

#### 1. **The Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge, UK.**

- a. Silkworm Genome Mapping – We have been involved in constructing a physical genome map of silkworm, *Bombyx mori*, using BAC library as the contiguous fragments of DNA covering the whole genome has not been established.
- b. Insect Tissue Culture - Silkworm cell lines derived from ovary and silk gland cells were grown in liquid medium for the preparation of metaphase chromosomes

spreads and extraction of genomic DNA for Fluorescence *in-situ* hybridization. *Drosophila* S-2 cell line was cultured on Schiender medium.

- c. **Chromosome Painting** - The flow sorted specific chromosome DNA was amplified by PCR and hybridized on to the human chromosome for painting and detection.

## **2. Human Genome Mapping Resource Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge, CB10 1SA, UK.**

We made an attempt to construct cDNA library for silkworm and uzifly.

## **3. Children's National Medical Centre, Washington, USA.**

Undergone training on western blotting techniques for characterization and confirmation of heat shock proteins in silkworm.

## **4. Academy of Science of Czech Republic, Biology Centre, Institute of Entomology.**

We have carried out sequencing and chromosomal localization of heat shock protein genes in *Bombyx mori*. Also, carried out chromosomal localization of heat shock protein genes in *Bombyx mori* and rDNA distribution in *Spodoptera* spp.

## **5. Canadian Centre for DNA bar-coding, Biodiversity Institute of Ontario, Canada and Sphingidae Museum, Czech Republic.**

In association with these institutions I have undertaken DNA bar-coding of Lepidoptera - Sphingidae and discovered four new species *Psilogamma manjunatha*, *Dolbina manjunatha*, *Amplypterus panopus karnatakaensis* and *Acosmeryx akanshi* from Karnataka, India.

## **National**

### **6. Banglore University, Bangalore**

Cytological changes during sperm, egg and embryonic development of uzifly were studied in detail. Mitotic and polytene chromosome maps were established. Morphology of uzifly, *Exorista sorbillans* was reported in detail. Most of our findings have been published in National and International journals.

### **7. Karnatak University, Dharwad**

- a. **Heat shock response and molecular characterization of heat shock proteins in silkworm** We have been actively involved in determination of heat shock response in different developmental stages of silkworm, differential expression and molecular analysis of HSPs.

- b. **UV- Laser radiation studies on silkworm** – we have analyzed the impact of UV- Laser radiation on bimolecular, morphological and biological traits of silkworm.

- c. **Construction of database** – We have constructed INDSILK DATABASE. This database provides platform to Soil database, Heat shock protein database (HSP) and Silkworm Genome Diversity Project (SGDB). Part of Soil database was uploaded to Karnatak University Website and accessible at <http://www.kud.ernet.in/INDSILKDATABASE>.

## RESEARCH PROJECTS

### A. Ongoing:

1. Knowledge and Assessment of the biodiversity and DNA barcoding of Lepidoptera/ Sphingidae, Coleopteran/ Scarabaeoidea\_Buprestidae\_ Cerambycidae in India (Funded by Sphingidae-Museum, Czech Republic, 2015 – 2026, Rs.22,00,000).
2. Entrepreneurship skill development program in Sericulture Technology for unemployed youths.  
(Under DBT Skill Vigyan State Partnership program, 2021 – 2023, Rs.24,00,000).

### B. Completed:

3. Development of Novel silk fibroin based bioink for bioprinting to reconstruct maxillofacial defects. (Under BIRAC-PACE-AIR program, 2021 – 2022, Rs.49,22,000).
4. Molecular analysis of dental caries pathogen *Streptococcus mutans* in the invertebrate model silkworm and assessing the efficacy of herbal drugs against it.  
(Supervisor, Funded by CSIR Research Associate Program, 2021 – 2024. Rs.5,84,000).
5. Novel site specific delivery of biologics from the multi-component silk-fibroin scaffolds for the revival of ischemic scar tissue to functional myocardium  
(Supervisor, Funded by DST-Inspire Faculty Program, 2017- 2022, Rs.26,25,874).
6. Proteomic analysis and annotation of Heat Shock Proteins in the Sex-limited silkworm strains of *Bombyx mori*.  
(Supervisor, Funded by DST-Inspire Program, 2012 – 2017, Rs.16,22,350).
7. Proteome analysis of heat shock proteins in domesticated silkworm, *Bombyx mori*. Funded by University Grants Commission, New Delhi under Major Research Project No. F. No. 37-458/2009 (SR) dated 12. 01.2010.
8. Characterization of heat shock proteins in mulberry silkworm. Funded by University Grants Commission, New Delhi under Major Research Project No. F. No. 30-210/2004 (SR) dated 10.11.2004.

9. Biosystematic studies on the uzi fly species of *Exorista* serious parasites of Silkworm. Approved by Dept. of Science and Technology, New Delhi, (1997-2000).
10. **DST- FIST, Coordinator** (2010-2015, Rs.20,50,000)

### Invited Special Lectures delivered

- A. International : 02
- B. National: 40

### Contributions To Academic Conferences

1. INTERNATIONAL: 10
2. NATIONAL: 35

### Academic Conferences/ Workshop Organized

1. Nanotechnology and its application in Sericulture.  
March 07, 2023. Department of Sericulture, University of Mysore, Mysuru.
2. E-Step Boot Camp as Co-Host of Karnataka Innovation and Technology Society, Department of IT, BT and S&T, Government of Karnataka.  
May 20, 2021. Department of Sericulture, University of Mysore, Mysuru.
3. Frontier lectures on Seribiotechnology.  
March 21-22, 2019. Department of Sericulture, University of Mysore, Mysuru.
4. National Conference on Seri-Biomics: Challenges, Innovations and Solutions.  
February 15-17, 2018, Department of Sericulture, University of Mysore, Mysuru.
5. Awareness Training Program on Biodiversity.  
December 7, 2007. At Academic Staff College, KUD.
6. Workshop on Personality Development.  
September 18-19, 2006. Leaders Academy for Personal Success, Bangalore.
7. Silkworm in Biomedical Research  
March 21-26, 2005. U.G.C. (X plan) Sponsored Special Lecture Series, K.U.D.

8. Awareness workshop on Remote Sensing and GIS applications  
March 13-14<sup>th</sup> 2000, in collaboration with Regional Remote Sensing  
Center, India Space Research Organization, Bangalore.

## Ph.D. Programs

### Awarded

1. Proteomic approach for evaluation and development of thermotolerant silkworm, *Bombyx mori* L. breeds/strains.  
(No.Ex.9.2/Ph.D/PJ/2014-2015 dated 21.04.2023). - Mr. J. Prashanth
2. Development of silkworm (*Bombyx mori* L.) as model system and evaluation of antibiotics against *Streptococcus mutans*.  
(No.Ex.9.2/Ph.D/LGM/2014-2015 dated 19.09.2019). - Mr. M. Likhith Gowda
3. Proteomic profiling of differentially expressed proteins due to heat shock in the silkworm, *Bombyx mori*.  
(No.Ex.9.9/Ph.D/MAB/2012-2013 dated 22.06.2018). - Mr. Muzafar Ahmed Bhat
4. Proteomic analysis and annotation of heat shock proteins in the Sex-limited silkworm strains of *Bombyx mori*.  
(No.Ex.9.9/Ph.D/P/2012-13 dated 28.06.2017). - Ms. Punyavathi
5. Biochemical characterization of heat shock proteins in *Bombyx mori* - Mr. R.R. Kundapur
6. Construction of database for mulberry garden soils in North Karnataka.  
(No:KU/Aca/Ph.D/2009-10/117 dated 20.3.2010). - Mr. P.K. Sambrani
7. Effect of Laser Radiation on silkworm, *Bombyx mori*.  
(No:KU:Aca:Ph.D:2005-06:59 dated 13.8.2005). - Mr. S.R. Hosagoudar
8. Heat Shock Response in silkworm, *Bombyx mori*.  
(No:KU:Aca:Ph.D:2004-05:133 dated 21.3.2005). - Miss Vasudha B. Chavadi

### Under compilation

9. Molecular cytogenetic and morpho-biometric analysis of clonally selected Mulberry genotypes (*Morus* spp.).  
(DOR9.2/Ph.D/RKR/215/2018-2019). - Mr. Ravikumar
10. Studies on the on-farm tree mulberry plantation in traditional belt of sericulture and its impact on cocoon production  
(WOF-131/2019-2020). - Smt. B.L. Joythi

## In Progress

11. Genome-wide analysis of genes encoding heat shock proteins in the silkworm, *Bombyx mori* (WOF-308/2020-2021). - Mr. J. Harishkumar
12. Fabrication and characterization of silk fibroin – curcumin based films/scaffolds for biomedical applications. (DOR9.9/Ph.D/AMR/680/2020-2021). - Mr. M.R. Akarsha

## Research Papers Reviewed for the Research Journals

1. Molecular Biotechnology, Springer Nature.
2. Biotechnology letters, Springer Nature.
3. Journal of Proteome Research, ACS Publications (Japan).
4. Bulletin of Entomological Research, (Cambridge).
5. Insect Science, Wiley Online Library.
6. Journal of Advances in Microbiology
7. European Journal of Entomology, (Czech Republic).
8. Caspian Journal of Environmental Sciences, (Iran).
9. Biotechnology Journal International.
10. British Biotechnology Journal
11. Advances in Research.
12. Journal of Entomology and Zoology Studies.
13. Indian Journal of Experimental Biology
14. Indian Journal of Sericulture (India).
15. Mysore Journal of Agricultural Sciences (India)
16. Cytobios 2001 (UK).
17. Sericologia (France)
18. International Journal of Environment and Climate Change
19. Journal of Advances in Medicine and Medical Research

## Research Projects Evaluated and Reviewed

1. Improvement of silk quality in polyvoltine silkworm, *Bombyx mori*. Proposed by multivoltine breeding laboratory, CSR&TI, Mysore.
2. Development of silkworm breeds/hybrids for higher fecundity.

Proposed by Silkworm breeding laboratory –1 and Silkworm genetics laboratory, CSR&TI, CSB, Govt. of India, Bangalore.

3. Induction of egg diapause in multivoltine silkworm (*Bombyx mori*) germplasm and genetic stability studies through molecular tools for sustainable use and conservation. Submitted by CSGRC, CSB to Department of Biotechnology, New Delhi, India. Recommended and approved by DBT.
4. Molecular taxonomy of silkworm (*Bombyx mori*) genetic resources and analysis of mitochondrial DNA encoding rRNA and RNA – fingerprinting among chosen high yielding genotypes. Submitted by CSGRC, CSB to Department of Biotechnology, New Delhi, India.
5. Evolution and evaluation of productive silkworm breeds with high survival using polyvoltine donors employing amylase marker assisted selection. Submitted by CSR&TI to CSB, Govt. of India, Bangalore.

### Details of Research Publications

1. Tree Mulberry Crop Acreage and Leaf Yield Estimation Using Remote Sensing and Geographical Information System. Jyothi B.L. and **Manjunatha H.B.**  
Int. J. Research and Analytical Reviews, 11(3), 425-430, 2024.
2. Streptozotocin induced hyperglycaemia in the invertebrate diabetic model *Bombyx mori*. Kunal Ankola, Tafadzwa Justin Chiome, Asha Srinivasan and **Manjunatha H.B.**  
Physiological Entomology, 1-8, 2023 **(Impact Factor-1.9)**
3. Seri-Entrepreneurship: Current Status and Potential Opportunities Harishkumar J., Likhith Gowda M., and **Manjunatha H.B.**  
Current Agriculture Research Journal, 12 (1), 385-399, 2024.
4. Silk Protein Sericin as a Novel Mitogenic Supplement for Plant Cell Culture. Bhuvana M., Pavithra S., Harshitha R., Ankitha S. Naik, Arpitha H., Chaya Devi H., Narase Gowda P.N., H.L. Ramesh, **Manjunatha H.B.**, Ashok Kumar.  
Int. J. All Research Education and Scientific Methods, 12(1), 638-641, 2024.
5. Silkworm Pupa as Alternative Bio-Fuel to Boost Protein Enrichment in Poultry Nutrition. Pavithra S., Bhuvana M., Harshitha R., Ankitha S. Naik, Arpitha H., Chaya Devi H., Narase Gowda P.N., H.L. Ramesh, **Manjunatha H.B.**  
Int. J. All Research Education and Scientific Methods, 12 (1), 642-647, 2024.

6. On-Farm Tree Mulberry Geometry: Biochemical, Growth and Yield Analysis in the Traditional Areas of Sericulture.  
Jyothi B. L. and **Manjunatha H. B.**  
Int. J. Plant & Soil Science, 35 (21):686-692, 2023.
7. Seasonal performance of new bivoltine lines of *Bombyx mori* evolved from heat shock technology and identification of potent breed for tropical conditions.  
Prashanth J., Likhith Gowda M., Kunal Ankola and **Manjunatha H. B.**  
Journal of Insect Biotechnology and Sericology, 92: 17-27, 2023.
8. Transaminases activity in the haemolymph: biomarkers determining the thermal stress in the new bivoltine lines of *Bombyx mori*.  
Prashanth J. and **Manjunatha H. B.**  
Journal of Applied Biology & Biotechnology, 2022.  
DOI: 10.7324/JABB.2023.110213.
9. Comparative analysis of protein and trehalose contents as influenced by thermal stress at 45°C in the new bivoltine lines of *Bombyx mori*  
J. Prashanth and **H.B. Manjunatha**  
Research J. Agricultural Sciences 13 (4):1113–1116, 2022.
10. In vitro and in vivo toxicological evaluation of green synthesised anatase TiO<sub>2</sub> nanoforms  
P. Shubha, K. Namratha, M. Likhith Gowda, M.B. Nayan, **H.B. Manjunatha** and K. Byrappa  
Materials Research Innovations 10, 2022.  
DOI:10.1080/14328917.2022.2094629. (IF-1.46)
11. Changes in the embryonic protein profile and hatching as a response to thermal stress in the Eri silkworm, *Samia cynthia ricini*  
Punyavathi, Koushik H.K., Sentimenla M., Likhith Gowda M., **Manjunatha H.B.**  
J. Applied Biology & Biotechnology, 10(03),120-126, 2022.
12. A revision of the genus *Dahira* (Moore, 1888) with the description of three new species from Arunacha Pradesh, India (Lepidoptera Sphingidae Macroglossinae) and a checklist of species.  
Jean Haxaire, Tomas Melichar and **HB Manjunatha**  
The European Entomologist 13 (3&4),107-298, 2021
13. A revision of the Asiatic species of the *Polyptychus trilineatus* group (Moore, 1888)(Lepidoptera: Sphingidae)  
Tomas Melichar, Jean Haxaire, and **HB Manjunatha**  
The European Entomologist 13 (1), 3-54, 2021
14. Curcumin therapy: Immune booster in present and post-pandemic (COVID-19) Era  
Shubha P., Shyamsundar S., **Manjunatha H. B.**

- Int. J. Res. Pharm. Sci.,12 (4): 2566-2572, 2021.
15. Contribution to the knowledge of the Prioninae (Coleoptera, Cerambycidae) from the Mizoram State (India), with the first report of the genus *Megobaralipton* Lepesme & Breuning and new records from the country.  
Amitava Majumder, Alain Drumont, Stanislav Jákl, Gérard Tavakilian, **Hosaholalu Boregowda Manjunatha**, Kailash Chandra.  
*Zootaxa*, 4963(2):375-383, 2021.  
DOI: <https://doi.org/10.11646/zootaxa.4963.2.8>.  
**(IF-0.955)**
  16. Diverse Tree Mulberry Geometry and Cultural Practices Adopted by the Farmer's and its Optimization.  
Megharaja, Harishkumar J, Chaithra KC, Likhithgowda M, **Manjunatha H.B.**  
*Acta Scientific AGRICULTURE*, 5 (6), 85-91, 2021  
DOI:10.31080/ASAG.2021.05.1009
  17. Morpho-biometric and Cytogenetic analysis of Clonally Evolved Mulberry Cultivars (*Morus* Spp.).  
Ravi Kumara R, HL Ramesh, **HB Manjunatha**.  
*Acta Scientific AGRICULTURE* 5 (6), 92-101, 2021  
DOI: 10.31080/ASAG.2021.05.1010.
  18. Comprehensive analysis of differentially expressed proteins in the male and female *Bombyx mori* larval instars exposed to thermal stress.  
Punyavathi and **Manjunatha H.B.**  
*Arch. Insect. Biochem. Physiol.*105 (1):1-16, 2020..  
<https://doi.org/10.1002/arch.21719.2020>.  
**(IF-1.536)**
  19. *Enoplotrupes (Enoplotrupes) apatani* sp. nov. (Coleoptera: Geotrupidae) from Arunachal Pradesh, India.  
David Král, Stanislav Jákl and **H. B. Manjunatha**  
*Acta Soc. Zool. Bohem.* 84: 23–27, 2020.
  20. Development of disinfection card and Mobile App for the precise application of disinfectants in the Silkworm rearing house.  
M. Likhith Gowda, A.M. Akanksh, Nayanashree, C. Abhicharan, Naleen, Kunal Ankola and **H. B. Manjunatha**  
*Res.J.Agr.Sci.*11(6): 1229-1234, 2020.
  21. Biomolecular changes due to *Streptococcus mutans* infection and antibiotics treatment in the human dental caries - silkworm (*Bombyx mori*) disease model.  
Likhith Gowda M. and **Manjunatha H.B.**  
*Int. J. Pharma. Sciences and Research*, 11(2): 737-744, 2020.

22. Human Dental Caries Pathogen *Streptococcus mutans* affect Chitin Synthesis and that Restored by Antibiotics in the Silkworm, *Bombyx mori*  
M. Likhith Gowda, P. Shubha, K. Byrappa, **H.B. Manjunatha**  
Int. J. Pharmacy and Biological Sciences 9 (3): 907-913, 2019.
23. *Ex-situ* Fabrication of ZnO Nanoparticles Coated Silk Fiber for Surgical Applications  
P. Shubha, M. Likhith Gowda, K. Namratha, S. Shyamsunder, **H.B. Manjunatha** and K. Byrappa  
Materials Chemistry and Physics 231:21-26, 2019. **(IF-2.210)**
24. *In vitro* and *In vivo* evaluation of green-hydrothermal synthesized ZnO nanoparticles.  
P. Shubha, M. Likhith Gowda, K. Namratha, **H.B. Manjunatha**, K. Byrappa  
Journal of Drug Delivery Science and Technology, 49:692–699, 2019 **(IF-2.297)**
25. *Streptococcus mutans* infection and Antibiotic-mediated variation in the Alanine aminotransferase and Aspartate aminotransferase activity in the silkworm, *Bombyx mori*.  
Likhith gowda M. and **Manjunatha H.B.**  
J. Emerg. Technol. Innov. Res. 6 (5):307-314, 2019.
26. Comparative proteome analysis and thermal stress induced changes in the embryo of poly- and bi-voltine strains of *Bombyx mori*.  
Punyavathi, Bhat MA and **H. B. Manjunatha**  
J. Appl.Biol.Biotechnol. 5(02):59-67, 2017.
27. Identification and *in-silico* analysis of a small heat shock protein (HSP26) expressed in the *Bombyx mori* due to heat shock.  
Punyavathi and **H. B. Manjunatha**  
Indian J. Applied Res., 7 (1): 68-71, 2017.
28. Heat shock induced changes in the cocoon traits of poly- and bi-voltine silkworm strains of *Bombyx mori*  
Bhat M.A. and **H. B. Manjunatha**  
Int. J. Entomol. Res., 2 (1): 36-41, 2017.
29. Allethrin and prallethrin based mosquito coil emission induces toxicity and alters the haemolymph proteins and cocoon traits of *Bombyx mori*.  
K.V. Rajini, M. Likhith Gowda, C.A. Sangma, K.A. Avinash, Punyavathi and **H.B. Manjunatha**.  
Sericologia, 87(3):143-14, 2017.

30. Physico-chemical and biological studies on three-dimensional porous silk/spray-dried mesoporous bioactive glass scaffolds.  
Arunseshan C.,Giorgia N.O.,Irene C., Piergiorgio G., Sonia F., Marta M., **Manjunatha H.B.**, Arivuoli D., Gianluca C., Chiara V. B.  
Ceramics International, 42 (12), 13761–13772, 2016. (IF-2.758)
31. Harsh impact of temperature on proteomic profile of the silkworm *Bombyx mori* L.  
Bhat, M.A., Buhroo, Z.I. and **Manjunatha, H.B.**  
Journal of Cell and Tissue Research, 16(3), 5929-5935, 2016.
32. A new species of the genus *Acosmeryx* Boisduval, 1875 (Lepidoptera, Sphingidae) from the southern part of India.  
Tomas M., Michal R., **Manjunatha H. B.** and Ing. Cenek Horecky  
The European Entomologist, 6 (3), 181-187, 2014.
33. Electrophoretic separation and comparative analysis of silk gland proteins from *Bombyx* and *Philosamia*.  
Muzafar A. Bhat, Punyavathi and **Manjunatha H. B.**  
International Journal of Bioassays, 3 (08), 3214-3218, 2014.
34. Seri-bioinformatics: emerging trends and challenges in Silkworm research.  
Punyavathi, H. B. **Manjunatha**  
Advances in Biochemistry, 1(2), 33-42, 2013.
35. Evaluation of the medically important compounds TASKI Protasan and Combatan for its efficacy using *Bombyx mori* as a model system.  
Sudhakumari, Punyavathi, Chhanda Das, M.A. Bhat and **H.B. Manjunatha**  
Journal of Pharmacy Research, 7 (2): 184-188, 2013.
36. Heat shock response of FC2 - a bivoltine hybrid of the mulberry silkworm, *Bombyx mori*.  
J. Prashanth, M.A. Bhat, Punyavathi and **H. B. Manjunatha**  
Int. J. Biotech. Bioeng. Res., 4 (1): 73-88, 2013.
37. Influence of black boxing on the manifestation of economic characters in *Bombyx mori*.  
B.K. Prakash, B. Sannappa and **H.B. Manjunatha**  
J. Sericulture & Technology, 3(1&2): 53-56, 2012.
38. Cataloging and analysis of fertility status of mulberry garden soil in Dharwad district.  
P.K. Sambrani and **H.B. Manjunatha**  
Bull. Indian Acad. Seri., 16(2):35-46, 2012.
39. Impact of different incubation methods on the growth and cocoon characteristics of *Bombyx mori*.  
N. K. Rajeshwari, B. Sannappa and **H.B. Manjunatha**

- Journal of Sericulture & Technology, 2 (2):155-159, 2011.
40. Altered protease activity due to heat shock in the whole organism *Bombyx mori* L.  
Rajesh R. K., **Manjunatha H. B.** and Aparna H. S.  
African J. Biochemistry Research, 5(7): 206-213, 2011. **(IF 0.533)**
  41. Picosecond UV laser induced morphological, biochemical and biological changes in *Bombyx mori*.  
S.R. Hosagoudar and **H.B. Manjunatha**  
Iran. J. Radiat. Res., 9(2): 127-137, 2011. **(IF 0.2)**
  42. Fertility status of mulberry garden soils of three districts of North Karnataka.  
P.K. Sambrani, S.R. Hosagoudar and **H.B. Manjunatha**  
Indian J. Applied & Pure Biology, 26 (2): 347-350, 2011.
  43. Heat shock response of silkworm embryo (race NB4D2 and PM).  
Shabir Ah. Wani and **H.B. Manjunatha**  
Indian Journal of Sericulture, 49(2): 208-209, 2010.
  44. Silkworm thermal biology: A review of heat shock response, heat shock proteins and heat acclimation in the domesticated silkworm, *Bombyx mori* L.  
**H.B. Manjunatha**, Kundapur, R. R. and H.S. Aparna  
Journal of Insect Science, 10: 204, 2010. **(IF 1.014)**
  45. Molecular characterization of heat shock proteins 90 (HSP83?) and 70 in tropical strains of *Bombyx mori*.  
Aparna, H.S., Kundapur, R.R. and **H.B. Manjunatha**  
Proteomics, 10: 2734–2745, 2010. **(IF 5.476)**
  46. Impact of third and fourth harmonic laser irradiation at embryonic stage on biocommercial traits of *Bombyx mori*  
S.R. Hosagoudar, A.A. Hooli and **H.B. Manjunatha**  
Entomological Research, 40:122–130, 2010. **(IF 0.6)**
  47. Comparative analysis of silk gland proteins of both heat shocked and normal silkworm larvae of NB4D2 strain by 2-DE  
R. R. Kundapur, H.S. Aparna and **H.B. Manjunatha**  
Int. J. Applied Agricultural Research, 4 (2): 125–130, 2009.
  48. Preliminary studies on occurrence of pests of mulberry in North Karnataka  
Vasudha B. Chavadi and **H.B. Manjunatha**  
Bulletin of Indian Academy of Sericulture, 12 (2): 47-53, 2008.
  49. Impact of heat shock on quantitative changes in glycogen content of silkworm embryo race NB4D2 and pure Mysore.  
**Manjunatha, H.B.**, Shabir Ahmad Wani, Ferooz Hassan, Naina Majid, Sakiba Saleem, Nusrat Syed and Surriya saleem.

- Indian J. Applied and Pure Biol. 23 (2): 193-196, 2008.
50. Biomolecular changes and somatic mutations induced by UV laser irradiation at embryonic stage of *Bombyx mori*.  
**Manjunatha H.B.**, Hosagoudar S. R., and S.R. Inamdar.  
Int. J. Radiation Biology, 82(9):648-657, 2006. **(IF 1.861)**
  51. Impact of He-Ne laser on bio-commercial traits of *Bombyx mori*.  
Hosagoudar, S.R. and **Manjunatha, H.B.**  
Sericologia (France), 46 (2): 235-239, 2006.
  52. Impact of heat shock on heat shock proteins expression, biological and commercial traits of *Bombyx mori*.  
Vasudha, B.C., Aparna, H.S. and **Manjunatha, H.B.**  
Insect Science, 13: 243-250, 2006. **(IF 1.129)**
  53. Construction of database for mulberry field soils-"Soil Database Sambrani, P. K. and **Manjunatha, H.B.**  
Sericologia (France), 46 (1): 79-84, 2006.
  54. Heat shock response and analysis of egg proteins in new bivoltine strains of *Bombyx mori*.  
**Manjunatha, H.B.**, A. Zamood, B.C. Vasudha and H.S. Aparna.  
Sericologia (France), 45 (4): 403-408, 2005.
  55. Impact of low concentration fluoride on toxification and biological traits of silkworm *Bombyx mori*.  
Hosagoudar S. R., Chen Yuin, Xiang J.Y. and **H. B. Manjunatha**  
Int. J. Industrial Entomology, (Korea), 9 (1): 73-78, 2004.
  56. Production of tasar spun silk yarn on CSTRI motorized spinning machine.  
Satish S.H., **Manjunatha, H.B.**, Sreenivasa, Itagi, M.R. and G.S. Nadiger.  
Man-Made Textiles in India, 9: 353-354, 2003.
  57. Production of Poly silk Fabric and its Properties.  
Shridhar Patali, Geeta Mahale, **H.B. Manjunatha** and M.R. Itagi  
Indian Silk, 40 (7): 26-27, 2001.
  58. Association of heterochromosomes during spermatogenesis in the uzi fly, *Exorista sorbillans*.  
**Manjunatha, H.B.** and H.P. Puttaraju  
Cytobios, [Cambridge] 89: 81-88, 1997.
  59. Spermatogenesis in *Exorista sorbillans* as revealed by light and EM.  
Puttaraju, H.P. and **Manjunatha, H.B.**  
Molecular Biology of the Cell 7, No. SS: 731. 1996.
  60. Stages of oogenesis correlated with the age of the uzi fly, *Exorista sorbillans*.  
**Manjunatha, H.B.** and H.P. Puttaraju  
Sericologia (France), 36(1): 107-118, 1996.

61. Polytene chromosomes of the uzi fly, *Exorista sorbillans*.  
Puttaraju, H.P. and **H.B. Manjunatha**  
Cytobios [Cambridge], 84: 47-58, 1995.
62. Differentiation of Cystocytes in *Exorista sorbillans*.  
Puttaraju, H.P. and **H.B. Manjunatha**  
Asia-Pacific J.Molecular and Biotechnology, 2(3): 247, 1994.
63. Cytological changes during oogenesis in the uzi fly, *Exorista sorbillans*.  
Puttaraju, H.P. and **H.B. Manjunatha**  
Ann. Entomol. Soc. Am., 87(6): 891-900, 1994. (IF-1.17)
64. The egg of the uzi fly, *Exorista sorbillans*.  
**Manjunatha, H.B.** and Puttaraju H.P.  
App. Entomol. Zool., 28(4): 574 – 577, 1993. (IF-1.144)
65. An analysis of somatic chromosomes of the uzi fly, *Exorista bombycis*.  
**Manjunatha, H.B.** and H.P. Puttaraju  
Cytologia, 57: 321-326, 1992. (IF-0.2)

### Proceedings - National conference/workshops

66. Applications of principles of heat shock response in silkworm breeding for the development of productive thermotolerant strains/breeds.  
**Manjunatha H.B.**  
Trends for Advancement of Sericulture, pp 10-14, 2016.
67. Integration of Proteomics and Genomics: Biotechnological Perspective.  
**Manjunatha H.B.**  
Proceedings of the National conference on Sustainability-Key to future business, Environmental, Linguistic, Scientific and Technological fields, 1-3, 2015. ISBN-978-81-929698-1-7.
68. Integration of proteomics and genomics in the silkworm, *Bombyx mori*.  
**H. B. Manjunatha** and Punyavathi  
Bioinformatics and its applications (DBT-Workshop), 60-75, 2013.
69. Molecular identification and analysis of heat shock proteins in *Bombyx mori*.  
R.K. Rajesh, H.S. Aparna, and **H.B. Manjunatha**  
Scenario of Seribiotechnological Research in India, 183-191, 2008.
70. Effect of Amoxycillin on BmNPV infected *Bombyx mori* L.  
Chakrabarty and **H. B. Manjunatha**  
Advances in Tropical Sericulture, 334-337, 2005.
71. Non-competitional distribution of pests of mulberry.

- Chavadi, V. B. and **H. B. Manjunatha**  
Progress of Research on Disease and Pest Management in  
Sericulture, 44-49, 2004.
72. Effect of low concentration fluoride on toxification and fecundity of  
silkworm, *Bombyx mori* L.  
Hosagoudar S. R., Chen Yuin, and **H. B. Manjunatha**  
Proc.Natl.Sem.Mulb.Seri.Res.India, 530-537, 2001.
73. Ovarian developmental stages of the uzi fly, *Exorista sorbillans*.  
**Manjunatha, H.B.** and H.P. Puttaraju  
Recent advances in uzi fly Research, 57-65, 1993.
74. Preliminary studies on chromosomal behaviour during  
spermatogenesis in the uzi fly, *Exorista sorbillans*.  
**Manjunatha, H.B.** and H.P. Puttaraju  
Perspectives in Cytology and Genetics, 7: 911-916, 1992.

### General articles

75. Mobile Applications for Promotion of Sericulture Industry in India  
Likhith Gowda M. and **H.B. Manjunatha**  
Agri Articles, 3 (2), 248-251, 2023.
76. Silkworm as a Model Animal for **Biomedical Experiments**  
**Likhith Gowda M. and H.B. Manjunatha**  
The Agriculture Magazine, 2 (9), 209-212, 2023.

### Book

77. A field guide to Hawkmoths (Lepidoptera: Sphingidae) of the state of  
Karnataka, India.  
Tomas Melichar, Jean Haxaire, Michal Rezac, **Manjunatha, H.B.**  
ISBN: 978-80-88300-03-8, pp.110, 2018.  
Publisher: Ekologicke centrum Orlov, o.p.s. Orlov 79, 261 01, Pribram,  
Czech Republic.

### Book Chapters

78. Silkworm genomics: current status and limitations.  
**Manjunatha H. Boregowda**  
Advances in Animal Genomics, pp-259-280, 2021.  
<https://doi.org/10.1016/B978-0-12-820595-2.00016-3>  
Editors: Sukanta Mondal, Ram Lakhan Singh  
Publisher: **Elsevier**,  
Paperback ISBN: 9780128205952, eBook ISBN: 9780128206126.
79. DNA barcoding: nucleotide signature for identification and  
authentication of livestock.  
Kunal Ankola, Likhith Gowda Mahadevegowda, Tomas Melichar,

**Manjunatha H. Boregowda**

Advances in Animal Genomics, pp-299-308, 2021.

<https://doi.org/10.1016/B978-0-12-820595-2.00018-7>

Editors: Sukanta Mondal, Ram Lakhan Singh

Publisher: **Elsevier**,

Paperback ISBN: 9780128205952, eBook ISBN: 9780128206126.

80. Development and Application of Microfluidics in Organoid Formation  
R.R. Achar, A.C. Archer, S.H. Soans, S.K. Bohra, H.B. Manjunatha,  
Subbarao M., Asha Srinivasan  
Microfluidics and Multi Organs on Chip 10, 325–340.2022.  
[https://doi.org/10.1007/978-981-19-1379-2\\_14](https://doi.org/10.1007/978-981-19-1379-2_14)  
Editor: Mohanan, P.V.  
Publisher: Springer,  
ISBN:978-981-19-1378-5, eBook ISBN: 978-981-19-1379-2

81. **DNA and Protein Sequences uploaded to NCBI**

<u>Sl. No.</u>	<u>Title</u>	<u>ACCESSION No.</u>
1.	<i>Bombyx mori</i> strain NB4D2 heat shock protein 40 gene, partial cds <b>Manjunatha, H. B.</b> , Vitkova, M., Kumar, R., Aparna, H. S. and Marec, F.	GU324472
2.	Heat shock protein 40 [ <i>Bombyx mori</i> ] <b>Manjunatha, H. B.</b> , Vitkova, M., Kumar, R., Aparna, H. S. and Marec, F.	ADG57738.1
3.	<i>Bombyx mori</i> strain NB4D2 heat shock protein 90 gene, complete cds. Aparna, H. S., Kumar, R., Vitkova, M., Marec, F. and <b>Manjunatha, H.B.</b>	GU324473
4.	Heat shock protein 90 [ <i>Bombyx mori</i> ] Aparna, H. S., Kumar, R., Vitkova, M., Marec, F. and <b>Manjunatha, H.B.</b>	ADG57739.1
5.	<i>Bombyx mori</i> strain NBL2 heat shock protein 40 (hsp40) gene, partial Harishkumar, J. and <b>Manjunatha, H.B.</b>	OR488540.1
6.	<i>Bombyx mori</i> strain NBL4 heat shock protein 40 (hsp40) gene, partial Harishkumar, J. and <b>Manjunatha, H.B.</b>	OR488541.1
7.	<i>Bombyx mori</i> strain CSR2 heat shock protein 40 (hsp40) gene, partial Harishkumar, J. and <b>Manjunatha, H.B.</b>	OR488542.1

8. *Bombyx mori* strain NBL27 heat shock protein 40 (hsp40) gene, partial  
Harishkumar, J. and **Manjunatha, H.B.** OR488543.1
9. *Bombyx mori* strain NBL5 heat shock protein 40 (hsp40) gene, partial  
**Manjunatha, H.B.** and Harishkumar, J. OR488544.1
10. *Bombyx mori* strain NBL9 heat shock protein 40 (hsp40) gene, partial  
**Manjunatha, H.B.** and Harishkumar, J. OR488545.1
11. *Bombyx mori* strain NBL10A heat shock protein 40 (hsp40) gene, partial  
**Manjunatha, H.B.** and Harishkumar, J. OR488546.1
12. *Bombyx mori* strain NBL10B heat shock protein 40 (hsp40) gene, partial  
**Manjunatha, H.B.** and Harishkumar, J. OR488547.1