

BIODATA OF INDIAN PRINCIPAL INVESTIGATOR

Name : **Dr. K. M. Ponnuvel**
Designation : Scientist- D
Department/Instiute/ : Seribiotech Research Laboratory
University : Central Silk Board
Sarjapura Road, Carmelram - Post
Kodathi, Bangalore 560 035
Date of birth : 31st July 1965
Sex (M/F) : Male
SC/ST : No

I) Education Details

S.N	Institution / Place	Degree awarded	Year	Field of study
1	Bharathiyar University Coimbatore, India	M.Sc.,	1987	Plant Science with Microbiology
2	Department of Microbiology, Dr. ALM Post Graduate Institute of Basic Medical Sciences, University of Madras, Chennai, India	Ph.D.,	1993	Medical Microbiology
3	Innate Immunity Laboratory, Department of Molecular Biology and Immunology, National Institute of Agrobiological Sciences, Tsukuba, JAPAN	STA Post Doctoral Fellow	April 2000 to March 2002	Characterization and cloning of anti-microbial genes of <i>B. mori</i>
4	Medical Virology Laboratory, Department of Microbiology of Meharry Medical College, Nashville, USA	NIH Post Doctoral Fellow	April 2002 to March 2004	Studies on protein interaction in alpha viruses using yeast two hybrid system

II) Position and Honours

SN	Institution / Place	Position	From	To
1	Microbiology Dept. Post Graduate Institute of Medical Sciences, University of Madras Chennai, India	Junior Research fellow - ICMR	14/12/1988	29/09/1990
2	Microbiology Dept. Post Graduate Institute of Medical Sciences, University of Madras, Chennai, India	Senior Research fellow - CSIR	01/07/1991	31/01/1992
3	RTRS Imphal, Manipur Central Sericultural Research and Training Institute, Mysore, India	Senior Research Asst.	13/02/1992	31/07/1995
4	Mol Biol Lab, CSRTI, Mysore	SRA/Senior Research Officer	10/08/1995	10/04/2000
5	NIAS, Tsukuba, Japan	STA, Post-Doctoral Fellow	11/04/2000	31/03/2002
6	Virology Lab, Meharry Medical College, Nashville, TN, USA	NIH Post-Doctoral Fellow	01/04/2002	0/04/2004
7	Biotechnology Laboratory Central Sericulture Germplasm Resources Centre	Senior Research Officer / Scientist - C	01/05/2004	30/06/2008
8	Seribiotech Research Laboratory, Kodathi, Bangalore, INDIA.	Scientist - C	01/07/2008	25/02/2014
8	Seribiotech Research Laboratory, Kodathi, Bangalore, INDIA.	Scientist - D	25/02/2014	Till date

III) Honours / Awards

Type	Number	Description
A) International	3	1. STA fellow of Govt of Japan 2. NIH Fellowship 3. DST-JSPS Project for two years
B) National	3	1. Junior Research Fellowship – ICMR 2. Senior Research fellow – CSIR 3. Best Scientist award by CSB in Silkworm Biotechnology for the year 2006-07

IV) Publications in journals/proceedings:

A) International	33
B) National	18

Number of Ph.Ds produced or enrolled

Name of the Candidate	Title of the thesis	Discipline /University	Degree awarded/ Enrolled
R. Saravanakumar	Molecular evaluation of egg diapause induction in multivoltine silkworm <i>Bombyx mori</i>	Biotechnology, University of Mysore	Degree awarded in March 2010
D. Velu	Studies on thermal stress protein genes and their association with thermotolerance in silkworm <i>Bombyx mori</i>	Biotechnology, University of Mysore	Degree awarded in March 2010
S. Sasibhushan	Differential level of gene expression in diapause induced eggs of multivoltine silkworm races of <i>Bombyx mori</i>	Biotechnology, University of Mysore	Degree awarded in March 2014
N. Chandrakanth	Molecular evaluation of silkworm hybrids of <i>Bombyx mori</i> tolerant to high temperature environment.	Biotechnology, University of Mysore	Registered in February 2012
G. Lekha	Differential level of gene expression in silkworm <i>Bombyx mori</i> associated with nucleopolyhedrovirus (BmNPV) infection	Biotechnology, University of Mysore	Registered in February 2012

V) Professional Experience and Training relevant to the Project

1. Implemented various projects funded by DBT, European Union and CSB in silkworm biotechnology since 1995 as Principle Investigator with expertise in molecular immune response against viral infection in *Bombyx mori*. Also Underwent advanced training in silkworm molecular biology at National Institute of Agrobiological Sciences Tsukuba JAPAN [2000-02] and Microbiology Department Meharry Medical College Nashville USA [2002-04]

VI) Selected peer reviewed publications (best publications in chronological order):

1. Kadono-Okuda K., K. Ito, Geetha N. Murthy, V. Sivaprasad and **K. M. Ponnuvel**, Molecular mechanism of Densovirus resistance in silkworm, *Bombyx mori*, *Sericologia*, 54 (1), 1-10 (2014)
2. Sasibhushan S, Rao CGP, **Ponnuvel K M** (2013) Genome wide microarray based expression profiles during early embryogenesis in diapause induced and non-diapause eggs of polyvoltine silkworm *Bombyx mori*. *Genomics*. (In press) *Impact factor: 3.010*
3. Murthy G N., **Ponnuvel, K. M.**, Awasthi, A. K., Rao, C. G. P., Sagar, C.B.K. (2013) Molecular and ultrastructural studies on DNV-2 infection in the Indian silkworm *Bombyx mori* L. *Journal of Invertebrate Pathology*, (in press) - *Impact factor 2.669*

4. Sasibhushan S, Vijayagowri E, Geetha N Murthy, Guruprasada Rao and **Ponnuvel KM** (2013) Molecular characterization of DnaJ 5 homologs in silkworm *Bombyx mori* and its expression during egg diapause. *Insect Science*.(In press) - *Impact Factor: 1.786*
5. Sasibhushan S, Geetha N Murthy, Guruprasada Rao and **Ponnuvel K M** (2013) Paralytic Peptide Binding Protein (PP-BP) gene expression during egg diapause and its multi-gene organization in the silkworm *Bombyx mori*. *International Journal of Industrial Entomology*. 26: 31-40.
6. Sasibhushan S, **Ponnuvel K M** and Vijayaprakash N B (2013) Changes in diapause related gene expression pattern during early embryonic development in HCl-treated eggs of bivoltine silkworm *Bombyx mori* (Lepidoptera:Bombycidae). *Brazilian Archives of Biology and Technology*. 56: 1-10. *Impact factor – 0.443*
7. Sasibhushan S, **Ponnuvel K M** and Vijayaprakash N B (2012) Diapause specific gene expression in the eggs of multivoltine silkworm *Bombyx mori*, identified by suppressive subtractive hybridization. *Comparative Biochemistry and Physiology, Part B*. 161: 371–379. *Impact factor – 1.914*
8. Devi, K. I., **Ponnuvel, K. M.**, Singh L. S., Singh, K. C., and Dutta, K. (2012) Genetic diversity among Indian oak tasar silkworm, *Antheraea proylei* J. revealed by ISSR markers. *Int. J. Indust. Entomol.* Vol. 24, No. 1, 2012, pp. 57–61
9. **Ponnuvel K. M.**, Nithya K., Sasibhushan S., Awasthi A. K. and Yamakawa M. (2012). In vitro antiviral activity of an alkaline trypsin from the digestive juice of *Bombyx mori* larvae against nucleopolyhedrovirus. *Archives of Insect Biochemistry and Physiology*, Vol. 81, No. 2, 90–104 (2012). *Impact factor – 1.564*
10. **Ponnuvel K.M.**, Murthy G. N., Awasthi A.K., Rao C.G.P, Vijayaprakash N.B. and Kamble C.K. (2011) Densovirus-2 in flacherie affected silkworm *Bombyx mori*, *Indian silk* 2(5): 4-6
11. **Ponnuvel K.M.**, Murthy G. N., Awasthi A.K., Rao C.G.P, Vijayaprakash N.B. and Kamble C.K. (2011) Identification and characterization of densovirus – 2 (DNV-2) in flacherie diseases silkworm *Bombyx mori* in India and molecular mechanism of disease resistance in host against DNV-2 infection. *Proceedings of 22nd International Sericultural Commission Congress*, Chiang Mai, Thailand pg 174-181
12. **Ponnuvel K.M.**, Murthy G. N., Triveni L., Awasthi A.K., Rao C.G.P, Vijayaprakash N.B. and Kamble C.K. (2010). Screening of *Bombyx mori* silkworm races for detection of densonucleosis virus-2 resistance genes (nsd-2). *Sericologia* 51(2): 145-156.
13. **Ponnuvel K. M.**, Murthy G.N., Awasthi, A. K., Rao C.G.P. and Vijayaprakash N.B. (2010). Differential gene expression during early embryonic development in diapause and non diapause eggs of multivoltine silkworm *Bombyx mori*, *Indian Journal of Experimental Biology*, Vol.48 (11), 1146-1151. *Impact factor – 0.552*

14. Saravanakumar R., **Ponnuvel K. M.** and Qadri S. M. H. (2010). Genetic stability analyses of diapause-induced multivoltine silkworm *Bombyx mori* germplasm using inter simple sequence repeat (ISSR) markers. *Entomologia Experimentalis et Applicata* 135: 170–176. Impact factor – 1.483
15. **Ponnuvel K. M.**, Natarajan S., Sirigineedi S., Murthy G.N. and Vijayaprakash, N. B. (2010). Molecular evolution of the cecropin multigene family in silkworm *Bombyx mori*. *Bioinformation*. Vol. 5(3):97-103, Impact factor – 0.994
16. Ashok kumar K, Somasundaram P., **Ponnuvel, K. M.**, Babu G.K.S, Qadri S.M.H. and Kamble C. K. (2009). Identification of Genetic variations among silkworm races of *Bombyx mori* through bio-molecular tools. *Indian Journal of Sericulture*, 48(2), 116-125.
17. Saravanakumar, R., **Ponnuvel, K. M.**, Qadri, S. M. H. (2008). Expression of metabolic enzyme genes and heat shock protein genes during embryonic development in diapause and non-diapause egg of multivoltine silkworm *Bombyx mori*. *Biologia: Section Cellular and Molecular Biology*. Vol 63(5): 737-744. Impact factor – 0.240
18. Saravanakumar R, **Ponnuvel K. M.**, Velu D, Koundinya P R., Sinha R K. and Qadri SMH (2008) Identification of diapause and non-diapause associated proteins in the eggs of multivoltine silkworm *Bombyx mori* by MALDI MS analysis. *International Journal of Industrial Entomology*, Vol 16 (2), 37-48.
19. Saravanakumar R., **Ponnuvel K. M.** and Kamble C. K. (2008) Variation in the coding and noncoding sequences of the DH-PBAN gene of diapause and non-diapause silkworm races. *International Journal of Tropical Insect Science* Vol 28 (2), pp 69-77, Impact factor – 0.532
20. **Ponnuvel K. M.**, Koundinya P. R., Sinha R. K. and Kamble C. K. (2008) Mechanism of viral resistance in mulberry silkworm *Bombyx mori*. *Indian Journal of Sericulture* Vol 47 (1), 1-6.
21. Koundinya P.R., **Ponnuvel, K. M.**, Sinha R. K. and Kamble C. K. (2008) Bacterial induced immunity studies in selected silkworm (*Bombyx mori*) germplasm races. *Indian Journal of Sericulture*, Vol 47 (1), 122-125.
22. Velu D., **Ponnuvel K. M.** and Qadri SMH (2008) Expression of the Heat Shock protein genes in response to thermal stress in the silkworm *Bombyx mori*. *International Journal of Industrial Entomology* Vol 16 (1), 21-27.
23. Velu D., **Ponnuvel K. M.**, Muthulakshmi M., Sinha R. K. and Qadri S M H (2008) Analysis of genetic relationship in mutant silkworm genetic stocks of *Bombyx mori* using amplified Inter Simple Sequence Repeat (ISSR) markers. *Journal of Genetics and Genomics*, 35; 291-29, Impact factor – 1.076
24. **Ponnuvel K.M.**, Ashok Kumar K, Velu D., Somasundaram, P., Sinha R. K., Kamble C. K., (2008) Characterization and genomic organization of esterase gene in silkworm *Bombyx mori*. *Indian Journal of Biotechnology*, Vol. 7; 183-187. Impact factor – 0.303

25. Koshy N, **Ponnuvel K.M.**, Sinha R.K. and Qadri S.M.H. (2008) Silkworm Nucleotide Databases - Current Trends and Future Prospects. *Bioinformation Journal*, Vol 2(7); 308-310. Impact factor – 0.994
26. Velu D., **Ponnuvel K. M.** and S.M.H. Qadri (2007) Genomic organization of Heat Shock Protein Genes of Silkworm *Bombyx mori*. *International Journal of Industrial Entomology*, Vol 15, No 2, 2007, pp 123-130
27. **Ponnuvel K. M.**, Koundinya P. R., Ashok Kumar K., Sinha R. K. and Kamble C. K. (2007) Antiviral activity of digestive enzymes of silkworm *Bombyx mori* against nucleopolyhedrovirus – A review. *Sericologia*, 47(3) 243-252.
28. Saravanakumar R., **Ponnuvel K. M.**, (2007) Egg diapause induction in multivoltine silkworm *Bombyx mori* for long term germplasm preservation. *Int. J. Industrial Entomol.* 15 (1):1-7
29. **Ponnuvel K. M.**, Koundinya P.R., Sinha, R.K. & Kamble C. K. (2007) Immune response in silkworm *B. mori* against microbial infection. *Indian silk*, 6, 9-11.
30. **Ponnuvel K.M.**, Mohana Sundari B, Saravana Kumar R, Sinha R.K, Kamble C.K. (2007) Identification of a putative RNase III (dicer homolog) gene in silkworm *Bombyx mori*. *Invert. Survival Journal (Italy)* 4: 18-23
31. Nakazawa H., Tsuneishi E., **Ponnuvel K. M.**, Asaoka A, Furukawa M., Tanaka H., Ishibashi H and Yamakawa M (2004). Antiviral activity of a serine protease from the digestive juice of *Bombyx mori* larvae against nucleopolyhedrovirus. *Virology*, 321:154-162, If : – 3.765
32. **Ponnuvel K. M.**, Nakazawa H., Asaoka A, Furukawa M., Tanaka H., Ishibashi H and Yamakawa M (2003) A lipase isolated from the silkworm *Bombyx mori* shows antiviral activity against nucleopolyhedrovirus. *J. Virol.* 77 (19), 25-29, Impact factor – 5.332
33. **Ponnuvel K. M.**, Yamakawa M., Velu D., Saravanakumar R, Thangavelu K (2005). Alkaline protease gene of silkworm *Bombyx mori* and its genomic organization, nucleotide sequence and ORFs. *Proceedings of 20th Conf. ISCC held in Bangalore. Dec. 2005*, pg 8-12.
34. **Ponnuvel K. M.**, Yamakawa M., Somasundaram P. and Thangavelu K. (2005). *Bombyx mori* antiviral protein gene DNA sequence analysis by basic local alignment search tool (BLAST). *Proceedings of National symposium of Bioinformatics and computing*, pg11-15, Published by Allied publishers, New Delhi
35. Somasundaram, P., **Ponnuvel K. M.**, Thangavelu K. (2005). Database mining from *Bombyx mori* genomic DNA and expressed sequence tags (EST) database. *Proceedings of National symposium of Bioinformatics and computing*, pg23-26, Published by Allied publishers, New Delhi
36. Kumar S., Xu M., Chen Y., **Ponnuvel K. M.**, Datta R.K. (2002) Analysis of bulked segregants to identify molecular markers linked with cocoon shell weight in the silkworm *Bombyx mori*. *J. Zhejiang University Science*, **3**, 348-354, Impact factor – 1.219
37. **Ponnuvel, K. M.**, Yamakawa, M., (2002) Immune responses against bacterial infection in

Bombyx mori and regulation of host gene expression. Current Science; **83**:447-454, Impact factor – 0.688

38. Menon T., **Ponnuvel K. M.**, (2000) Disc diffusion test in the identification of *Candida* species Mycoses **43**(5): 165-168, Impact factor – 1.327
39. Datta, R. K., **Ponnuvel, K. M.**, (1997) Purification and characterization of antiviral protein in the gut juice of silkworm. 4th International workshop on the molecular biology and molecular genetics of Lepidoptera, Aug 24-30, 1997. Kolymbari, Crete, Greece, Sericologia; **40**; 61-62
40. **Ponnuvel, K. M.**, Kumar, V., Babu, A. M., Datta, R. K., (1999) Effect of alkalinity and protease in the digestive juice of silkworm *B. mori* on BmNPV infection. Italian J. Zoology **66**; 121-5
41. **Ponnuvel, K. M.** Menon T., Arumugam (1998). *Candida* DNA typing pattern in burn care unit. Current Science **75**; 492-496, Impact factor – 0.688
42. **Ponnuvel, K. M.**, Harikumar, A., Babu, C. M., Sinha, R. K., (1997) Changes in the body weight, tissue somatic index and hemolymph properties of uzi-infested and control *Anthereaea proylei* silkworm. International Journal of wild silkworm and silk **3**,75-78
43. Ghosh, M. K., **Ponnuvel, K. M.**, Babu C. M., Noamani M. K. R., (1997) Correlation between female moth weight and fecundity in the oak tasar silkworm, *A. proylei*. Sericologia **36**(3); 561-564
44. **Ponnuvel, K. M.**, Rajkumar, R., Menon, T., Sankaranarayan, V. S., (1996) Role of *Candida* in Pathogenesis of antibiotic associated diarrhoea. Mycopathol **135**; 145-148, Impact factor – 0.915
45. **Ponnuvel, K.M.**, Noamani, M.K.R., Luikham, R., Singh C., (1996) Seasonal variation in biochemical constituents of *Quercus serrata* leaf. Proc. of Natl. Acad. of Sci. in India **66**(B);48-52
46. Narmada, **Ponnuvel, K.M.**, Menon T., (1993) *Salmonella* associated reactive arthritis. Journal of Microbiology and Pathology, **23**, 78-81
47. Menon T., **Ponnuvel, K.M.**, Bhavani J., Arumugam (1993) Protein profiles of *Candida* Species from burns unit. J. Vivekananda Medical Sciences **27**; 273-276
48. **Ponnuvel, K. M.**, Rama, C. P., Menon, T. (1993). Systemic and gastrointestinal candidiasis of infant mice as model for anti fungal therapy. Indian J. of Experimental Biology **31**; 450-452, Impact factor – 0.302
49. **Ponnuvel, K. M.**, Menon, T., (1991) Distribution of ABO blood group for carriers of *Candida* Species. Biomedicine **11**(1); 13-1
50. Praveena, S., **Ponnuvel, K. M.**, Menon T. (1991) Microbial aetiology of leucorrhoea. J. Obstetrics and Gynaecology **41**(1); 90-92
51. Menon T., **Ponnuvel, K.M.**, Namasivayam. (1989) Effect of stationary magnetic field on morphogenesis and co-adhesion in *Candida albicans*. Bioelectromagnetics and Biomedicine **2**(1); 45-47