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WORK EXPERIENCE

K. S. Rangasamy College of Arts and Science (Autonomous)

Assistant Professor- Department of Biotechnology January 2023- Till date

ICAR- National Bureau of Agricultural Insect Resources April 2019 – March2022

CSIR-Senior Research Fellow: Molecular characterization of entomopathogenic nematodes and symbiotic bacteria: their biocontrol potential against arecanut rootgrub, *Leucopholis burmeisteri* (melolonthinae: coleoptera).

Work Done: Molecular characterization of entomopathogenic nematodes and symbiotic bacteria. To study desiccation and thermal tolerance of entomopathogenic nematodes. To test the efficacy of entomopathogenic nematodes against arecanut root grub (*Leucopholis burmeisteri L.)*. To determine optimal strain selection, formulation and field application strategies of entomopathogenic nematodes.

ICAR- National Bureau of Agricultural Insect Resources July 2017 – April 2019

Research Fellow: 1. Biosystematics and diversity of entomogenous nematodes in India

Work Done: Survey and Collection of soil samples from different agro-climatic zones of India. India. Maintenance of Entomopathogenic nematodes pure culture on *Galleria mellonella* under in-vivo conditions. Preparation of permanent mounts and nematode identification. Ecological characterization of entomopathogenic nematodes. Molecular characterization of entomopathogenic nematodes.Efficacy of EPNs and development of possible formulation for the management of Insect pests.

ICAR- National Bureau of Agricultural Insect Resources July 2014 – July 2017

Junior Research Fellow: Diversity and distribution of entomopathogenic nematodes from coconut and arecanut ecosystem.

Work Done: Collection of soil samples from different places of south India and isolation of EPNs by soil baiting method. Molecular characterization of EPNs and symbiotic bacteria and ecological characterization of EPNs using different host insects for virulent strain selection. The selected virulent strain used for field bioassay in coconut and Arecanut fields.

Indian Institute of horticultural Research January 2013 – July 2014

Research Fellow: Molecular Characterization of Horticultural Crops.

Work Done: Molecular Characterization of Horticultural Crops: Polyembryonic Mango, Jack Fruit, Jammun, Banana, *Flacourtia montana*. Ornamental Crops: Chrysanthemum, China Aster, Genomic DNA isolated and quantified from the leaf and PCR was carried out using RAPD, ISSR, SSR markers and Dendogram was created for analyzing genetic similarity. In polyembrony Mango 12 variety was characterized by Fluorescent SSR marker.

University of Agricultural Science, GKVK September 2012 — January, 2013

Project Assistant: Prospecting metabolite from plants and insect resources from Western Ghats, India

Work Done: Isolation of Xenorhabdus, Heterorhabditis nematodes from soil using Galleria larva

and multiply the nematodes in lab condition then infest to galleria. Isolation of Bacteria from the Nematode infected galleria using NBTA medium. Based on the color changes conform as Steinernema species and Heterorhabditis species. Isolation of the DNA and PCR using 16sRNA primer and species identification using sequence.Primary bacteria were isolated protein expression were studied. This entamopathogenic nematode was used in different dose, as biocontrol agent for the white grub.

PROJECT AND FUND RECEIVED

Scheme/ Funding	**Numbers received**
TNSTC scheme	01
CSIR-SRF	01
DST-SERB JRF	01

EDUCATIONAL QUALIFICATION

PhD. Biotechnology (August 2015), Jain University (Pursuing)
M.Sc. Biotechnology (April 2012), Sengunthar Arts and Science College, Periyar University, 76.3 %
B.Sc. Biotechnology (April 2010), Sengunthar Arts and Science College, Periyar University, 64.8 %

PROJECT WORKS

Title: Cloning, Sequencing And Synthesis Of Double Stranded Rna (dsRNA) For Trypsin-Like Serine Protease From Diamond Back Moth, *Plutella Xylostella* L. (Lepidoptera: Hyponomeutidae) under the guidance of **Dr. R. Asokan**, Principal Scientist, Biotechnology, IIHR.

Work Done: The potential of RNAi through the synthesis of double stranded RNA (dsRNA) for the Trypsin-like Serine Protease 2 *(TSP2)* gene was tested for the management of the diamond back moth, *Plutella xylostella* L. (Hyponomeutidae: Lepidoptera).The *TSP2* gene was isolated, cloned, sequenced from *P. xylostella*. Suitable off target minimized, dsRNAs region was identified based on the online software *dsCheck*. dsRNAs of 500 bp length were successfully *in vitro* transcribed for the above gene and quantified spectrophotometrically, which can be introduced in diet or injected directly into the pest.

TECHNIQUES KNOWN

- **Molecular Techniques:** Genomic DNA & RNA isolation from plant and bacterial & insect culture, PCR(Different Types)& troubleshooting in PCR, Electrophoresis, cDNA synthesis, dsRNA synthesis, Primer Designing, Cloning and Transformation, Plasmid isolation, Protein isolation & Estimation, Paper, Column & Thin layer Chromatography, PAGE for DNA and SDS-PAGE for Protein.

- **Entomology Techniques**: Rearing of Insect culture (Fall Army Worm, Wax Moth, Diamond Back Moth, House Fly and White Fly), Isolation of Nematode from Soil with using Galleria and field collection of insects, Field trails and observations.

- **Bioinformatics Tool:** BioEdit sequence aligner V7.0, BLAST, Submitting and Identifying Nucleotide sequence in NCBI, MEGA 5.0, NTsys Pc (Version-2.02), UVI Pro Platinum, STATISTICA, Peck Scanner, Gene Ruler, Cervus, Darwin.

- **Computer Skills:** Windows, Linux, MS Office, Internet Browsing, Photoshop, FORTRAN, FOXPRO.

- **Key Skills:** Net house and poly house plant culturing and monitoring of Birds of Paradise and Mango. Identification of fungal and bacterial disease and insect damage, Field observation of Leaf, Flower and plant character.

PAPERS PUBLISHED IN CONFERENCE PROCEEDINGS, POPULAR JOURNALS & TECHNICAL DETAILS.

National seminar, conference and workshops	24
International seminar, conference and workshops	6
Popular articles	4
NCBI Sequence submitted	120

PUBLICATIONS:

- Patil, J., Vijayakumar, R. and Abraham Verghese. (2016). Efficacy of indigenous *Steinernema abbasi* and *Heterorhabditis indica* isolates as potential biocontrol agent against *Holotrichia consanguinea* Blanch. (Coleoptera: Scarabaeidae). Nematology, 18: 1045-1052.
- Manjunatha T Gowda, Patil, J., Devindrappa, Vijayakumar. R. and Abraham Verghese. (2016). Entomopathogenic nematodes: A potential biocontrol agent against Eggplant Ash weevil *Myllocerus subfaciatus* Guerin, (Coleoptera: Curculionidae). Nematology, 18: 743-750.
- Patil J, Vijayakumar R, Lakshmi L. (2017). Efficacy of entomopathogenic *Heterorhabditis* and *Steinernema* nematodes against the white grub, *Leucopholis lepidophora* Blanchard (Coleoptera: Scarabaeidae). Crop Protection. 101: 84-89.
- P.H. Mhatre, J. Patil, V. Rangasamy, E.P. Venkatasalam, K.L. Divya, J. Jenifer, Pankaj and S. N. Chavan. (2017). The first report of *Steinernema cholashanense* (Rhabditida: Steinernematidae) from India. Indian journal of Nematology. 47: 254-255.
- Devindrappa, Jagadeesh Patil, Manjunatha T Gowda and R Vijayakumar. (2017). Compatibility of *Steinernema carpocapsae* and *Heterorhabditis indica* with insecticides registered against *Helicoverpa armigera* (Lepidoptera: Noctuidae). Journal of Biological Control, 31(2): 95-101.
- Devindrappa, Jagadeesh Patil, Manjunatha T Gowda, R Vijayakumar and Abraham Verghese. (2018). Fluctuating temperature: A cause for survival and development of entomopathogenic nematodes, *Heterorhabditis indica* and *Steinernema carpocapsae*. Indian Journal of Experimental Biology. 56: 327-333.
- Jagadeesh Patil and Vijayakumar Rangasamy. (2018). Field evaluation entomopathogenic nematodes against the white grub, *Leucopholis lepidophora* Blanchard (Coleoptera: Scarabaeidae). Egyptian Journal of Biological Pest Control. 28: 41.
- Jagadeesh Patil, Vijayakumar Rangasamy, Nagesh M and Prasanna Holajjer. (2020). Biocontrol potential of entomopathogenic nematodes against *Phyllognathus dionysius* Fabricius (Coleoptera: Scarabaeidae). Biological control. 140:104103.
- Patil, J., Vijayakumar, R., Linga, V., & Sivakumar, G. (2020). Susceptibility of Oriental armyworm, *Mythimna separata* (Lepidoptera: Noctuidae) larvae and pupae to native entomopathogenic nematodes. Journal of Applied Entomology, 144(7): 647-654.
- P.H. Mhatre , J. Patil, V. Rangasamy, K.L. Divya, S. Tadigiri, G. Chawla, A. Bairwa and E.P. Venkatasalam. (2020). Biocontrol potential of *Steinernema cholashanense* (Nguyen) on larval and pupal stages of potato tuber moth, *Phthorimaea operculella* (Zeller). Journal of Helminthology. 94: 1-5.
- Manjunatha T. Gowda, Jagadeesh Patil, Vijayakumar R., Jaydeep Halder, Veereshkumar, Pratap A. Divekar,A. B. Rai1 and Jagdish Singh. (2020). Isolation, identification and

biocontrol potential of entomopathogenic nematodes occurring in Purvanchal and Bundelkhand regions of Uttar Pradesh, India. Egyptian Journal of Biological Pest Control. 30: 95 1- 11.

PERSONAL DETAILS

- **Date of Birth:** 08/06.1989
- **Nationality:** Indian
- **Marital Status:** Married
- **Language Know:** 1. Tamil (Read, Write & Speak)
  2. English (Read, Write & Speak)
  3. Kanada (Speak)
  4. Malayalam (Speak)