

SANJAY KUMAR PRADHAN

B.Sc (Agri.), M.Sc. (Agri), Ph.D. in Agricultural Entomology

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EDUCATION

Ph.D. in Agricultural Entomology (Dual Degree)

- Hawkesbury Institute for the Environment, Western Sydney University, NSW, Australia
- University of Agricultural Sciences, Bangalore, India

08/2019 – 04/2024 (at UASB)

01/2022- 02/2025 (at WSU)

- Thesis title: Gene editing and virome studies for potential applications in the control of tephritid fruit flies.
- Principal supervisor: Prof. Markus Riegler
Prof. Shivanna Bynakal
- Co-Supervisor: Dr. Jennifer Morrow
Dr. Asokan Ramasamy

M.Sc. – Agricultural Entomology

University of Agricultural Sciences, Bangalore, India

09/2017 – 08/2019

Officially graduated: 28/11/2020

- Thesis title: Studies on the invasive coconut rugose spiralling whitefly, *Aleurodicus rugioperculatus* Martin (Hemiptera: Aleyrodidae).
- Principal supervisor: Dr. Shylesha A. N.

B.Sc. – Agricultural Science

Orissa University of Agriculture and Technology, Bhubaneswar, India

06/2013 – 06/2017

Officially graduated: 23/02/2018

CURRENT POSITION

Postdoctoral Research Scholar

- University of Kentucky, Lexington, KY 40546-0091

06/2025 – continuing

PEER REVIEWED PUBLICATIONS

- Pradhan, S.K.**, Morrow, J.L. and Riegler, M., 2025. RNA virus diversity in field transcriptomes of Queensland fruit fly across its distribution. (Under Preparation)

SKILLS

- Entomological laboratory and field skills
- Molecular biology laboratory skills
- Molecular techniques: DNA RNA and plasmid isolation, PCR, RT-qPCR, gene cloning, CRISPR/Cas9 based gene editing in insects,
- Molecular transformation, competitive cell preparation
- Bioinformatic skills: Transcriptome and metagenome analysis using Linux and macOS, gene mining, CLC genomics workbench, gene mapping, de-novo and reference-based genome assembly, Sanger sequence analysis, primer designing, synthetic guide RNA design, 3D-protein modelling, BEAST phylogenetic tree analysis,
- Laboratory insect culturing and maintenance.
- Sound experience in insects morphological and molecular taxonomy.
- Elaborate insect body tissue dissection.
- Expertise in bioassay of insecticides.
- Statistical data analysis and visualisation in SPSS and R.
- Graphical and vector drawings: Inkscape, Adobe illustrator
- Microsoft Office Suite.

HONORS, AWARDS AND RECOGNITIONS

- Student research grant Illumina-Ramaciotti Award (Winner) -2023
Genetic Society of Australasia (GSA)
Totalling \$15,000 to perform RNAseq of viruses in Queensland fruit fly.
- Ted Taylor student prize (Second prize)- 2023
Entomological Society of New South Wales, Australia.
- HIE Three Minute Thesis (3MT) (People's choice award)- 29 June 2023
Hawkesbury Institute for the Environment, Western Sydney University
Talk titled "Queensland fruit fly and virus- an untold affair".

PEER REVIEWED PUBLICATIONS

- **Pradhan, S.K.**, Morrow, J.L., Tilden, G., Ramasamy, A., Bynakal, S. and Riegler, M., 2025. Asymmetric biparental but ineffective horizontal transmission of paralysis-causing sigmavirus in Queensland fruit fly. (Submitted)
- **Pradhan, S.K.**, Morrow, J.L., Sharpe, S.R., Karuppannasamy, A., Ramasamy, E., Bynakal, S., Maligeppagol, M., Ramasamy, A. and Riegler, M., 2024. RNA virus diversity and prevalence in field and laboratory populations of melon fly throughout its distribution. *Journal of Invertebrate Pathology*, 204, 108117. IF: 3.4
- **Pradhan, S.K.**, Karuppannasamy, A., Sujatha, P.M., Nagaraja, B.C., Narayanappa, A.C., Chalapathi, P., Dhawane, Y., Bynakal, S., Riegler, M., Maligeppagol, M. and Ramasamy, A., 2023. Embryonic microinjection of ribonucleoprotein complex (Cas9+ sgRNA) of white gene in melon fly, *Zeugodacus cucurbitae* (Coquillett) (Diptera: Tephritidae) produced white eye phenotype. *Archives of Insect Biochemistry and Physiology*, 114(4), p.e22059. IF: 2.45
- **Pradhan, S.K.**, Karuppannasamy, A., Sujatha, P.M., Nagaraja, B.C., Bynakal, S., Riegler, M. and Ramasamy, A., 2023. Comparative analyses of age-stage, two-sex life table and host preference of *Zeugodacus cucurbitae* (Coquillett) (Diptera: Tephritidae) on different hosts. *Animal Biology*, 73(4), pp.341-361. IF: 1.3
- Karuppannasamy, A., Wishard, R., Ramasamy, A., Karakatti, P.B., Kumar, S., Nagaraja, B.C., Sujatha, P.M., **Pradhan, S.K.**, Ramarasu, A., Rai, A. and Maligeppagol, M., 2023. Inter and intra individual genomic edits contributing to white eye phenotype in the mango fruit fly, *Bactrocera dorsalis* Hendel (Diptera: Tephritidae) obtained through microinjection of ribo nucleo protein complex. *The Nucleus*, pp.1-8. IF: 1.8.
- Ashok, K., Bhargava, C.N., Asokan, R., Pradeep, C., **Pradhan, S.K.**, Kennedy, J.S., Balasubramani, V., Murugan, M., Jayakanthan, M., Geethalakshmi, V. and Manamohan, M., 2023. CRISPR/Cas9 mediated editing of pheromone biosynthesis activating neuropeptide (PBAN) gene disrupts mating in the Fall armyworm, *Spodoptera frugiperda* (JE Smith) (Lepidoptera: Noctuidae). 3 *Biotech*, 13(11), p.370. IF: 2.8

HONORS, AWARDS AND RECOGNITIONS

- National Eligible Test (ICAR-NET) in Agricultural Entomology- 31st January, 2020
Agricultural Scientists Recruitment Board Secured 75.56% marks.
- Senior Research Fellowship (AIR-1)- 2019-2022
Indian Council of Agricultural Research For pursuing Ph.D. in Agricultural Entomology.
- Junior Research Fellowship (AIR-7)- 2017-2019
Indian Council of Agricultural Research For pursuing M.Sc. in Agricultural Entomology.
- IASc-INSA-NASI Summer Research Fellowship Programme 2018
Indian Academy of Sciences (IASc)

WORK EXPERIENCE AND TRAINING

- HIE R Course
Hawkesbury Institute for the Environment, Western Sydney University, 24th-28th April, 2023.
- RNA-Seq data analysis: Hands on training
ICAR-Central Institute of Brackishwater Aquaculture, Chennai from 8th-10th June, 2022.
- Advanced analytical tools for pest and disease prediction models in R (machine learning techniques)
National Agricultural Higher Education Project, Center of Advanced Science and Technology at University of Agricultural Sciences, GKVK, Bengaluru from 5th – 12th June, 2020.
- Analytical techniques for pest and disease forecasting models.
National Agricultural Higher Education Project, Center of Advanced Science and Technology at University of Agricultural Sciences, GKVK, Bengaluru from 8th – 28th January, 2020.

PERSONALITY TRAITS

- Honest
- Positive thinker
- Willingness to learn new things
- Have great patience and strong will power

REFERENCES

- Prof. Markus Riegler
Director, Higher Degree Research, Hawkesbury Institute for the Environment | Western Sydney University, Locked Bag 1797, Penrith, NSW, 2751, Australia.
Phone: +61400743631
Email: m.riegler@westernsydney.edu.au
- Dr Jennifer Morrow
Postdoctoral research fellow, Hawkesbury Institute for the Environment | Western Sydney University, Locked Bag 1797, Penrith, NSW, 2751, Australia.
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