Department of Zoology

Faculty of Science / University of Peradeniya



Prof. W.A. Priyanka .P. De Silva

B.Sc., M.Phil. (Perad.), Ph.D. (Texas Tech, USA)

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About Me

I am a professor affiliated with the Department of Zoology in the Faculty of Science at the University of Peradeniya, Sri Lanka. I earned my Ph.D. in Biology from Texas Tech University, USA. My academic journey also includes postdoctoral training at the University of Georgia, USA. I completed an MPhil in Zoology at the University of Peradeniya and obtained a BSc (Hons) in Zoology from the University of Peradeniya.

My research primarily focuses on arthropod vectors and their role in disease transmission to both humans and wildlife. The selection of hosts by blood-feeding insects and the transmission of disease-causing pathogens through their blood-feeding behavior play a pivotal role in vector-host interactions, contributing to the emergence of numerous infectious diseases. My research interests revolve around comprehending these intricate host-pathogen-vector interactions and uncovering the factors that drive the evolution of the unique hematophagy exhibited by arthropod vectors. Within this domain, I investigate crucial areas such as the sensory ecology of blood-feeding insects, the mechanisms of insecticide resistance and insect toxicology, the development of eco-friendly insecticides, and the application of nanotechnology to enhance mosquito control programs. My research team is actively involved in evaluating the impact of naturally occurring microorganisms on the growth, development, and overall fitness of medically and veterinary important vectors.

Higher Education Qualifications

PhD	MPhil	BSc
Texas Tech University - USA USA (2014)	University of Peradeniya - Sri Lanka Sri Lanka (2006)	University of Peradeniya - Sri Lanka Sri Lanka (1999)

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Awards, Scholarships, Memberships & Fellowships

- Fulbright Advanced Research and Lecturing Award (2023)
- Multidisciplinary Research Grant 2023
- Presidential Award for Research (Merit) 2019
- Presidential Awards for Scientific Publications 2017
- Presidential Awards for scientific Publications 2015
- Presedential Awards for Scientific Publications 2008
- Faculty Research Award, 2018, 2019, 2020, 2021, 2022, 2023
- Sri Lanka Association for the Advancement of Science (Life Member) University of Peradeniya
- Science Alumni Association UPSAA (Life Member) Texas Tech University, Alumni association (Life Member)
- National Research Council Research Grant 2016
- National Science Foundation Research Grant 2016
- Entomological Society of America (2012)
- Society for the Study of Evolution (2012-2014) West Texas Women in Science (2012-2014)

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Positions Held

- Chairperson/ Ethical Review Commitee, Faculty of Science- (Since 2025)
- Chairperson/ Board of Study in Science Education- (Since 2023)
- Faculty Project Coordinator - AHEAD -ELTA ELSE- (2020-2023)
- Secretory, Board of Study in Science Education, PGIS- (since 2018-2023)
- Warden, Ramanathan Girls Hostel, University of Peradeniya, Sri Lanka- (since 2016-2019)
- Coordinator for the Science Education Program (Biology Component), Post Graduate Institute of Science, University of Peradeniya, Sri Lanka,- (since 2016)
- Coordinator for the Foundation courses (Biology component), Faculty of Science, University of Peradeniya, Sri Lanka- (2016)
- Center Coordinator of the National Biology Olympiad Examination conducted by the Institute of Biology, Sri Lanka- (2015, -2017)
- Senior Student Counselor, Faculty of Science, University of Peradeniya, Sri Lanka, since- (2015 -2018)

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My Teachings

- BL1002: Basic Life Sciences
- ZOO2222: Vertebrate Diversity
- ZOO3142: Evolutionary Biology and Systematics
- ZOO3232: Vector Borne Diseases
- ZOO4242: Research Methods and Data Analysis
- ZOO4282: Independent Study and Seminar
- ZOO4998: Research Projects

Research Interests (Research Fields/ Projects)

Evolution of blood-feeding behavior, Vector mosquitoes & Zoonotic diseases, host choice and host-seeking behavior of blood-feeding insects, control measures of vector-borne diseases.
Blood feeding patterns and host choice of mosquitoes are major biological events that facilitate the transmission cycles of vector-borne pathogens. Wild organisms serve as amplifying hosts for many pathogens including viruses that are transmissible to humans and other wildlife. Such disease-causing pathogens are transmitted to humans and wildlife through the bites of mosquitoes. My research focuses on the identification of mosquitoes that preferentially feed on different wild organisms, the diversity, distribution, abundance, and biting behavior of those mosquitoes as well as to identify the potential zoonotic diseases that can be transmitted to humans. The mosquito vectors and the vector control programs are one of the prime interests. In addition, I have been conducting collaborative research to determine the efficacy of botanical insecticides and the applications of nanotechnology in mosquito control programs.

Ongoing Research and Projects

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- **Species diversity, abundance and distribution of frog-biting mosquitoes in Wet and Dry Zones of Sri Lanka**

  (Nagao Environment Foundation, Japan – 2016 -2017)

- **Host specificity and vector potential of Uranotaenia mosquitoes in Sri Lanka**

  (National Science Foundation, Sri Lanka (2016 to 2018)

- **Insecticide Resistance and resistance mechanisms of mosquito vectors**

- **Abundance, distribution and special preferences of bird biting mosquitoes of Sri Lanka**

  (UNIVERSITY GRANT -51/ S (2016-2017)

- **Insect growth regulators and and control of dengue vector mosquitoes**

- **Applications of nanotechnology in mosquito control**

- **Mosquito Microbiome and microbial control of vectors**

- **Entomopathogenic Fungi in Dengue Vector Control**

- **Gut Microbiome, Bio-larvicides and Fitness Indicators in Mosquitoes**

- **Zoonotic Potential of Canine Leishmaniasis**

- **Parasitoids in Vegetable Pest Control**

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Key Publications

Journal of Ecological Entomology - (2020)

Feeding patterns revealed host partitioning in a community of frog-biting mosquitoes.

Journal of Parasites and Vectors - (2017)

Distribution and phylogeny of Wolbachia strains in wild mosquito populations in Sri Lanka

Conferences

Nothing to show under this subheading !!!

My Publications

Please goto the website.

https://sci.pdn.ac.lk/zoology/staff/Priyanka-De-Silva

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