

Ishanka U. Hemachandra, Ph.D.

Department of Agricultural Biology, Faculty of Agriculture, University of Peradeniya
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EDUCATION

Doctor of Philosophy in Quantitative Biology - GPA: 3.7

2016 Aug - 2021 May

Department of Biology
University of Texas at Arlington, Texas, USA
Advisor - Prof. Woo-Suk Chang

Dissertation - Effects of pH shock and heat stress on the growth of nitrogen-fixing bacteria and their phosphate solubilization.

Area of specialization- Molecular Microbiology and Agricultural Microbiology

Subjects - Bioinformatics, Biometry, Microbial Physiology, Environmental Microbiology, Microbial Genetics, Methods in Molecular Microbiology.

Master of Science in Plant Protection Technology - GPA: 3.91

2013 Feb - 2014 Nov

Postgraduate Institute of Agriculture
University of Peradeniya, Peradeniya, Sri Lanka

Subjects - Insect Morphology, Insect Physiology, Methods of Invertebrate Ecology, Pesticide Technology, Pesticide Toxicology, Plant Pathology, Clinical Plant Pathology, Acarology, Biological Control of Agricultural Pests, Insect Ecology and Behavior, Insect Pathology and Microbial Control of Insect Pests, Insect Systematics and Identification, Nematology, Weed Control.

Bachelor of Science in Agricultural Technology and Management (honors) - GPA: 3.51

2008 Aug - 2012 Oct

Faculty of Agriculture
University of Peradeniya, Peradeniya, Sri Lanka

Final Year Project - Evaluation of Four Methods for Cultivar Screening Against Shot-Hole Borer (*Xyleborus formicatus* Eichhoff.) in Tea in comparison with the Conventional Method.

Area of Specialization - Economic and Applied Entomology.

Core Subject Areas - Crop Science, Animal Science, Agricultural Economics & Business Management, Agricultural Extension, Food Science & Technology, Soil Science, Agricultural Engineering, Agricultural Biology.

Subjects Followed Under the Area of Specialization - Structure and Function of Insects, Ecological Pest Management, Insects in Farm Animal and Public Health, Honeybee Culture, Organic Crop Production, Insect Systematics, Pesticide Management, Current Trends in Entomology, Scientific Research and Communication in Biology.

PROFESSIONAL QUALIFICATIONS AND EXPERIENCE

Lecturer (Probationary)

2021 Mar - present

Department of Agricultural Biology, Faculty of Agriculture
University of Peradeniya, Peradeniya, Sri Lanka

Teaching - AB 3213 Microbiology

AB 4117 Agricultural and Environmental Microbiology

Visiting Lecturer**2022 April - Present**

Board of Study Plant Protection, Postgraduate Institute of Agriculture
University of Peradeniya, Peradeniya, Sri Lanka

Teaching – PP 5101 General Microbiology

PP 5109 Molecular Microbiology

PP 5214 Molecular Plant - Microbial Interactions

Research Interests- Plant-microbial interactions/ Phosphate solubilization/ Nitrogen fixation/ Biofertilizer/ Microbial degradation of environmental pollutants

Doctoral Research Assistant**2016 Aug – 2021 Mar**

University of Texas at Arlington, Texas, USA

- Conducting research under the area of Molecular Microbiology with respect to Plant-Microbial interactions.
- Mentoring undergraduates and junior graduate students in conducting research in the field of Microbiology and Molecular Microbiology.

Graduate Teaching Assistant

University of Texas - Arlington, Texas, USA

- BIOL 3444 - General Microbiology (Laboratory)
- BIOL 2460 - Nursing Microbiology (Laboratory)
- BIOL 1441- Cell and Molecular Biology (Laboratory)
- Preparation, contacting and evaluation of quizzes, written and practical exams.

2018 Jan - 2021 Mar**2018 Jan - 2021 Mar****2016 Aug - 2017 Nov****Temporary Demonstrator****2013 Feb - 2014 Feb**

Department of Agricultural Biology, Faculty of Agriculture,
University of Peradeniya, Peradeniya, Sri Lanka

- Conducted undergraduate level practical sessions of Economic & Applied Entomology, Plant Pathology, Genetics & Plant Breeding and Plant Molecular Biology courses and support practical sessions of Economic & Applied Entomology majoring students.

Trainee

National Plant Quarantine Service, Katunayake, Sri Lanka

2012 Apr - 2012 May**Undergraduate Researcher****2012 May - 2012 Oct**

Completed the final year research project in Entomology & Nematology Division
at Tea Research Institute, Mid-country station, Hantane, Sri Lanka

Certificate course in Human Resource Management**2011**

Institute of Personal Management, Kandy, Sri Lanka

Diploma in Information and Communication Technology**2008**

IDM Affiliated University, Gampaha, Sri Lanka

PUBLICATIONS AND PRESENTATIONS

1. Hemachandra I. U., Niraula S., Rose M., Ruesewald S., Phan C., and Chang W. S. 2021. Development of rhizobial inoculants with dual function: nitrogen fixation and phosphate solubilization. (*Manuscript under review*)
2. Hemachandra P. A. I. U., Niraula S., Rose M., Ruesewald S., Phan C., and Chang W. S. 2021. Assessment of the phosphate solubilization ability of nitrogen fixing rhizobia (*Bradyrhizobium japonicum*). KDU-IRC Conference, General Sir John Kotelawala Defence University-Ratmalana, Sri Lanka, September 2021.

3. Contributing author for the Microbiology Lab Manual (2019-2020 academic year) for BIOL3444-General Microbiology, BIOL-2460 Nursing Microbiology practical classes, Department of Biology, The University of Texas – Arlington, USA. **(Lab manual)**
4. Hemachandra I.U., Barger J., Chang W. S. Effect of Pyrroloquinoline quinone (PQQ) on N-biofertilizers in soybean production. Poster presentation at ACES (Annual Celebration of Excellence by Students) College of science, University of Texas - Arlington, Texas, U.S.A. April 2019.
5. Hemachandra I. U., Nguyen B., Donati A., Chang W. S. Genetics and physiology of the soybean symbiont *Bradyrhizobium japonicum* under acidic conditions. Poster presentation at ASM (American Society for Microbiology) Texas branch meeting. Texas A & M University, Corpus Christi, Texas, U. S. A. November 2018.
6. Hemachandra I. U., Chang W. S. Genetics and physiology of the soybean symbiont *Bradyrhizobium japonicum* in response to heat stress. Poster presentation at ACES (Annual Celebration of Excellence by Students) College of science, University of Texas - Arlington, Texas, U. S. A. April 2018.
7. Hemachandra P. A. I. U., Mohotti K. M., Ahangama D. 2012. Evaluation of Methods for Cultivar Screening Against Shot-hole Borer (*Xyleborus fornicatus* Eichhoff.) in Tea. Book of Abstracts of the Peradeniya University Research Sessions, Sri Lanka - 2012 Vol. 17: 241.

TECHNICAL SKILLS

- In Molecular Microbiology: culturing bacteria, bacterial genomic DNA extraction, plasmid DNA extraction, bacterial total RNA extraction, primer designing & PCR, gel electrophoresis, cloning and site directed mutagenesis.
- In Entomology: insect collection, identification and preservation, insects and insect parasitoids rearing and identification, insect dissections and slide mounting of insect body parts.

AWARDS AND RESEARCH GRANTS

1. **As Principal investigator:** University Research Grant Year 2022 - Grant No. URG/2022/01/Ag
Title: Evaluation of Plant Growth Promoting Attributes and Abiotic Stress Tolerance of Native Rhizobial Symbionts of Green Manure Crops *Gliricidia sepium* and *Mimosa pudica* (L.) Grown in Dry Zone Sri Lanka, 0.5 mil (Active)
2. **As Principal investigator:** National Research Council – Investigator Driven Grants (IDG 2021),
Title: Assessment of Plant Growth Promoting Attributes and Abiotic Stress Tolerance of Native Rhizobia Isolated from the Root Nodules of Green Manure Crops (*Gliricidia sepium* and *Mimosa pudica* (L.)) in Sri Lanka to be used as Biofertilizers. (Under review)
3. **As Co-investigator:** STHRD/CRG/R2/RJ 4, “Study of mosquito repellent activity of different extracts from under-utilized fruit crops targeting a commercial ointment”, MPhil project, 6.0 mil (Active)
4. **As Co-investigator:** STHRD/CRG/R2/RJ 4 “Nitrogen fixing photosynthetic bacteria as efficient biofertilizers and organic biomass production with phosphorus accumulating bacteria for revolutionizing the practices of underutilize crop cultivation” MPhil project, 6.0 mil (Active)
5. **As Research Associate:** Maverick Science Graduate Research Fellowship (June through August 2020), \$2,000.00
College of Science, University of Texas at Arlington
6. **Graduate Studies Scholarship (Aug 2016- Aug 2021)**
Department of Biology, College of Science, University of Texas at Arlington, Texas, U.S.A

REVIEWING SERVICE

Manuscripts and Abstracts

- 11th Young Scientists Forum (YSF) Symposium- 2023
- 10th Young Scientists Forum (YSF) Symposium- March 2022
- 42nd Annual Sessions of Institute of Biology, Sri Lanka – 2022
- 15th International Research Conference-Kotelawala Defence University (IRC-KDU) – September 2022

AFFILIATIONS

- Member, University Explorers Club, University of Peradeniya, Sri Lanka
- Member, Biology Guild, Department of Agricultural Biology, Faculty of Agriculture, University of Peradeniya
- Member, Nature Society, Society of Ecological Agriculture, Agriculture Faculty Forest Society, Faculty of Agriculture, University of Peradeniya