Curriculum Vitae

Upendra Raj Bhattarai, PhD

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Education

2019 – 2022 **PhD, Genetics, Department of Anatomy, University of Otago, NZ**

Expected February 2022; Research focuses on the molecular mechanisms of host manipulation in earwigs due to nematode infection. I am using nanopore long reads, 10x linked reads, and short reads to assemble and annotate genomes and carry out comparative genomics. Along with differential analysis on RNA-Seq and bisulfite sequencing data at different stages of manipulation on both the host and the parasite to study the underlying mechanisms of manipulation.

2014 – 2018 **PhD in Agri. Entomology and Pest Control**, **Northwest A&F University, China**

Studied the molecular mechanisms underlying behavioural changes (treetop disease and hyperactivity) in lepidopteran larvae due to baculovirus infection using RNA-Seq data and behavioural analysis.

2010 – 2012 **MSc Plant Science, Norwegian University of Life Science, Norway**

Studied the aberrant fatal attraction of male spider mites (*Tetranychus urticae*) towards females killed by mite-pathogenic fungus *Neozygites floridana*.

2005 – 2009 **Bachelor of Science, Agriculture, Tribhuvan University, Nepal**

Teaching experience

2021 Instructor for Genomics data carpentry, organized by Genomics Aotearoa (online)

2021 Instructor and organizer, Research Bazaar 2021, Dunedin

2021 Helper for RNA-Seq Workshop organized by Genomics Aotearoa, Dunedin

2019 Tutor Cell Biology (ANAT332), Disability Information & Support, UoO, Dunedin

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Work experience

2012 – 2013 **Research Technician** (part-time), Norwegian Institute for Agricultural and Environmental Research (Bioforsk), Ås, Norway

- Performed several laboratory experiments involving three trophic levels (fungus, mites and plants).
- Maintain laboratory cultures of acaro-pathogenic fungi, mites, flies and plants.
- Assisted in different lab experiments with insects and mite pathogenic fungi.

2013 – 2014 **Project officer/Program manager in agricultural livelihood project,** Centre for community development, Nepal

- Promoted with the responsibility of program manager after nine months of service.

- Planned and run activities of multiple agricultural projects with a team of more than 52 regular staff.
- Provided technical guidance and training to many farmers and technical staff for improved agricultural and beekeeping practices.
- Liaised with governmental and non-governmental agricultural organizations and key stakeholders for better implementation of agricultural projects in central Nepal.

2009 – 2010 **Agricultural extension and training officer** in Multi-dimensional agricultural development organization, Nepal

- Conducted training on advanced agricultural practices and social mobilization, for technicians and farmers in suburbs of Kathmandu, Nepal

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Training and Awards

2020 Certified Carpentries Instructor to teach international data and software carpentry workshops, The Carpentries.

2019-2020 Departmental PhD Scholarship, Department of Anatomy, University of Otago, NZ.

2014-2018 Distinguished International student PhD scholarship, Northwest A&F University, China.

Presentations

2021 The death dive, investigating the molecular basis of water seeking behaviour in earwigs (*Forficula auricularia*) due to nematode (*Mermis nigrescens*) infection. BMS, postgraduate symposium. (Poster presentation).

2021 Investigating the molecular basis of parasitic mind control, Department seminar, Department of Anatomy, University of Otago, Dunedin, NZ. (Oral presentation).

2021 The death dive, investigating the molecular basis of water seeking behaviour in earwigs (*Forficula auricularia*) due to nematode (*Mermis nigrescens*) infection. 69th Entomological Society of New Zealand Conference, Dunedin, New Zealand. (Poster presentation).

2020 Comparison of long-read genome assemblers, Emerging Researcher Group (ERG), University of Otago, 2020, Dunedin, NZ (Oral presentation).

2019 Investigating the molecular basis of water seeking behaviour in earwigs (*Forficula auricularia*) induced by nematode (*Mermis nigrescens*) infection, 22nd Annual New Zealand molecular ecology meeting, 2019, Paekakariki, Kapiti Coast, NZ. (Oral presentation).

2019 How do parasitic puppeteers pull the strings? Nematode induced water-seeking behaviour in Earwigs, 47th annual meeting of New Zealand society for parasitology, Dunedin, NZ. (Poster presentation).

2017 *De novo* transcriptome analysis for temporal changes in gene expression of gypsy moth larvae (*Lymantria dispar asiatica*) during baculovirus induced hyperactivity, Insect Virus molecular biology conference, Changsha, China. (Oral presentation).

2012 Is the sexual attraction of spider mite males to *Neozygites floridana* killed females important for the epidemic development of this natural enemy? BERRYSYS project end seminar 2012, Ås, Norway.

Peer reviewed publications

(* corresponding author, § equal contributions)

2021 **Bhattarai, U.R**.*, Doherty, J-F., Dowle, E., Gemmell, N.J. The adaptiveness of host behavioural manipulation accessed using Tinbergen's four questions. *Trends in Parasitology*. https://doi.org/10.1016/j.pt.2021.01.006

2021 Doherty, J-F., Filion, A., Bennet, J., **Bhattarai, U.R.**, Chai, X., De Angeli Dutra, D., Donlon, E., Jorge, F., Milotic, M., Park, E., Sabadel, A., Thomas, L. J., Poulin, R. The people vs. science: can passively crowdsourced internet data shed light on host-parasite interactions? *Parasitology*, 1-7. https://doi.org/10.1017/S0031182021000962

2021 Poulin, R., Bennett, J., Filion, A., **Bhattarai, U.R**., Chai, X., de Angeli Dutra, D., Donlon, E., Doherty, J-F., Jorge, F., Milotic, M., Park, E., Sabadel, A, Thomas, L. J.. iParasitology: Mining the internet to test parasitological hypotheses. *Trends in Parasitology*. https://doi.org/10.1016/j.pt.2021.01.003.

2018 **Bhattarai, U.R**., Li, F., Katuwal Bhattarai, M., Masoudi, A., Wang, D. Phototransduction and circadian entrainment are the key pathways in signalling mechanism for the baculovirus induced tree-top disease in lepidopteran larvae. *Scientific reports*. 8 (1). https://doi.org/10.1038/s41598-018-35885-4.

2018 **Bhattarai, U.R.,**§ Katuwal Bhattarai, M.,§ Li, F., Wang, D. Insights into the temporal gene expression pattern in *Lymantria dispar* larvae during the baculovirus induced hyperactive stage. *Virologica Sinica*. https://doi.org/10.1007/s12250-018-0046-x.

2018 Katuwal Bhattarai, M.,§ **Bhattarai, U.R**.,§ Feng, J. and Wang, D. Effect of different light spectrum in *Helicoverpa armigera* larvae during HearNPV induced tree-top disease. Insects. 9(4), 183. https://doi.org/10.3390/insects9040183.

2018 Katuwal Bhattarai, M., **Bhattarai, U.R.**, Masoudi, A., Feng, J., and Wang, D. Pathogenicity and virulence of the entomopathogenic fungi depend on selective suppression of anti-oxidative and detoxification enzymes in *Tenebrio molitor* (Coleoptera: tenebrionidae) larvae. Biochemical and Cellular Archives. 18 (1): 861-874

2017 Masoudi, A., Koprowski, J. l., **Bhattarai, UR**., and Wang, D. Elevational distribution and morphological attributes of the entomopathogenic fungi from forests of the Qinling Mountains in China. Applied Microbiology and Biotechnology. http://doi.org/10.1007/s00253-017-8651-

4.

2015 Trandem N., **Bhattarai UR**., Westrum K., Knudsen GK., Klingen I. Fatal attraction: male spider mites prefer females killed by a mite-pathogenic fungus *Neozygites floridana.* Journal of Invertebrate Pathology 128:6-13. http://doi.org/10.1016/j.jip.2015.04.002.

Languages

Nepali (Mother tongue), English, Hindi, Chinese (basic)
