
A. A. Hesandi Rumalya Adhikari

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Academic Profile

Graduated in Agricultural Technology and Management with First Class Honours, specializing in molecular biology, plant biotechnology, and bioinformatics. Strong research experience in molecular characterization of crop germplasm and in silico drug discovery using advanced bioinformatics tools. Currently serving as a Temporary Lecturer with demonstrated experience in teaching, laboratory techniques, and academic research.

Education

BSc Honours in Agricultural Technology and Management majoring in Molecular Biology and Biotechnology module

Faculty of Agriculture, University of Peradeniya, Sri Lanka

Department of Agricultural Biology

Effective Date: 07 November 2025

- Final Grade Point Average: 3.84 / 4.00
 - Class: First Class Honours
 - Medium of Instruction: English
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Academic and Research Interests

- Plant biotechnology
- Molecular biology

- Bioinformatics and computational biology
 - Crop improvement and genetic diversity
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Research Experience

Final Year Undergraduate Research Project

Molecular Characterization of an In situ Collection of Sri Lankan Coffea Germplasm

- Conducted molecular characterization of 50 Coffea accessions collected from major coffee growing regions of Sri Lanka
- Performed DNA extraction and SSR marker based genotyping
- Analyzed allelic data using PowerMarker, MEGA, STRUCTURE, and Structure Selector software
- Estimated genetic diversity parameters including gene diversity and polymorphic information content
- Constructed UPGMA dendrograms to assess phylogenetic relationships and population differentiation
- Interpreted population structure results and evaluated marker sufficiency
- Contributed to germplasm conservation and genetic improvement strategies for coffee
- Research supported by Multidisciplinary Research Grant MRG 383

Bioinformatics Research Experience

Computational Drug Discovery Projects (Volunteer Researcher)

Since third year undergraduate level

- Performed structure based drug design and virtual screening of plant derived compounds
- Built phytochemical libraries through literature mining
- Conducted ADMET and drug likeness analyses using DataWarrior
- Modelled viral protein structures using AlphaFold3
- Conducted molecular docking using PyRx and CB Dock2
- Analyzed protein ligand interactions including hydrogen bonding and hydrophobic interactions
- Validated docking stability and binding affinity results

Laboratory and Technical Skills

Molecular Biology and Laboratory Techniques

- DNA extraction
- Gel electrophoresis using pre staining and post staining methods
- Polymerase Chain Reaction theory and practical
- Staining and destaining techniques
- Good laboratory practices and sample handling

Bioinformatics and Computational Tools

- BLAST

- Sequence alignment
- STRUCTURE analysis
- PowerMarker
- MEGA
- PyRx
- CB Dock2
- AlphaFold

Data Analysis and Software

- Microsoft Excel
 - Minitab
 - SAS statistical software
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Scientific Communication

Abstract Publications

- **Adhikari A.A.H.R.**, Karunarathne K.K.P., Wijekoon W.M.H.N.T.K., Manathunga M.J.B., Nanayakkara P.R.S., Aberathna W.A.K.L., Somarathna M.S.S.P., Ariyasinghe A.H.T.D.K., Samadhi K.G.A. and Ranathunga L.N., *Computational discovery of potential MGF 360-11L inhibitors from Aerva lanata targeting African swine fever virus*. The 6th International Conference on Applied and Pure Sciences (ICAPS 2025), Faculty of Science, University of Kelaniya, Sri Lanka, October 2025. (Abstract No: BO-16) [**Oral Presenter / First Author**]
- Poorni S., Wijekoon H., **Adhikari H.**, Hulugalla W.M.M.P., Anupama N.M.T., Nethmini N., Gamage N. and Ranathunga L.N., *Identification and virtual screening of natural compounds from Acalypha indica as potential inhibitors of Senecavirus A 3C protease*. International Conference on Industrial Engineering and Technology (ICIET 2024), Biotechnology, Bioengineering and Industrial Bioprocessing Track (Paper ID: ICIET/2024/172).
- Poorni S., Hasintha A., Hulugalla W.M.M.P., Anupama N.M.T., Karunarathna K.K.P., Gunathilaka H., Jayampathi N., Peiris A., Subasingha A., **Adhikari H.** and Ranathunga L.N., *Identification of plant-derived inhibitor from Gymnema sylvestre targeting African swine fever virus DNA polymerase X (ASFV PolX) enzyme*. National Symposium on Agriculture and Life Sciences (NSALS 2025), Faculty of Animal Science and Export Agriculture, Uva Wellassa University, Badulla, Sri Lanka (NSALS '25-186).
- Lakshan K., Hasintha A., Wijekoon H., **Adhikari H.**, Manathunga B., Nanayakkara R., Poorni S., Ariyasinghe D., Samadhi K.G.A. and Ranathunga L.N., *In silico analysis of Drynaria quercifolia bioactive compounds as potential inhibitors of Newcastle disease virus HN protein*. Proceedings of the Young Scientists' Conference on Multidisciplinary Research 2025, Young Scientists' Association, National Institute of Fundamental Studies, Sri Lanka, November 27, 2025 (Paper ID: CMT_70).
- **Adhikari A.A.H.R.**, Jayasooriya J.A.J.P., Dissanayake D.G.H.M.K. and Perera S.A.C.N., *Molecular characterization of an in-situ collection of Sri Lankan Coffea*

(coffee) germplasm. FAuRS Proceedings, Faculty of Agriculture Undergraduate Research Symposium, Faculty of Agriculture, University of Peradeniya, Sri Lanka. (Undergraduate research)

Leadership and Extracurricular Activities

- Junior Secretary, Evoke Society, University of Peradeniya 2023 to 2024
 - Junior Treasurer, EcoPulse Pera Society, University of Peradeniya 2024
 - Outreach, Horticultural Society, University of Peradeniya 2023
 - Committee Member, Horticultural Society 2024
 - Organizing Committee Member for Green Hearts Eco Academy 2.0
 - Organizing Committee Member for Aquatic Plant Propagation Workshop
 - Organizing Committee Member for Molecular Biology Practical Workshop
 - Participant, JICE Chair Programme on Japan's Modernization, SLJSC, University of Peradeniya 2024 to 2025
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Training and Workshops

- Workshop on Advanced Landscaping
 - Molecular Biology Practical Workshops
 - Academic and Environmental Outreach Programs
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Referees

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