LE, HOANG KHOI NGUYEN (LEO)

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EDUCATION

MS in Life Sciences | National Central University, Taiwan 2023

GPA: 4.27/4.3 (Rank 1/19)

Relevant courses: Advanced Evolutionary Biology; Molecular Evolution and Phylogenetics; Genomics and Applications

Dissertation: Comparative transcriptome analysis reveals key pathways underlying drought stress tolerance and characterizes genetic variations for selective breeding in tea plants, *Camellia sinensis*

BS in Biotechnology | International University – VNU HCMC, Vietnam 2020

GPA: 3.63/4.0 (Rank 2/97)

Relevant courses: Calculus I & II; Biostatistics; Genetics; Molecular Genetics; Bioinformatics

Dissertation: Mining of microsatellite markers from genomic sequences of striped catfish *Pangasianodon hypophthalmus*

RESEARCH EXPERIENCES

Project Research Assistant | Dr. Ben-Yang Liao's lab 2023 - Present

Institute of Population Health Sciences, National Health Research Institutes (NHRI), Taiwan

- Investigated the adaptive significance of a facial color pattern, the white eye-rings, in rodents using phylogenetic comparative methods including phylogenetic logistic regression, ancestral state reconstruction.
- Performed the three-chamber sociability test to understand the influence of white eye-rings on interspecies recognition in Nile rats.

MS Student | Dr. Shu-Dan Yeh's lab 2021 - 2023

Department of Life Sciences, National Central University, Taiwan

- Conducted functional annotation of the tea genome using BLAST search against public databases (e.g. SwissProt, GO, KEGG, PlantTFDB).
- Identified key genes and pathways related to drought tolerance in different tea cultivars using DEG and pathway enrichment analyses from tea transcriptomes.
- Characterized putative genetic variations (SNP and InDel) from RNA-seq data using bcftools.

Research Assistant | Dr. Nguyen Van Sang's lab 2019 - 2021

Research Institute for Aquaculture No. 2, Vietnam

- Identified microsatellite markers (SSR) and designed primers from the striped catfish genome using Geneious Prime software.
- Genotyped striped catfish samples using capillary electrophoresis with fluorescence-labeled SSR markers for population genetic studies.
- Employed population genetic analyses like AMOVA and genetic distance matrix construction to assess genetic structure and diversity among wild populations of the striped catfish.

PUBLICATIONS (*corresponding author)

1. **Le, N. H. K.**, Li, S.-H., Chiu, C.-C., Weng, M.-P., Chen, S.-K., & Liao, B.-Y.*. Why do many rodents have white eye rings?. (*In preparation*)
2. **Le, N. H. K.**, Firdaus, A. S., Kurniasari, C. A., Hu, C.-Y., Liu C.-F., Liao, B.-Y., & Yeh S.-Y*. Comparative transcriptome analysis reveals novel insights into drought adaptation in Taiwan tea cultivars, *Camellia sinensis*. (*In preparation*)
3. Hu, C.-Y., Tsai, H.-T., Chiu, C.-F., Su, T.-C., **Le, N. H. K.**, & Yeh, S.-D.* (2023). SSR-based molecular diagnosis for Taiwan tea cultivars and its application in identifying cultivar composition of the processed tea. *Journal of Food and Drug Analysis*, *31*(3), 446-457.
4. Tran, T. P. D. *, Nguyen, H. L., Nguyen, H. T., Nguyen, V. S., & **Le, N. H. K.** (2021). The application of microsatellite markers for parentage analysis in selective population of striped catfish (*Pangasianodon hypophthalmus*). *Vietnam Journal of Science and Technology (Series B)*, *64*(2).48-53.

5. Nguyen, V. S., Nguyen, H. T., Nguyen, H. L., Nguyen, M. T., Tran, H. G. L., & **Le, N. H. K.*** (2021). "Assessment of genetic diversity among wild populations of the striped catfish (*Pangasianodon hypophthalmus*) by 20 novel microsatellite markers". *Vietnam Journal of Science and Technology (Series B), 63*(7), 34-41.

PRESENTATIONS

1. "White eye-rings: Their correlated evolution with diurnalism and potential role in intraspecies recognition". The 3rd Joint Congress on Evolutionary Biology. Montreal, Canada. 2024 (Symposium talk).
2. "Coincident evolution of white eye-ring and diurnalism in Rodentia". Congress of Animal Behavior and Ecology. Academia Sinica, Taiwan. 2024 (Plenary talk).
3. "Transcriptome analysis reveals the molecular mechanisms related to drought tolerance in tea plants, *Camellia sinensis*". Multi-omics and Precision Medicine Joint Conference. Taiwan. 2022 (Poster presentation) & The 13th International Conference on Bioscience, Biochemistry and Bioinformatics. Japan. 2023 (Plenary talk).
4. "Development of molecular markers related to drought tolerance in tea plants, *Camellia sinensis*, via RNA-seq analysis". NHRI-NCU Joint Research Conference. Taiwan. 2022 (Poster presentation).

HONORS & AWARDS

- **Outstanding oral presentation** at Congress of Animal Behavior and Ecology, Taiwan 2024
- **Outstanding poster presentation** at Multi-omics and Precision Medicine Joint Conference, Taiwan 2022
- **Outstanding poster presentation** at NHRI-NCU Joint Research Conference, Taiwan 2022
- **Master's degree fellowship**, National Central University (100% tuition + $5000 stipend) 2021
- **Full undergraduate scholarship**, International University (100% tuition) 2016

TEACHING & MENTORING

Teaching Assistant

Department of Life Sciences, National Central University, Taiwan 2022 - 2023

- Coordinated weekly guest speakers for presentations at Topic Seminar course.

School of Biotechnology, International University, VNU HCMC 2017 - 2020

- Provided support to instructors in guiding students through laboratory experiments and techniques in various courses including General Chemistry, Microbiology, and Immunology.

Mentor of STEM express program, funded by the US Consulate General of Ho Chi Minh City 2022

- Managed a team of 3 high school students to develop and execute STEM ideas for innovative agriculture.

RELEVANT TRAINING

- **Linear Algebra I, II & III,** online courses offered by GTx of Georgia Institute of Technology 2024
- **Variant Discovery with GATK**, on-site workshop instructed by Broad Institute of MIT and Harvard, and organized by National Center of High Computing, Taiwan 2023
- **Animal Experimentation**, on-site training offered by Laboratory Animal Center, NHRI, Taiwan 2023
- **Python for Data Science**, online course offered by AI For Everyone, Vietnam 2023

※ REFERENCES

Dr. Ben-Yang Liao Investigator	Institute of Population Health Sciences, NHRI, Taiwan liaoby@nhri.edu.tw | +886 37246166 ext. 36118 Dr. Ben-Yang Liao is my employer since 2023.
Dr. Shu-Dan Yeh Associate Professor	Department of Life Sciences, National Central University, Taiwan shudanyeh@ncu.edu.tw | +886 34227151 ext. 65082 Prof. Shu-Dan Yeh was my graduate advisor from 2021 to 2023.
Dr. Nguyen Van Sang Associate Professor	Research Institute for Aquaculture No. 2, Vietnam sangnv.ria2@mard.gov.vn | +84 909 339 173 Prof. Nguyen Van Sang was my undergraduate advisor and employer from 2019 to 2021.
Dr. Nguyen Minh Thanh Vice Dean, Lecturer	School of Biotechnology, International University – VNU HCMC, Vietnam nmthanh@hcmiu.edu.vn | +84 8 3724 4270 ext. 3225 Dr. Nguyen Minh Thanh was my undergraduate co-advisor from 2019 to 2020.