RESEARCHER PROFILE
RESEARCH ORGANIZATION FOR AGRICULTURE AND FOOD
NATIONAL RESEARCH AND INNOVATION AGENCY

PERSONAL DATA

Name	:	**Nodali Ndraha, Ph.D**
Email	:	nodali.ndraha@brin.go.id
Gender	:	Male
Research Center	:	Research Center for Food Technology and Processing
Position	:	Junior Researcher
Rank/Class	:	III/c

Google Scholar

Link	:	https://scholar.google.com/citations?user=c22vt7YAAAAJ
H Index	:	14

Scopus

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PENDIDIKAN

S1	:	Agricultural Engineering, Universitas Sumatera Utara, Indonesia
S2	:	Food Science, National Taiwan Ocean University, Taiwan
S3	:	Food Science, National Taiwan Ocean University, Taiwan

EXPERTISE

Dr. Nodali Ndraha has expertise in food science and technology. More specifically, their expertise encompasses three main pillars: advanced pathogen diagnostics, predictive modeling and Quantitative Microbial Risk Assessment (QMRA), and the impact of climate change on food safety.

RESEARCH EXPERIENCE

In his research, Dr. Ndraha focuses on enhancing food safety and public health through interdisciplinary research. His research experience centers on three main pillars:

- First, in **advanced pathogen diagnostics**, he developed rapid molecular techniques such as PCR combined with magnetic beads for detecting *Salmonella enterica*, *Listeria monocytogenes*, and *Staphylococcus aureus*, achieving up to a 10-fold improvement in detection sensitivity without sample enrichment. They also focus on developing methods to detect pathogens and antibiotic resistance in bacterial isolates from artisanal cheese production environments.
- Second, his expertise in **predictive modeling and Quantitative Microbial Risk Assessment (QMRA)** involves using mathematical models and machine learning to predict microbial behavior and assess health risks, such as for *Vibrio parahaemolyticus* in marine oysters.
- Third, he investigated the **impact of climate change on food safety**, particularly in marine environments, by developing climate-based models to predict pathogen levels. Additionally, his research includes cold chain management, food waste reduction, and providing practical recommendations for various food matrices.

His significant contributions are reflected in publications in leading international journals and presentations at scientific symposia.

SELECTED PUBLICATION

1. He, J., Duan, Y., Yang, S., Toldrá, F., Zheng, J., Du, M., Wang, L., **Ndraha, N.**, Wang, S. and Chen, J., 2026. Insights into the mechanism of nutty aroma formation by *Staphylococcus saprophyticus* in fermented sausages. *International Journal of Food Microbiology*, p.111669.
2. Dyahyuningtyas, H.A., Aurum, F.S., Karimy, M.F., Damayanti, E., Rosyida, V.T., **Ndraha, N.**, Fitrianto, N., Siregar, T.H., Dwiyitno, D., Pourazad, P. and Penagos-Tabares, F., 2026. Untargeted Metabolomics Reveals Higher Contaminant Occurrences in Mixed-grains of Dairy Cow Feedstuff During Wet Season of Tropical Climate Zone. *Food and Humanity*, p.101044.

3. **Ndraha, N.**, Damayanti, E., Frediansyah, A., Ndraha, V., & Aditya, S. (2026). Enhancing microbial food safety in Indonesia's artisanal cheese sector: A strategic framework for consumer protection. *Journal of Consumer Protection and Food Safety*, 1-9.
4. Lin, C. H., Chen, J., **Ndraha, N.**, & Hsiao, H. I. (2026). Reducing product nonconformity through QMRA: A risk-based management approach for *Listeria monocytogenes* in a Taiwanese alfalfa sprout supply chain. *Food Control*, 111957.
5. **Ndraha, N.**, & Hsiao, H. I. (2025). A comparison of machine learning models for predicting *Vibrio parahaemolyticus* in oysters. *Microbial Risk Analysis*, 100345.
6. **Ndraha, N.**, Lin, C. H., Ping, G. A., Tran, G. D., Su, L. M., Huang, C. L., ... & Hsiao, H. I. (2024). Assessment and Validation of Predictive Growth Models for Locally Isolated *Salmonella enterica* and *Listeria monocytogenes* in Alfalfa Sprouts at Various Temperatures. *Journal of Food Safety*, *44*(5), e13171.
7. **Ndraha, N.**, Lin, H. Y., Hsiao, H. I., & Lin, H. J. (2024). Managing the microbiological safety of tilapia from farm to consumer. *Comprehensive Reviews in Food Science and Food Safety*, *23*(5), e70023.
8. **Ndraha, N.**, Lin, C. H., Ping, G. A., Tran, G. D., Su, L. M., Huang, C. L., ... & Hsiao, H. I. (2024). Assessment and Validation of Predictive Growth Models for Locally Isolated *Salmonella enterica* and *Listeria monocytogenes* in Alfalfa Sprouts at Various Temperatures. *Journal of Food Safety*, *44*(5), e13171.
9. **Ndraha, N.**, Lin, H. Y., Lin, H. J., & Hsiao, H. I. (2023). Modeling the risk of *Vibrio parahaemolyticus* in oysters in Taiwan by considering seasonal variations, time periods, climate change scenarios, and post-harvest interventions. *Microbial Risk Analysis*, *25*, 100275.
10. **Ndraha, N.**, Lin, H. Y., Wang, C. Y., Hsiao, H. I., & Lin, H. J. (2023). Rapid detection methods for foodborne pathogens based on nucleic acid amplification: Recent advances, remaining challenges, and possible opportunities. *Food Chemistry: Molecular Sciences*, *7*, 100183.
11. Lin, H. Y., Su, B. Y., **Ndraha, N.**, Tsai, S. F., Chiang, K. P., Liu, H. Y., ... & Lin, H. J. (2023). Growth-promoting and low-salt adaptation responses boosted by spermidine in *Strombidium parasulcatum*, a marine bacteriovorous ciliate potentially applied to live feeds for marine larviculture. *Aquaculture*, *573*, 739616.
12. **Ndraha, N.**, Lin, H. Y., Tsai, S. K., Hsiao, H. I., & Lin, H. J. (2023). The Rapid Detection of *Salmonella enterica*, *Listeria monocytogenes*, and *Staphylococcus aureus* via polymerase chain reaction combined with magnetic beads and Capillary Electrophoresis. *Foods*, *12*(21), 3895.
13. Wang, C. Y., **Ndraha, N.**, Wu, R. S., Liu, H. Y., Lin, S. W., Yang, K. M., & Lin, H. Y. (2023). An overview of the potential of food-based carbon dots for biomedical applications. *International Journal of Molecular Sciences*, *24*(23), 16579.
14. **Ndraha, N.**, Huang, L., Wu, V. C., & Hsiao, H. I. (2022). *Vibrio parahaemolyticus* in seafood: Recent progress in understanding influential factors at harvest and food-safety intervention approaches. *Current Opinion in Food Science*, *48*, 100927.

15. **Ndraha, N.**, Goh, A. P., Tran, G. D., Chen, C. Q., & Hsiao, H. I. (2022). Predictive models for the growth of *Salmonella* spp., *Listeria* spp., and *Escherichia coli* in lettuce harvested on Taiwanese farms. *Journal of Food Science*, *87*(8), 3599-3610.
16. **Ndraha, N.**, & Hsiao, H. I. (2022). A climate-driven model for predicting the level of *Vibrio parahaemolyticus* in oysters harvested from Taiwanese farms using elastic net regularized regression. *Microbial Risk Analysis*, *21*, 100201.
17. Lin, H. T. V., Ting, Y. S., **Ndraha, N.**, Hsiao, H. I., & Sung, W. C. (2022). Effect of Chitosan Incorporation on the Development of Acrylamide during Maillard Reaction in Fructose–Asparagine Model Solution and the Functional Characteristics of the Resultants. *Polymers*, *14*(8), 1565.
18. **Ndraha, N.**, Hsiao, H. I., Hsieh, Y. Z., & Pradhan, A. K. (2021). Predictive models for the effect of environmental factors on the abundance of *Vibrio parahaemolyticus* in oyster farms in Taiwan using extreme gradient boosting. *Food Control*, *130*, 108353.
19. **Ndraha, N.**, & Hsiao, H. I. (2021). Influence of climatic factors on the temporal occurrence and distribution of total and pathogenic *Vibrio parahaemolyticus* in oyster culture environments in Taiwan. *Food Microbiology*, *98*, 103765.
20. **Ndraha, N.**, Wong, H. C., & Hsiao, H. I. (2020). Managing the risk of Vibrio parahaemolyticus infections associated with oyster consumption: A review. *Comprehensive reviews in food science and food safety*, *19*(3), 1187-1217.
21. **Ndraha, N.**, Vlajic, J., Chang, C. C., & Hsiao, H. I. (2020). Challenges with food waste management in the food cold chains. In *Food industry wastes* (pp. 467-483). Academic Press.
22. **Ndraha, N.**, & Hsiao, H. I. (2019). The risk assessment of Vibrio parahaemolyticus in raw oysters in Taiwan under the seasonal variations, time horizons, and climate scenarios. *Food Control*, *102*, 188-196.
23. **Ndraha, N.**, & Hsiao, H. I. (2019). Exposure assessment and sensitivity analysis for chilled shrimp during distribution: A case study of home delivery services in Taiwan. *Journal of food science*, *84*(4), 859-870.
24. **Ndraha, N.**, Sung, W. C., & Hsiao, H. I. (2019). Evaluation of the cold chain management options to preserve the shelf life of frozen shrimps: A case study in the home delivery services in Taiwan. *Journal of food engineering*, *242*, 21-30.
25. **Ndraha, N.**, Hsiao, H. I., Vlajic, J., Yang, M. F., & Lin, H. T. V. (2018). Time-temperature abuse in the food cold chain: Review of issues, challenges, and recommendations. *Food Control*, *89*, 12-21.
26. **Ndraha, N.**, Hsiao, H. I., & Wang, W. C. C. (2017). Comparative study of imported food control systems of Taiwan, Japan, the United States, and the European Union. *Food Control*, *78*, 331-341.