

CURRICULUM VITAE



KRIDSADA UNBAN

Organization | Division of Food Science and Technology, Faculty of Agro-Industry, Chiang Mai University, Thailand 50100

Mobile Phone | +(66)89-5577263

E-mail | kridsada.u@cmu.ac.th

ORCID ID | 0000-0002-7957-620X

Scopus ID | 57024127300

H-Index | 10 (Scopus)

Citation | 414 (Scopus)

Work Experience

2022-present Lecturer (Food Science & Technology Program)

Faculty of Agro-Industry, Chiang Mai University

2017-2022 Postdoctoral Researcher

Division of Biotechnology, Faculty of Agro-Industry, Chiang Mai University, Thailand

- Publish a minimum of 2 papers in ISI Web of Science within 12 months

Assist/support the advisor in teaching, research works, supervising graduate students, and other assignments

2009 - 2011 Quality Assurance Staff

Lanna Product Co., Ltd., Lumphune, Thailand

- Setup and maintaining controls and documentation procedures
- Defining quality procedures in conjunction with operating staff

Education

2019 Post-doctoral Grant (Ernst Mach Grant-ASEA-UNINET)

University of Natural Resources and Life Science (BOKU), Vienna, Austria (6-months)

- Knowledge: Fermentation and Bioprocessing of lactic acid production
- Host professor: Prof. Dr. Dietmar Haltrich, Institute of Food Technology

2011 - 2017 Doctor of Philosophy (Biotechnology)

Division of Biotechnology, Faculty of Agro-Industry, Chiang Mai University, Thailand

(Ph.D. Sandwich Program, University of Natural Resources and Life Sciences (BOKU), Vienna, Austria)

- Thesis title: High optically pure D- and L-lactic acid production directly from starch by amylolytic lactic acid bacteria
- Knowledge: Fermentation and Bioprocess Technology, Applied Microbiology and Biochemistry, Molecular Biology and Gene Expression (Metabolic Engineering), Next-generation Sequencing

2004 - 2007 Bachelor of Science (Agro-Industrial Biotechnology) (GPA: 3.34, Honors)

Division of Biotechnology, Faculty of Agro-Industry, Chiang Mai University, Thailand

- Thesis title: Optimization of medium composition for phytase production by bacterium *Anoxybacillus* sp. MHW14
- Knowledge: General Biology, Microbiology, Enzyme Technology, Bioprocess

Publications (International peer-reviewed articles)

1. Kham, N.N.N.; Phovisay, S.; **Unban, K.**; Kanpiengjai, A.; Saenjurn, C.; Lumyong, S.; Shetty, K.; Khanongnuch, C. Valorization of cashew apple waste into a low-alcohol, healthy drink using a co-culture of *Cyberlindnera rhodanensis* DK and *Lactobacillus pentosus* A14-6. *Foods* **2024**, *13*, 1469.
2. Phovisay, S.; Kodchasee, P.; Abdullahi, A.D.; Kham, N.N.N.; **Unban, K.**; Kanpiengjai, A.; Saenjurn, C.; Shetty, K.; Khanongnuch, C. Tannin-tolerant *Saccharomyces cerevisiae* isolated from traditional fermented tea leaf (Miang) and application in fruit wine fermentation using longan juice mixed with seed extract as substrate. *Foods* **2024**, *13*, 1335.
3. Abdullahi, A.D.; **Unban, K.**; Saenjurn, C.; Kodchasee, P.; Kangwan, N.; Thananchai, H.; Shetty, K.; Khanongnuch, C. Antibacterial activities of Miang extracts against selected pathogens and the potential of the tannin-free extracts in the growth inhibition of *Streptococcus mutans*. *PLoS One* **2024**, *19*, e0302717.
4. Kham, N.N.N.; Phovisay, S.; **Unban, K.**; Kanpiengjai, A.; Saenjurn, C.; Lumyong, S.; Shetty, K.; Khanongnuch, C. A Thermotolerant yeast *Cyberlindnera rhodanensis* DK isolated from Laphet-so capable of extracellular thermostable β -glucosidase production. *Journal of Fungi* **2024**, *10*, 243.
5. Aisara, J.; Wongsanittayarak, J.; Leangnim, N.; Utama, K.; Sangthong, P.; Sriyotai, W.; Mahatheeranont, S.; Phongthai, S.; **Unban, K.**; Lumyong, S. Purification and characterization of crude fructooligosaccharides extracted from red onion (*Allium cepa* var. *viviparum*) by yeast treatment. *Microb. Cell Fact.* **2024**, *23*, 17.
6. Anyairo, C.S.; **Unban, K.**; Shetty, K.; Khanongnuch, C. Bacteriocin producing *Bacillus* and their potential applications in fish farming. *International Aquatic Research* **2024**, *16*, 17-37.
7. **Unban, K.**; Muangkajang, N.; Kodchasee, P.; Kanpiengjai, A.; Shetty, K.; Khanongnuch, C. Tannin-tolerant *Saccharomyces cerevisiae* isolated from traditional fermented tea (Miang) of northern Thailand and its feasible applications. *Microbiol. Res. (Pavia)* **2023**, *14*, 1969-1983.
8. Siritwat, W.; Ungwiwatkul, S.; **Unban, K.**; Laokuldilok, T.; Klunklin, W.; Tangjaidee, P.; Potikanond, S.; Kaur, L.; Phongthai, S. Extraction, enzymatic modification, and anti-cancer potential of an alternative plant-based protein from *Wolffia globosa*. *Foods* **2023**, *12*, 3815.
9. Fashakin, O.O.; Tangjaidee, P.; **Unban, K.**; Klangpetch, W.; Khumsap, T.; Sringarm, K.; Rawdkuen, S.; Phongthai, S. Isolation and identification of antioxidant peptides derived from cricket (*Gryllus bimaculatus*) protein fractions. *Insects* **2023**, *14*, 674.
10. Pamueangmun, P.; Abdullahi, A.D.; Kabir, M.H.; **Unban, K.**; Kanpiengjai, A.; Venus, J.; Shetty, K.; Saenjurn, C.; Khanongnuch, C. Lignocellulose degrading *Weizmannia coagulans* capable of enantiomeric L-lactic acid production via consolidated bioprocessing. *Fermentation* **2023**, *9*, 761.
11. Kabir, M.H.; **Unban, K.**; Kodchasee, P.; Govindarajan, R.K.; Lumyong, S.; Suwannarach, N.; Wongputtisin, P.; Shetty, K.; Khanongnuch, C. Endophytic bacteria isolated from tea leaves (*Camellia sinensis* var. *assamica*) enhanced plant-growth-promoting activity. *Agriculture* **2023**, *13*, 533.
12. Leangnim, N.; **Unban, K.**; Thangsunan, P.; Tateing, S.; Khanongnuch, C.; Kanpiengjai, A. Ultrasonic-assisted enzymatic improvement of polyphenol content, antioxidant potential, and in vitro inhibitory effect on digestive enzymes of Miang extracts. *Ultrason. Sonochem.* **2023**, *94*, 106351.
13. Thongkong, S.; Klangpetch, W.; **Unban, K.**; Tangjaidee, P.; Phimolsiripol, Y.; Rachtanapun, P.; Jantanasakulwong, K.; Schönlechner, R.; Thipchai, P.; Phongthai, S. Impacts of electroextraction using the pulsed electric field on properties of rice bran protein. *Foods* **2023**, *12*, 835.
14. Kalaimurgan, D.; Lalitha, K.; Govindarajan, R.K.; **Unban, K.**; Shivakumar, M.S.; Venkatesan, S.; Khanongnuch, C.; Husain, F.M.; Qais, F.A.; Hasan, I. Biogenic synthesis of zinc oxide nanoparticles using *Drynaria Quercifolia* tuber extract for antioxidant, antibiofilm, larvicidal, and photocatalytic applications. *Biomass Conv. Bioref.* **2023**, 1-17.
15. Kanpiengjai, A.; Kodchasee, P.; **Unban, K.**; Kumla, J.; Lumyong, S.; Sarkar, D.; Shetty, K.; Khanongnuch, C. Three new yeast species from flowers of *Camellia sinensis* var. *assamica* collected in northern Thailand and their tannin-tolerant characterization. *Front. Microbiol.* **2023**, *14*, 235.
16. Kodchasee, P.; Pharin, N.; Suwannarach, N.; **Unban, K.**; Saenjurn, C.; Kanpiengjai, A.; Sakar, D.; Shetty, K.; Zarnkow, M.; Khanongnuch, C. Assessment of tannin tolerant non-saccharomyces yeasts isolated from Miang for production of health-targeted beverage using miang processing byproducts. *Journal of Fungi* **2023**, *9*, 165.

17. Klongklaew, A.; **Unban, K.**; Kalaimurugan, D.; Kanpiengjai, A.; Azaizeh, H.; Schroedter, L.; Schneider, R.; Venus, J.; Khanongnuch, C. Bioconversion of dilute acid pretreated corn stover to L-lactic acid using co-culture of furfural tolerant *Enterococcus mundtii* WX1 and *Lactobacillus rhamnosus* SCJ9. *Fermentation* **2023**, *9*, 112.
18. **Unban, K.**; Klongklaew, A.; Kodchasee, P.; Pamueangmun, P.; Shetty, K.; Khanongnuch, C. Enterococci as dominant xylose utilizing lactic acid bacteria in eri silkworm midgut and the potential use of *Enterococcus hirae* as probiotic for eri culture. *Insects* **2022**, *13*, 136.
19. Kangwan, N.; Kongkarnka, S.; Boonkerd, N.; **Unban, K.**; Shetty, K.; Khanongnuch, C. Protective effect of probiotics isolated from traditional fermented tea leaves (miang) from northern Thailand and role of synbiotics in ameliorating experimental ulcerative colitis in mice. *Nutrients* **2022**, *14*, 227.
20. **Unban, K.**; Chaichana, W.; Baipong, S.; Abdullahi, A.D.; Kanpiengjai, A.; Shetty, K.; Khanongnuch, C. Probiotic and antioxidant properties of lactic acid bacteria isolated from indigenous fermented tea leaves (Miang) of north thailand and promising application in synbiotic formulation. *Fermentation* **2021**, *7*, 195.
21. Aisara, J.; Wongputtisai, P.; Deejing, S.; Maneewong, C.; **Unban, K.**; Khanongnuch, C.; Kosma, P.; Blaukopf, M.; Kanpiengjai, A. Potential of inulin-fructooligosaccharides extract produced from red onion (*Allium cepa* var. *viviparum* (Metz) Mansf.) as an alternative prebiotic product. *Plants* **2021**, *10*, 2401.
22. Abdullahi, A.D.; Kodchasee, P.; **Unban, K.**; Pattananandecha, T.; Saenjurn, C.; Kanpiengjai, A.; Shetty, K.; Khanongnuch, C. Comparison of phenolic contents and scavenging activities of Miang extracts derived from filamentous and non-filamentous fungi-based fermentation processes. *Antioxidants* **2021**, *10*, 1144.
23. Leangnim, N.; Aisara, J.; **Unban, K.**; Khanongnuch, C.; Kanpiengjai, A. Acid stable yeast cell-associated tannase with high capability in gallated catechin biotransformation. *Microorganisms* **2021**, *9*, 1418.
24. Klongklaew, A.; **Unban, K.**; Kanpiengjai, A.; Wongputtisai, P.; Pamueangmun, P.; Shetty, K.; Khanongnuch, C. Improvement of enantiomeric L-lactic acid production from mixed hexose-pentose sugars by coculture of *Enterococcus mundtii* WX1 and *Lactobacillus rhamnosus* SCJ9. *Fermentation* **2021**, *7*, 95.
25. Tran, A.-M.; **Unban, K.**; Kanpiengjai, A.; Khanongnuch, C.; Mathiesen, G.; Haltrich, D.; Nguyen, T.-H. Efficient secretion and recombinant production of a lactobacillal α -amylase in *Lactiplantibacillus plantarum* WCFS1: analysis and comparison of the secretion using different signal peptides. *Front. Microbiol.* **2021**, *12*, 1570.
26. Kodchasee, P.; Nain, K.; Abdullahi, A.D.; **Unban, K.**; Saenjurn, C.; Shetty, K.; Khanongnuch, C. Microbial dynamics-linked properties and functional metabolites during Miang fermentation using the filamentous fungi growth-based process. *Food Biosci.* **2021**, *41*, 100998.
27. Govindarajan, R.K.; Mathivanan, K.; Khanongnuch, C.; Srinivasan, R.; **Unban, K.**; Deepak, A.C.; Al Farraj, D.A.; Alarjani, K.M.; Al Qahtany, F.S. Tannin acyl-hydrolase production by *Bacillus subtilis* KMS2-2: purification, characterization, and cytotoxicity studies. *J. King Saud Univ. Sci.* **2021**, *33*, 101359.
28. **Unban, K.**; Puangkhankham, N.; Kanpiengjai, A.; Govindarajan, R.K.; Kalaimurugan, D.; Khanongnuch, C. Improvement of polymer grade L-lactic acid production using *Lactobacillus rhamnosus* SCJ9 from low-grade cassava chips by simultaneous saccharification and fermentation. *Processes* **2020**, *8*, 1143.
29. **Unban, K.**; Khatthongngam, N.; Pattananandecha, T.; Saenjurn, C.; Shetty, K.; Khanongnuch, C. Microbial community dynamics during the non-filamentous fungi growth-based fermentation process of Miang, a traditional fermented tea of north Thailand and their product characterizations. *Front. Microbiol.* **2020**, *11*, 1-15.
30. **Unban, K.**; Kodchasee, P.; Shetty, K.; Khanongnuch, C. Tannin-tolerant and extracellular tannase producing *Bacillus* isolated from traditional fermented tea leaves and their probiotic functional properties. *Foods* **2020**, *9*, 490.
31. Khatthongngam, N.; Watina, N.; **Unban, K.**; Phongthai, S.; Khanongnuch, C. A selected β -mannanase producing bacilli capable of miang extract tolerant isolated from traditional fermented tea leaf from north Thailand. *Food App. Biosci. J.* **2019**, *7*, 1-16.
32. Boontim, N.; **Unban, K.**; Pathom-aree, W.; Niamsup, P.; Khanongnuch, C.; Lumyong, S. L-lactic acid production by *Lactobacillus salivarius* L105 in optimized medium and effects of sugar concentration. *Chiang Mai J. Sci.* **2020**, *47*, 887-898.
33. **Unban, K.**; Khanongnuch, R.; Kanpiengjai, A.; Shetty, K.; Khanongnuch, C. Utilizing gelatinized starchy waste from rice noodle factory as substrate for L(+)-lactic acid production by amyolytic lactic acid bacterium *Enterococcus faecium* K-1. *Applied biochemistry and biotechnology* **2020**, *192*, 353-366.

34. **Unban, K.**; Kanpiengjai, A.; Lumyong, S.; Nguyen, T.H.; Haltrich, D.; Khanongnuch, C. Molecular structure of cyclomaltodextrinase derived from amyolytic lactic acid bacterium *Enterococcus faecium* K-1 and properties of recombinant enzymes expressed in *Escherichia coli* and *Lactobacillus plantarum*. *Int. J. Biol. Macromol.* **2018**, *107*, 898-905.
35. **Unban, K.**; Khatthongngam, N.; Shetty, K.; Khanongnuch, C. Nutritional biotransformation in traditional fermented tea (Miang) from north Thailand and its impact on antioxidant and antimicrobial activities. *J. Food Sci. Technol.* **2019**, *56*, 2687-2699.
36. **Unban, K.**; Kanpiengjai, A.; Khatthongngam, N.; Saenjum, C.; Khanongnuch, C. Simultaneous bioconversion of gelatinized starchy waste from the rice noodle manufacturing process to lactic acid and maltose-forming α -amylase by *Lactobacillus plantarum* S21, using a low-cost medium. *Fermentation* **2019**, *5*, 32.
37. Kanpiengjai, A.; **Unban, K.**; Nguyen, T.-H.; Haltrich, D.; Khanongnuch, C. Expression and biochemical characterization of a new alkaline tannase from *Lactobacillus pentosus*. *Protein expression and purification* **2019**, *157*, 36-41.
38. Doan, H.; Hoseinifar, S.H.; Khanongnuch, C.; Kanpiengjai, A.; **Unban, K.**; Van Kim, V.; Srichaiyo, S. Host-associated probiotics boosted mucosal and serum immunity, disease resistance and growth performance of Nile tilapia (*Oreochromis niloticus*). *Aquaculture* **2018**, *491*, 94-100.
39. **Unban, K.**; Kanpiengjai, A.; Takata, G.; Uechi, K.; Lee, W.C.; Khanongnuch, C. Amyolytic enzymes acquired from L-lactic acid producing *Enterococcus faecium* K-1 and improvement of direct lactic acid production from cassava starch. *Applied Biochemistry and Biotechnology* **2017**, *183*, 155-170.
40. Khanongnuch, C.; **Unban, K.**; Kanpiengjai, A.; Saenjum, C. Recent research advances and ethno-botanical history of miang, a traditional fermented tea (*Camellia sinensis* var. *assamica*) of Northern Thailand. *J. Ethn. Foods* **2017**, *4*, 135-144.
41. Chaikaew, S.; Kanpiengjai, A.; Intatep, J.; **Unban, K.**; Wongputtisin, P.; Takata, G.; Khanongnuch, C. X-ray-induced mutation of *Bacillus* sp. MR10 for manno-oligosaccharides production from copra meal. *Preparative Biochemistry and Biotechnology* **2017**, *47*, 424-433.
42. Bandavong, V.; **Unban, K.**; Kanpiengjai, A.; Khanongnuch, C. Isolation and screening of protease producing halotolerant bacteria from fermented freshwater fishes. *Food App. Biosci. J.* **2016**, *4*, 1-11.
43. Suttiniyom, C.; Yammuen-art, S.; Kanpiengjai, A.; **Unban, K.**; Khanongnuch, C. Digestibility and protein content improvement of corncob silage using chicken feather partially digested by *Bacillus subtilis* G8. *Int. J. Agric. Biol.* **2015**, *17*, 1207-1212.
44. Kanpiengjai, A. Optimal conditions for production and characterization of phytase from bacteria isolated from hot spring. Chiang Mai University, 2008.
45. Sriphanam, W.; **Unban, K.**; Ashida, H.; Yamamoto, K.; Khanongnuch, C. Medium component improvement for β -galactosidase production by a probiotic strain *Lactobacillus fermentum* CM33. *Afr. J. Biotechnol.* **2012**, *11*, 11242-11251.

Conference/Proceeding

1. **Unban, K.** and Khanongnuch, C. "L-lactic acid production by *Enterococcus faecium* K-1 from cassava starch and low-cost nitrogen source". **Biotechnology international congress (BIC 2017)**, Conference room 2 (EH 101-102), BITEC, Bangkok, Thailand, 6-8 September 2017. (Proceeding and poster presentation)
2. **Unban, K.**, Lee, W.C. and Khanongnuch, C. "L-lactic acid production by amyolytic lactic acid bacterium *Enterococcus faecium* K-1 from cassava starch" The 2016 BEST Conference and **International Symposium on Biotechnology and Bioengineering**, National Central University, Taoyuan, Taiwan, 24-26 June 2016. (Oral presentation)
3. **Unban, K.**, Kanpiengjai, A., Pathom-aree, W., Pratanaphon, R., Lumyong, S. and Khanongnuch, C. "Production of optically pure L-lactic acid directly from cassava starch using amyolytic lactic acid bacterium" **The 26th Annual Meeting of the Thai Society for Biotechnology and International Conference**, Mae Fah Luang University, Chiang Rai, Thailand, 26-29 November 2014. (Oral presentation)
4. **Unban, K.**, Pathom-aree, W., Pratanaphon, R., Lumyong, S. and Khanongnuch, C. "Amyolytic lactic acid bacterium and capability in direct conversion of cassava starch to optically pure L-lactic acid". **The 25th Annual Meeting of the Thai Society for Biotechnology and International**

- Conference**, Kasetsart University, Bangkok, Thailand, 16-19 October 2013. (Proceeding and poster presentation)
5. **Unban, K.**, Kanpiengjai, A., Pathom-aree, W., Lumyong, S. and Khanongnuch, C. "Bioconversion of lactic acid from starch by lactic acid bacteria isolated from northern Thailand". **The 4th Kagawa University-Chiang Mai University Joint Symposium**, Kagawa University, Takamatsu, Japan, 19-21 September 2012. (Poster presentation)

Training

2022 Mammalian Cell Culture Training

Faculty of Pharmacy, Chiang Mai University, 19-22 August 2022

- Training on basic procedures on cell line handling during culture and cell culture and growth evaluation techniques

2022 Gut Microbiota Workshop

Organized by Center of Multidisciplinary Technology for Advanced Medicine (CMUTEAM), Chiang Mai University, 9-11 August 2022

2021 Biotechnology Patent Drafting

Organized by Technology Licensing Office (TLO), Chiang Mai University, 2 March 2021

2019 Principle of Biosafety and Practical Biosafety

Organized by CMU SH&E, Chiang Mai University, 26– 27 October 2019

2019 Advanced Course in Fermentation Technology Workshop

Organized by Core to Core Program Advanced Research Network, Chiang Mai University, 11 – 15 February 2019

2007 Food Quality System (GMP/HACCP)

Organized by National Food Institute, Chiang Mai, Thailand 5 – 9 March 2007

2006 Industrial Training

Bangkok Produce Merchandising Public Company Limited, Saraburi, Thailand

- Training on production, quality control, quality assurance

Food Biotechnology Laboratory, Department of Food Science and Technology
University of Natural Resources and Life Science (BOKU), Vienna 1190,
Austria
E-mail: dietmar.haltrich@boku.ac.th