COLLABORATIVE RESEARCH AGREEMENT

BETWEEN

GRADUATE SCHOOL OF ENVIRONMENTAL STUDIES
NAGOYA UNIVERSITY
TOKAI NATIONAL HIGHER EDUCATION AND RESEARCH SYSTEM, JAPAN

AND

FACULTY OF SCIENCE,
CHIANG MAI UNIVERSITY, THAILAND

ON

"MULTIDISCIPLINARY STUDIES ON FERMENTED FOOD AND FOOD CULTURE IN THAILAND"

COLLABORATIVE RESEARCH AGREEMENT

This Collaborative Research Agreement (hereinafter referred to as "Agreement") is between: Tokai National Higher Education and Research System, a National University Corporation (hereinafter referred to as "THERS"), having its administrative office at 1, Furo-cho, Chikusa-ku, Nagoya, Aichi 464-8601, Japan,
and:
Faculty of Science, Chiang Mai University, Thailand (hereinafter referred to as "CMU"), having its administrative office at 239 Huaykaew Road, Suthep Sub District, Mueang District, Chiang Mai 50200 Thailand.
Each of the parties is referred to individually as a "Party" or collectively as the "Parties".

Preamble:
The Parties desire to execute collaborative research as described in Annex 1 that is implemented under the "Japan Science for the Promotion of Science (hereinafter referred to as "JSPS") - Grant-in-Aid for Scientific Research (hereinafter referred to as "KAKENHI")" (hereinafter referred to as "the Collaborative Research") and have agreed to conduct the Collaborative Research.

The Parties hereby agree as follows:

Article 1: Objective and plan

1.1 The purpose of the Collaborative Research under this Agreement is to undertake research on the "Multidisciplinary Studies on Fermented Food and Food Culture in Thailand" as described in Annex 1.

Article 2: Implementation

2.1 Each Party should take necessary measures written in the Research Plan as described in Annex 1 for the implementation of the Collaborative Research.

2.2 Each Party shall be responsible for supervising its team members as set out in Annex 2 to comply with this Agreement.

Article 3: Confidentiality

3.1 Confidential information held by each Party prior to the commencement of or outside the scope of Collaborative Research and provided to the other Party in the course of the Collaborative Research shall remain the property of the Providing Party, shall be kept confidential by the receiving Party, and shall not be disclosed to any third party other than JSPS or used for any purpose other than the Collaborative Research hereunder without prior written approval from the Providing Party. Confidential information shall be clearly indicated as being confidential by Providing Party.

3.2 Notwithstanding the provisions in the preceding paragraph, Confidential Information shall not include any information which can be objectively proved to fall into one or more of the following items by the Receiving Party:

(i) information which was already known to or in possession of the Receiving Party prior to the

time of the disclosure by the Disclosing Party to the Receiving Party;

(ii) information which was already known or available to the public prior to the time of the disclosure by the Disclosing Party to the Receiving Party;

(iii) information which subsequently becomes known or available to the public other than through the fault or negligence of the Receiving Party after the disclosure by the Disclosing Party to the Receiving Party;

(iv) information which was obtained by the Receiving Party from a third party having fair authority, without any confidentiality obligation owed to the Receiving Party;

(v) information which is independently developed by the Receiving Party; or

(vi) information with respect to which the Receiving Party obtained prior written consent of the Disclosing Party that such information is not subject to the confidentiality obligation hereunder.

Article 4: Intellectual Property Rights

4.1 The results (including know-how, knowledge, information or data) obtained or generated from the Collaborative Research (hereinafter referred to as the "Results") shall become the joint property of the Parties and their team members unless otherwise agreed upon between the Parties in writing. Each Party shall not disclose the Results to any third party other than JSPS without the prior written consent of the other Party, and this consent shall not unreasonably be withheld.

4.2 Intellectual property rights generated from the Collaborative Research (hereinafter referred to as the "Intellectual Property Rights") shall be jointly owned by the Parties and their team members unless otherwise agreed upon between the Parties in writing. Intellectual Property Rights shall be deemed to include, without limitation, any patents, patent applications, utility model rights, utility model applications, design rights, design applications, trademarks, copyrights, semiconductor layout designs, know-how and/or trade secrets, anywhere within the world. Any application for Intellectual Property Rights (hereinafter referred to as the "Application"), unless otherwise agreed upon, shall be jointly filed by the Parties hereto and their team members. The Parties hereto shall discuss and agree upon the ownership and handling of any and all Intellectual Property Rights which may arise thereby through mutual consultation prior to initiating the application for said Intellectual Property Rights.

4.3 The Parties and their team members shall have interests in the Intellectual Property Rights in proportion to their contributions to the Intellectual Property Rights generated from Collaborative Research, and shall share in the costs and expense of protecting such Intellectual Property Rights in the same proportion, unless otherwise agreed between the Parties.

4.4 Each Party hereto shall not commercially exploit the Results or assign or grant a license to a third party for the Intellectual Property Rights or the Applications thereof without the prior written consent of the other Party, and this consent shall not unreasonably be withheld. Detailed term for sharing of benefits from commercial use or licensing will be separately negotiated in good faith.

Article 5: Publication of Results

5.1 The Parties agree that all Results developed during the Collaborative Research may in principle

be made available to the public by either Party, subject to the provisions of Article 3.1, Article 3.2 and Article 4.1.

5.2 If a Party produces any publication reporting the Results, the Party shall inform the other Party in advance and shall discuss and agree on the handling thereof.

5.3 When a Party publishes any Results in a research paper or such like, the Party shall indicate that the Collaborative Research was supported by "JSPS-KAKENHI".

5.4 The Parties make the decision in advance through negotiation in good faith when the publication would jeopardize the chance of either Party to obtain Intellectual Property Rights.

Article 6: Access to Genetic Resources

6.1 The Parties shall agree to access to genetic resources, such as those listed in Annex 1.2, for the implementation of the Collaborative Research in strict compliance with any applicable national legislation, international treaties and conventions, such as the "Convention on Biological Diversity", the "Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity".

6.2 The Parties shall make a good faith effort to obtain permission and authorization from the competent national authorities prior to the access and the utilization of genetic resources.

6.3 Any genetic resources isolated or obtained by either Party in the Collaborative Research shall be reported to the other Party in writing, and upon request, shall be provided to the other Party together with the relevant information.

6.4 Transfer of genetic resources shall be conducted under material transfer agreements which shall be separately signed upon. Each Party hereto shall not transfer the genetic resources to a third party without the prior written consent of the other Party, and this consent shall not unreasonably be withheld.

6.5 The Parties shall agree that benefits arising from the utilization of genetic resources as well as subsequent applications and commercialization shall be shared in a fair and equitable way. Those may include, but not be limited to, non-monetary benefits such as contribution in education and training.

Article 7: Dispute Resolution

7.1 Any issues that are not addressed or stipulated in this Agreement shall be agreed and resolved through negotiation in good faith. The Parties further agree that any dispute between the Parties, out of or in relation to or, in connection with this Agreement, will be settled as amicably as possible.

7.2 All differences and disputes which cannot be resolved or settled between the Parties will be finally settled, unless otherwise agreed upon, under the Rules of Arbitration of the International Chamber of Commerce.

Article 8: Liability

8.1 The Party employing each of the participating researchers or personnel involved in the Collaborative Research listed in Annex 2 shall be liable for compensation for any injury, sickness, accident, or death of its own researchers or personnel.

Article 9: Term of Agreement

9.1 The term of this Agreement and the Collaborative Research shall be from October 1, 2025 to March 31 2029.

9.2 This Agreement shall be renewed by virtue of mutual agreement thereafter for an additional one (1) year period, unless earlier terminated by either party upon written notice at least thirty (30) days.

9.3 Notwithstanding above, the Parties may terminate this Agreement upon mutual agreement.

9.4 The provisions in Articles 3, 4, 5, 6, 7 and 8 shall remain in force after the expiration or termination of this Agreement.

Article 10: Compliance with Laws and Regulations

10.1 All research activities conducted in connection with the Collaborative Research shall be done in compliance with all applicable laws, regulations and guidelines of the countries and institutions in which the research is conducted.

Each Party shall sign two identical copies of this Agreement, and retain one copy.

Tokai National Higher Education and Research System, Nagoya University:

Chancellor:
Dr. Seiichi MATSUO

Date: 4. August. 2025

Faculty of Science, Chiang Mai University:

Dean:
Associate Professor Dr. Piyapong Niumsap

Date: 6 NOV 2025

Annex 1

1.1 Research Plan

THERS

With growing interest in fermented foods in both the humanities and natural sciences, there is a need for comprehensive research on the cultures of the people involved in their production and the natural environments where the microbes responsible for fermentation exist. Although there are new areas of research, such as "microbial terroir," which attempts to elucidate the relationship between location and microbes, and "ethnomycology," which elucidates ethnic fermented foods, both are being conducted solely by researchers in the field of microbiology, and there is no collaboration with researchers in the humanities. As a result, there is no elucidation of the cultural background behind the inheritance of fermented foods. Therefore, this research will practice "field fermented food studies," a new research method that combines fieldwork and laboratory work, in Thailand, Laos, and Cambodia, where fermented foods are used daily in Southeast Asia. We will then elucidate how cultural conditions, such as regional traditions and identity, and ecological conditions, such as flora and microbial communities, are related to the formation of indigenous knowledge and how they contribute to the preservation and transmission of fermented foods.

In this collaborative research, elucidating the Thai fermented food culture, which utilizes various fermented foods made from soybeans, vegetables, meat, freshwater fish, and traditional alcohol and rice starter culture, is a particularly important theme within Asian fermented food culture. Fermented foods are valuable genetic resources in Thailand, and ABS procedures are required to bring samples to Japan for biochemical analysis or genetic sequencing. However, since universities in Thailand are capable of conducting such analyses, there is no need for Japanese researchers to bring samples back to Japan. By conducting collaborative research between Japanese and Thai teams, we will implement "field fermented food studies," which integrates both the cultural aspects of traditional fermented food producers' knowledge and their ecological environment.

CMU

Thailand is part of the Zomia cultural geography, a region rich in natural resources and situated within the overlap of tropical and subtropical climates. In addition to its ecological diversity, the cultural landscape is equally varied. In this small region of Thailand alone, there are five major ethnolinguistic groups, along with numerous subgroups. This combination of biodiversity and cultural richness makes the area a prime location for research in ethnobiology. Many important questions remain unanswered, calling for both scientific investigation and cultural documentation.

Fermented foods in Thailand also reflect this geographic and cultural diversity, with variations found from the northern highlands to the southern coast. Although Thailand has established an online database of fermented foods, much of the traditional knowledge—especially that of ethnic minority communities—is still missing.

This collaborative project between the Faculty of Science, Chiang Mai University (CMU), and the Transdisciplinary Human–Environment Relations in Southeast Asia (THERS) aims to fill these gaps. The study will go beyond description, using advanced methods such as

next-generation sequencing to analyze fermented foods in greater depth. All fieldwork and laboratory research will be conducted in Thailand. The Faculty of Science at CMU will coordinate the field activities in partnership with the Japanese team. All findings and publications will be shared jointly, with co-authorship by members of both institutions.

The ultimate goal of this collaboration is to contribute to food security and support the United Nations Sustainable Development Goal of zero hunger.

1.2 Genetic Resources to be Used in the Collaborative Research

No.	Names of Genetic Resource
1	Fermented beans
2	Fermented fish and shellfish
3	Fermented tuber
4	Fermented grains and grain-based foods
5	Fermented fruits and vegetables
6	Fermented meat
7	Fermented drinks and beverages
8	Rice Fermentation Starters

Annex 2

Members of the Collaborative Research

THERS, Nagoya University, JAPAN	
Dr. Satoshi YOKOYAMA	Principal Investigator, Professor, Graduate School of Environmental Studies
THERS, Gifu University, JAPAN	
Dr. Tomoyuki NAKAGAWA	Professor, Faculty of Applied Biological Sciences
Kyoto University	
Dr. Satoru KOBAYASHI	Professor, Center for Southeast Asian Studies
Osaka Metropolitan University, JAPAN	
Dr. Takayuki WADA	Professor, Graduate School of Human Life and Ecology.
Ishikawa Prefectural University, JAPAN	
Dr. Yoshitsugu NAKAGUCHI	Associate Professor, Faculty of Bioresources and Environmental Sciences
Dr. Takashi KOYANAGI	Professor, Faculty of Bioresources and Environmental Sciences
University of Toyama, JAPAN	
Dr. Takeshi FUJIMOTO	Professor, School of Humanities
Kagoshima University, JAPAN	
Dr. Sota YAMAMOTO	Associate Professor, International Center for Island Studies
Aikoku Gakuen University, JAPAN	
Dr. Sumiko YAMAZAKI	Associate Professor, Faculty of Human and Culture Sciences
Nihon University, JAPAN	
Dr. Ayako SASAKI (SAWADA)	Lecturer, College of Bioresource Sciences
Dr. Naoki NARISAWA	Associate Professor, College of Bioresource Sciences
J. F. Oberlin University, JAPAN	
Dr. Yoshimi OSAWA	Associate Professor, College of Arts and Sciences
Niigata University, JAPAN	
Dr. Yui SUNANO	Lecturer, College of Creative Studies
CMU, Thailand	
Dr. Terd Disayathanoowat	Associate Professor, Department of Biology, Faculty of Science
Dr. Angkhana Inta	Associate Professor, Department of Biology, Faculty of Science
Dr. Rujipas Yongsawas	Researcher, Office of Research Administration, Chiang Mai University