



Japan-Mexico Training Program for the Strategic Global Partnership

General information on Isolation and Characterization of Biosurfactant-Producing Bacteria for the Biological Control of Plant Pathogens

(植物病害の生物防除を目的とした biosurfactant 生産性微生物の分離と同定)

JFY 2021

Course No.: 202003433-J019

Course Period in Japan: From March 13, 2022 to Oct 28, 2022

This information pertains to one of the JICA Knowledge Co-Creation Programs (Group & Region Focus) of the Japan International Cooperation Agency (JICA) implemented as part of the Official Development Assistance of the Government of Japan based on bilateral agreement between both Governments.

JICA Knowledge Co-Creation Program (KCCP)

The Japanese Cabinet released the Development Cooperation Charter in February 2015, which stated, *“In its development cooperation, Japan has maintained the spirit of jointly creating things that suit partner countries while respecting ownership, intentions and intrinsic characteristics of the country concerned based on a field-oriented approach through dialogue and collaboration. It has also maintained the approach of building reciprocal relationships with developing countries in which both sides learn from each other and grow and develop together.”* JICA believes that this ‘Knowledge Co-Creation Program’ will serve as a foundation of mutual learning process.

I. Concept

Background

In 1971, the Japan-Mexico Exchange Program has started, which mutually accepts students and young engineers from Mexico and Japan; in February 2010, based on the “Japan-Mexico Joint Statement Strategic Global Partnership in the 21st Century¹”, the Exchange Program was renewed into the Japan-Mexico Training Program for the Strategic Global Partnership. This program contains long-term courses (between three months and twelve months period) that has existed before and short-term courses (less than three months period) are newly established since then. Currently, JICA accepts 50 Mexicans trainees annually under this scheme.

As we celebrate the 50th anniversary of this training program in 2021, in order to realize the program including a value of “Bilateral Co-creation by Japan and Mexico”, the course line-up has been completely reviewed, taking into account the compatibility with the eleven priority fields of PRONACES (National Strategy Program) set by the National Council of Science and Technology (CONACYT) in Mexico, to response strong needs in the areas such as Infection Disease control due to pandemic of COVID-19, Food Security, ICT/Digital Transformation, and among others.

This training program aims to develop Mexican human resources, through the implementation of training program based on the Japan-Mexico Joint Statement, thereby contributing to reinforcement establishment of the Mexico-Japan Strategic Global Partnership.

For what?

Utilize the functions or create new functions from food-derived microorganisms and microorganisms that coexist with animals and plants, through knowledge and sciences such as molecular biology, biochemistry, natural product chemistry, and immunology. By granting it, conduct microbiological research that contributes to human health and production activities.

For whom

Researchers and master's students interested in empirical method of biological control of plant pathogens.

How?

With research, practices and on-the-job training related to isolation and characterization of biosurfactant-producing bacteria, and from it to assess the performance of produced biosurfactants for plant pathogen control.

¹ https://www.mofa.go.jp/announce/announce/2011/2/PDF/0222_02_01.pdf

II. Description

1. Title (Course No.202003433-J019)

Isolation and Characterization of Biosurfactant-Producing Bacteria for the Biological Control of Plant Pathogens

2. Course Duration in Japan

3. March to October, 2022 (Technical Training Period: May to October, 2022: five months)

13th March: Arrival in Japan

15th March to 8th May: Briefing, General Orientation and Intensive Japanese Language Class

9th May to 28th October: Technical Training Program

29th October: Departure from Japan

4. Target Regions or Countries

Mexico

5. Capacity (Upper Limit of Participants)

One (1) participant

6. Language

English

7. Objective(s)

The participant will acquire knowledge on empirical method of biological control of plant pathogens throughout the research, practices and on-the-job training related to isolation and characterization of biosurfactant-producing bacteria, and from it to assess the performance of produced biosurfactants for plant pathogen control.

8. Overall Goal

In order to contribute to the PRONACES on CONACYT in Mexico, special attention will be paid to the content of the course, orienting it in this regard. For the particular case of this course, the Strategy No. 2. "Sustainability of socio-ecological systems", specifically on the sustainable use, restoration or conservation of terrestrial, epicontinental aquatic, coastal or marine ecosystems, as well as their contributions to society or ecosystem services; simultaneously, fosters the interdisciplinary or transdisciplinary production practices that promote the sustainability of food systems with a socio-ecological approach.

The course is expected to contribute to Mexico, in order to achieve conservation of terrestrial ecosystems and to sustain food systems by controlling plant pathogens using biological control methods.

9. Output and Contents

This course consists of the following components. Details on each component are given below.

The General Orientation and Japanese language program are organized at the Chubu International Center of JICA prior to the technical training to assist the participants in understanding Japan and adjusting themselves to life in Japan, and thus to facilitate effective training.

Expected Output	Subjects/Agendas	Methodology
Obtainment of biosurfactant-producing bacteria	Isolation of biosurfactant-producing bacteria	
	Characterization of biosurfactant-producing bacteria	
Evaluation of produced biosurfactant	Structural analysis of biosurfactant produced by isolated strains	
	Antibacterial activity assessment of biosurfactant produced by the isolated strains	
Plant pathogen control	Plant pathogen control test (optional)	Cultivation test

<Structure of the Course>

Topic outline (subject to minor changes)

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This course is composed by 3-topics as follows:

9th of May – 17th of June

Topic 1: Isolation of bio-surfactant producing bacteria

Bacteria are isolated from environmental samples, e. g. soil, plants, and can be detected their bio-surfactant producing activities by a simple method with spraying of mineral oil.

20th of June - 22nd of July

Topic 2: Characterization of bio-surfactant producing bacteria

Bio-surfactant producing bacterial isolates derived from topic 1 can be partially identified by Gram staining, cell morphology by microscopic observation and 16S rDNA sequence.

25th of July - 28th of October

Topic 3: Characterization of bio-surfactant

Structural identification of bio-surfactant(s) derived from the bacterial isolates will be carried out by LC-MS/MS. As further characterization, bio-surfactant(s) are purified and evaluation of its antimicrobial activities.

2. Nominee Qualifications

Applying organizations are expected to select nominees who meet the following qualifications.

(1) Essential Qualifications

1) Current Duties: be a researcher in the field of plant pathology, especially for biological control by using microbes

- 2) Experience in the Relevant Field: preferably have more than 2 years' experience in the field of plant pathology as researcher
- 3) Educational Background: be a graduate of university
- 4) Language Proficiency: English proficiency equivalent to TOEIC 700 or above. Please attach an official certificate for English ability such as TOEFL, TOEIC etc, if possible
- 5) Health: must be in good health to participate in the program in Japan. To reduce the risk of worsening symptoms associated with respiratory tract infection, please be honest to declare in the Medical History (QUESTIONNAIRE ON MEDICAL STATUS RESTRICTION of the application form) if you have been a patient of following illnesses; Hypertension / Diabetes / Cardiovascular illness / Heart failure / Chronic respiratory illness.

(2) Recommended Qualifications

- 1) Expectations for the Participants
- 2) Age: the ages up to fifty (50) years
- 3) Gender Consideration: JICA promotes gender equality. Women are encouraged to apply for the program.

III. Eligibility and Procedures

1. Required Documents for Application

(1) **Application Form:** The Application Form is available at **the JICA overseas office**

* If you have any difficulties/disabilities which require assistance, please specify necessary assistances in the QUESTIONNAIRE ON MEDICAL STATUS RESTRICTION (1-(c)) of the application form. Information will be reviewed and used for reasonable accommodation.

(2) **Photocopy of Passport:** You should submit it with the application form if you possess your passport which you will carry when entering Japan for this program. If not, you are requested to submit its photocopy as soon as you obtain it.

*The following information should be included in the photocopy:

Name, Date of Birth, Nationality, Sex, Passport Number and Expiry Date

(3) **English Score Sheet:** to be submitted with the application form, if the nominees have any official English examination scores. (e.g., TOEFL, TOEIC, IELTS)

1. Procedures for Application and Selection

(1) Selection

After the application documents are submitted, primary screening and individual interview are conducted by CONACYT. Then JICA will consult with concerned organizations in Japan in the process of final selection.

The Government of Japan will examine applicants who belong to the military or other military-related organizations and/or who are enlisted in the military, taking into consideration of their duties, positions in the organization and other relevant information in a comprehensive manner to be consistent with the Development Cooperation Charter of Japan.

(2) Notice of Acceptance

The JICA overseas office (or the Embassy of Japan) will notify the results **not later than March, 2022.**

2. Additional Document(s) to Be Submitted by Accepted Candidates

The accepted candidate may be required to prepare and submit an Inception Report. Please follow the instructions to be notified individually after the approval.

3. Conditions for Participation

The participants of KCCP are required

(1) to strictly observe the course schedule,

(2) not to change the air ticket (and flight class and flight schedule arranged by JICA) and lodging by the participants themselves,

- (3)** to understand that leaving Japan during the course period (to return to home country, etc.) is not allowed,
- (4)** not to bring or invite any family members,
- (5)** to carry out such instructions and abide by such conditions as may be stipulated by both the nominating Government and the Japanese Government in respect of the course,
- (6)** to observe the rules and regulations of the program implementing partners to provide the program or establishments,
- (7)** not to engage in political activities, or any form of employment for profit,
- (8)** to discontinue the program, should the participants violate the Japanese laws or JICA's regulations, or the participants commit illegal or immoral conduct, or get critical illness or serious injury and be considered unable to continue the course. The participants shall be responsible for paying any cost for treatment of the said health conditions except for the medical care stipulated in (3) of "5. Expenses", "IV. Administrative Arrangements",
- (9)** to return the total amount or a part of the expenditure for the KCCP depending on the severity of such violation, should the participants violate the laws and ordinances,
- (10)** not to drive a car or motorbike, regardless of an international driving license possessed,
- (11)** to observe the rules and regulations at the place of the participants' accommodation, and
- (12)** to refund allowances or other benefits paid by JICA in the case of a change in schedule.
- (13)** In case of natural disaster or any possible contingency, trainees could not trip to Japan and this course would be offered remotely or canceled.

IV. Administrative Arrangements

1. Organizer (JICA Center in Japan)

(1) **Center:** JICA Tsukuba Center (JICA Tsukuba/ TBIC)

(2) **Program Officer:** Ms. MOTOMURA Miki (tbicttp@jica.go.jp)

2. Implementing Partner

(1) **Name:** To be determined

(2) **URL:**

(3) **Remark:**

3. Travel to Japan

(1) **Air Ticket:** In principle, JICA will arrange an economy-class round-trip ticket between an international airport designated by JICA and Japan.

(2) **Travel Insurance:** Coverage is from time of arrival up to departure in Japan. Thus traveling time outside Japan (include damaged baggage during the arrival flight to Japan) will not be covered.

4. Accommodation in Japan

Basically, JICA will arrange the following accommodation(s) for the participants in Japan: To be determined

5. Expenses

The following expenses in Japan will be provided by JICA

(1) Allowances for meals, living expenses, outfits, and shipping and stopover.

(2) Expenses for study tours (basically in the form of train tickets).

(3) Medical care for participants who become ill after arriving in Japan (the costs related to pre-existing illness, pregnancy, or dental treatment are not included).

(4) Expenses for program implementation, including materials.

(5) For more details, please see “III. ALLOWANCES” of the brochure for participants titled “KENSU-IN GUIDE BOOK,” which will be given before departure for Japan.

*Link to JICA HP (English/French/Spanish/Russian):

https://www.jica.go.jp/english/our_work/types_of_assistance/tech/acceptance/training/index.html

6. Pre-departure Orientation*

A pre-departure orientation will be held at respective country’s JICA office, to provide Participants with details on travel to Japan, conditions of the course, and other matters.

*YouTube of “Knowledge Co-Creation Program and Life in Japan” and “Introduction of JICA Center” are viewable from the link below.

Image videos of 'Introduction of JICA Center (YouTube)' show the following information of JICA Centers: Location, Building, Entrance, Reception(Front desk), Lobby, Office, Accommodation(Room), Amenities(Hand dryer), Bathroom(Shower and Toilet), Toiletries, Restaurant, Laundry Room(Washing machine, Iron), ICT Room(Computer for participants), Clinic, Cash dispenser, Gym, Neighborhood

Part I: Knowledge Co-Creation Program and Life in Japan	
English ver.	https://www.youtube.com/watch?v=SLurfKugrEw
French ver.	https://www.youtube.com/watch?v=v2yU9ISYcTY
Spanish ver.	https://www.youtube.com/watch?v=m7l-WIQSDjI
Russian ver.	https://www.youtube.com/watch?v=P7_ujz37AQc
Arabic ver.	https://www.youtube.com/watch?v=1iBQqdpXQb4
Part II: Introduction of JICA Centers in Japan	
JICA Hokkaido (Sapporo)	https://www.jica.go.jp/sapporo/english/office/index.html
JICA Hokkaido (Obihiro)	https://www.jica.go.jp/obihiro/english/office/index.html
JICA Tohoku	https://www.jica.go.jp/tohoku/english/office/index.html
JICA Tsukuba	https://www.jica.go.jp/tsukuba/english/office/index.html
JICA Tokyo	https://www.jica.go.jp/tokyo/english/office/index.html
JICA Yokohama	https://www.jica.go.jp/yokohama/english/office/index.html
JICA Hokuriku	https://www.jica.go.jp/hokuriku/english/office/index.html
JICA Chubu	https://www.jica.go.jp/chubu/english/office/index.html
JICA Kansai	https://www.jica.go.jp/kansai/english/office/index.html
JICA Chugoku	https://www.jica.go.jp/chugoku/english/office/index.html
JICA Shikoku	https://www.jica.go.jp/shikoku/english/office/index.html
JICA Kyushu	https://www.jica.go.jp/kyushu/english/office/index.html
JICA Okinawa	https://www.jica.go.jp/okinawa/english/office/index.html

V. Other Information

1. Participants are expected to bring their own laptop computers for working on their presentations, reading digital learning materials, and so on.
2. Allowances, such as for accommodation, living, clothing, and shipping, will be deposited to your temporary bank account in Japan after 2 to 5 days after your arrival to Japan. It is highly advised to bring some cash in order to cover necessary expenses for the first few days. It is very important that your currency must be exchanged to Japanese Yen at any transit airport or International Airport in Japan at the time of your arrival. It is quite difficult to exchange money after this, as there is strictly limited facility around JICA Center and time for exchanging currency during the program.
3. For the promotion of mutual friendship, JICA encourages international exchange between JICA participants and local people, including the children. Therefore, participants are expected to contribute to this effort by attending such activities and will possibly be asked to make presentations on the society, economy and culture of their home countries.
4. You can check our services on our website and social media.
 - **JICA Tsukuba website:**
<https://www.jica.go.jp/tsukuba/english/office/index.html>
 - **JICA Tsukuba Facebook:**
<https://www.facebook.com/jicatsukuba>
We post articles about our programs, the activities of the past participants, and other topics on Facebook page.
You can find posts about on-going KCCPs and stories of ex-participants on our Facebook page.



- **JICA Tsukuba Brochure:**
https://www.jica.go.jp/tsukuba/english/office/others/c8h0vm0000ec0zqr-att/tsukuba_profile_en.pdf
- **YouTube clip “Introduction of JICA Tsukuba”:**
<https://www.youtube.com/watch?v=hKM1iTV-9lg&feature=youtu.be>

For Your Reference

JICA and Capacity Development

Technical cooperation is people-to-people cooperation that supports partner countries in enhancing their comprehensive capacities to address development challenges by their own efforts. Instead of applying Japanese technology per se to partner countries, JICA's technical cooperation provides solutions that best fit their needs by working with people living there. In the process, consideration is given to factors such as their regional characteristics, historical background, and languages. JICA does not limit its technical cooperation to human resources development; it offers multi-tiered assistance that also involves organizational strengthening, policy formulation, and institution building.

Implementation methods of JICA's technical cooperation can be divided into two approaches. One is overseas cooperation by dispatching experts and volunteers in various development sectors to partner countries; the other is domestic cooperation by inviting participants from developing countries to Japan. The latter method is the Knowledge Co-Creation Program, formerly called Training Program, and it is one of the core programs carried out in Japan. By inviting officials from partner countries and with cooperation from domestic partners, the Knowledge Co-Creation Program provides technical knowledge and practical solutions for development issues in participating countries.

The Knowledge Co-Creation Program (Group & Region Focus) has long occupied an important place in JICA operations. About 400 pre-organized courses cover a wide range of professional fields, ranging from education, health, infrastructure, energy, trade and finance, to agriculture, rural development, gender mainstreaming, and environmental protection. A variety of programs is being customized by the different target organizations to address the specific needs, such as policy-making organizations, service provision organizations, as well as research and academic institutions. Some programs are organized to target a certain group of countries with similar developmental challenges.

Japanese Development Experience

Japan, as the first non-Western nation to become a developed country, built itself into a country that is free, peaceful, prosperous and democratic while preserving its tradition. Japan will serve as one of the best examples for our partner countries to follow in their own development.

From engineering technology to production management methods, most of the know-how that has enabled Japan to become what it is today has emanated from a process of adoption and adaptation, of course, has been accompanied by countless failures and errors behind the success stories.

Through Japan's progressive adaptation and application of systems, methods and technologies from the West in a way that is suited to its own circumstances, Japan has

developed a storehouse of knowledge not found elsewhere from unique systems of organization, administration and personnel management to such social systems as the livelihood improvement approach and governmental organization. It is not easy to apply such experiences to other countries where the circumstances differ, but the experiences can provide ideas and clues useful when devising measures to solve problems.

JICA, therefore, would like to invite as many leaders of partner countries as possible to come and visit us, to mingle with the Japanese people, and witness the advantages as well as the disadvantages of Japanese systems, so that integration of their findings might help them reach their developmental objectives.



Contact Information for Inquiries

For inquiries and further information, please contact the JICA overseas office or the Embassy of Japan. Further, address correspondence to:

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