



RELACIONES EXTERIORES

SECRETARÍA DE RELACIONES EXTERIORES

AMEXCID

AGENCIA MEXICANA DE COOPERACIÓN
INTERNACIONAL PARA EL DESARROLLO

Cooperation Program for the Training of Human Resources

**Getting, increment and in vitro preservation of
potato virus free plants.
Laboratory-greenhouse-field system.
Stress physiology**

**Sitio Experimental Metepec-Campo
Experimental Valle de México-INIFAP, Metepec,
Estado de México**

Course period: November 18th – November 22nd 2024



Introduction

Potato crop has a recalcitrant seed; therefore, potato tuber is the seed used for production and propagation. Tissue culture techniques are a useful tool for getting virus free plants, micropropagation and germplasm preservation. These techniques are widely used in research potato programs and commercial tuber seed production. In vitro tuberization is a technique useful for germplasm preservation, shipment and propagation. Thermotherapy is a common technique for virus cleaning. Medium term preservation is an alternative for storage of large germplasm banks.

1. Concept

1.1 Objective/Main Goal

To know and understand the methodology involved in the generation of new potato cultivars during the laboratory-greenhouse-field process.

1.2 Expected results

It is expected that the participants get familiar with the basics of the methodologies employed in the generation of potato new genotypes.

1.3 Target public

Technicians and researchers.

1.4 Information about the training center

INIFAP is a national research institute in agriculture, livestock and forestry. It was founded in 1985 with the fusion of INIA (national institute of agricultural research), INIF (national institute of forestry research) and INIP (national institute of livestock research).

The Sitio Experimental Metepec is one of the INIFAP research centers, dating back to 50's, founded by the Rockefeller Foundation. It is located in one of the most important genetic diversity regions in the world for *Phytophthora infestans*, this fact makes Metepec an ideal location for breeding against late blight.



2. Description

2.1 Title

Getting, increment and in vitro preservation of potato virus free plants. Laboratory-greenhouse-field system. Stress physiology

2.2 Course duration in Mexico

November 18th – November 22nd 2024

2.3 Target country

Japan

2.4 Limit of participants

Three

2.5 Language

English

2.6 Contents

Monday November 18, 2024

| HOUR | TOPIC | TO | INSTRUCTOR |
|---------------|--|---------------------|---|
| 09:00 - 13:00 | Introduction to the National Potato Program | Visitors from Japan | Humberto Antonio López Delgado, Román Flores López, Julián Víctor Magallanes González |
| 10:00 – 11:00 | Introduction to potato breeding | Visitors from Japan | Humberto Antonio López Delgado, Román Flores López, Julián Víctor Magallanes González |
| 11:00- 12:00 | Introduction to Biotechnology and Physiology in the potato program | Visitors from Japan | Humberto Antonio López Delgado, Román Flores López, Julián Víctor Magallanes González |
| 12:00- 13:00 | Introduction to minituber production in greenhouse | Visitors from Japan | Humberto Antonio López Delgado, Román Flores López, Julián Víctor Magallanes González |



Tuesday November 19, 2024

| HOUR | TOPIC | TO | INSTRUCTOR |
|---------------|--|---------------------|--------------------------------|
| 09:00 - 11:00 | Getting virus free plants. Thermotherapy | Visitors from Japan | Humberto Antonio López Delgado |
| 11:30 - 14:00 | Preparation of stock solutions | Visitors from Japan | Humberto Antonio López Delgado |

Wednesday November 20, 2024

| HOUR | TOPIC | TO | INSTRUCTOR |
|---------------|---|---------------------|--------------------------------|
| 09:00 - 11:00 | Preparation of stock solutions. micropagation media preparation | Visitors from Japan | Humberto Antonio López Delgado |
| 11:30 - 14:00 | Practice of meristem isolation | Visitors from Japan | Humberto Antonio López Delgado |

Thursday November 21, 2024

| HOUR | TOPIC | TO | INSTRUCTOR |
|---------------|--|---------------------|--------------------------------|
| 09:00 - 11:00 | Media preparation for In vitro tuberization and medium-term preservation | Visitors from Japan | Humberto Antonio López Delgado |
| 11:30 - 14:00 | Practice of micropropagation. Meristem isolation | Visitors from Japan | Humberto Antonio López Delgado |

Friday November 22, 2024

| HOUR | TOPIC | TO | INSTRUCTOR |
|---------------|--|---------------------|--------------------------------|
| 09:00 - 11:00 | In vitro tuberization practice and medium-term preservation. | Visitors from Japan | Humberto Antonio López Delgado |
| 11:30 - 14:00 | Review of publications of the national potato program on biotic and abiotic stress physiology. | Visitors from Japan | Humberto Antonio López Delgado |



3. Eligibility and procedures

3.1 Nominee qualifications

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

- (a) **Current Duties:** This program is designed for people with experience in biotechnology and greenhouse production. Engaged in research or production of potatoes
- (b) **Educational Background:** Be graduated from Biology, Agronomy, Biotechnology, or related. Important to read about the importance of the Toluca Valley, Mexico, in the generation of potato varieties with resistance to late blight worldwide.
- (c) **Language Proficiency:** Have a competent command of spoken and written English proficiency equivalent.
- (d) **Technical Requirements (Technology Proficiency):** Basic computer skills such as sending/receiving email with attachments, and using a web browser.
- (e) **Health:** Must be in good health to participate in the program in Mexico. 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 illness; Hypertension / Diabetes / Cardiovascular illness / Heart failure / Chronic respiratory illness.
- (f) **Gender Equality and Women's Empowerment:** Women are encouraged to apply for the program. AMEXCID is committed to promoting gender equality and women's empowerment and provides equal opportunities for all applicants regardless of their sexual orientation or gender identity.

4. Required Documents for Application

4.1 Application Form and Annexes

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

4.3 An official English examination score. (e.g., TOEFL, TOEIC, IELTS)



5. Procedures for Application and Selection

5.1 Submission of the Application Documents

Closing date for applications: Please confirm the local deadline with the JICA overseas office. (All required material must arrive at AMEXCID in Mexico by September 27th 2024)

5.2 Selection

Primary screening is conducted at the AMEXCID office after receiving official documents from your government. Final selection will be made by the Mexican institutions in consultation with experts in Mexico.

5.3 Notice of Acceptance

AMEXCID will notify the Embassy of Japan in Mexico the results, no later than October 4th, 2024.

6. Conditions for Participation

The participants of Cooperation Program for the Training of Human Resources, are required:

- 6.1. To strictly observe the course schedule.
- 6.2. Not to change the air ticket (and flight class and flight schedule arranged by AMEXCID) and lodging by themselves.
- 6.3. To understand that leaving Mexico during the course period (to return to home country, etc.) is not allowed.
- 6.4. Not to bring or invite any family members.
- 6.5. To carry out such instructions and abide by such conditions as may be stipulated by both the nominating Government and the Mexican Government in respect of the course,
- 6.6 To observe the rules and regulations of the program implementing partners to provide the program or establishments.
- 6.7 Not to engage in political activities, or any form of employment for profit.
- 6.8 To discontinue the program, should the participants violate the Mexican laws or AMEXCID's regulations, commit illegal or immoral conduct, get critical illness or serious injury and be considered unable to continue the course.
- 6.9 To return the total amount or a part of the expenditure for the Cooperation Program for the Training of Human Resources, depending



on the severity of such violation, should the participants violate the laws and ordinances.

6.10 Not to drive a car or motorbike, regardless of an international driving license.

6.11 To observe the rules and regulations at the place of the participants' accommodation.

6.12 To refund allowances or other benefits paid by AMEXCID in the case of a change in schedule.

7. Administrative arrangements

7.1 Organizer

Mexican Agency for International Development Cooperation (AMEXCID)
Contact: PhD. Nadia Vélez Campos (nvelez@sre.gob.mx)

Receiving institution: National Institute Of Forestry, Agricultural And Livestock Research (INIFAP)

PhD. Humberto Antonio López Delgado
(lopez.humberto@inifap.gob.mx)

7.2 Travel to Mexico

7.1.1 Air Ticket

AMEXCID will arrange an economy-class round-trip ticket between an international airport designated by AMEXCID.

7.1.2 Travel Insurance

Coverage is from time of arrival up to departure in Mexico. Thus, traveling time to outside Mexico (including damaged baggage during the arrival flight to Mexico) will not be covered.

7.3 Accommodation in Mexico

Mexican institutions will arrange the accommodation(s) or hotel(s) for the participants in Mexico.

7.4 Expenses

The following expenses in Mexico will be provided by AMEXCID:

1. Daily living expenses, shipping and medical insurance.
2. Medical care for participants who become ill after arriving in Mexico (the costs related to pre-existing illness, pregnancy, or dental treatment are not included).



3. Expenses for program implementation, including materials, will be provided by Mexican institutions.

8. Important remarks and considerations

Participants must wear comfortable clothing and footwear, suitable for working in laboratories and greenhouses. Refrain from wearing open shoes or clothing that limits your mobility or could be a safety hazard.

In Metepec, Estado de México, the climate is Temperate Subhumid, in the month of March the average temperature varies between 4° and 23° C and the rains are scarce.

It's important to read about the importance of the Toluca Valley, Mexico, in the generation of potato varieties with resistance to late blight worldwide.