



RELACIONES EXTERIORES

SECRETARÍA DE RELACIONES EXTERIORES

AMEXCID

AGENCIA MEXICANA DE COOPERACIÓN
INTERNACIONAL PARA EL DESARROLLO

Cooperation Program for the Training of Human Resources

SCIENTIFIC BASES FOR THE BREEDING OF POINSETTIA AND APPLICABLE STRATEGIES FOR THE GENERATION OF NEW CULTIVARS



INIFAP CIRPAS, ZACATEPEC EXPERIMENTAL FIELD, MORELOS

Course period: July 15th – July 19th 2024

Course number: 1





Introduction

The poinsettia (*Euphorbia pulcherrima* Willd. ex Klotzsch) has its center of origin in Mexico, and origin center in the states of Guerrero and Morelos; however, it is widely distributed throughout the Mexican Republic. In Mexico, it can be found wild in its natural environment, planted in backyards and gardens, and grown in pots or containers as improved varieties to decorate indoor spaces. The plant is a shrub that measures between three and five meters in height, it is a deciduous plant, its leaves are simple, arranged alternately, from ovate to elliptical in shape. The most important structural part is the bracts of different sizes, shapes, colors and surrounding the flowers.

Producers of ornamental plants from the state of Morelos and other entities where poinsettia is produced in Mexico demand varieties of national origin with the argument that this species is native to the country and 100% of the genetic material cultivated until now has been improved abroad. On the other hand, the premium paid by Mexican producers for cuttings of commercial poinsettia varieties from abroad, plus the investment cost to take them to a finished plant, is considered high.

To respond to the above demand, the National Institute of Forestry, Agricultural and Livestock Research (INIFAP) has implemented the Christmas Eve Genetic Improvement Program in the Zacatepec Experimental Field, state of Morelos. The criteria applied to genetic improvement are focused on characters related to leaf, bract and plant architecture, essentially. The strategies followed have been based on national germplasm with a broad genetic base, manual crossing of materials with the best aesthetic attributes demanded by the market, reducing the height of the plant, improving the capacity for issuing branches and the general architecture of the plant through graft. To date, ten poinsettia varieties have been released.

1. Concept

1.1 Objectives/Main Goals

Make known the scientific bases of poinsettia breeding, as well as the different strategies that can be adapted for the species.

Provide participants with the theoretical foundations of the genetic improvement of cultivated species case poinsettia, as well as classic genotechnical methods such as hybridization, selection, mutagenesis, among others.





1.2 Expected results

At the end of the training, students are expected to have the basic scientific knowledge of genetic improvement on poinsettia, as well as the necessary tools to analyze the information that is generated. In addition, the different strategies that can be applied, which will allow the generation of new cultivars.

It is important to note that the training will be completely theoretical because in the month of July there are still no poinsettia plants for polinization. The crop cycle is from May to December.

1.3 Target public

Undergraduate students in careers related to biology, botany, statistics, agronomy and genetics.

2. Description

2.1 Title

Scientific Bases For The Breeding Of Poinsettia And Applicable Strategies For The Generation Of New Cultivars

2.2 Course duration in Mexico

July 15th – July 19th 2024

2.3 Target country

Japan

2.4 Eligible / Target organization

This program is designed for:
Institution Homologous to the National Institute of Forestry, Agricultural and Livestock Research (INIFAP) and Universities

2.5 Limit of participants

Four

2.6 Language

English (Most lectures will be conducted in English language, although students will interact with Spanish-speaking technicians).

2.7 Program Components

Participants will be provided with the theoretical foundations of classical genetic improvement specifically on aspects of hybridization, selection, mutagenesis, among others. Knowledge about germplasm collection and its characterization based on morphological markers will also be taught. The constitution of a core collection for the formation of a germplasm bank. The sexual and asexual propagation of poinsettia. Strategies to support genetic improvement such as the formation of archetypes and grafting. Finally, the varietal description and the registration process of poinsettia varieties.





2.8 Contents

Session 1: Monday, July 15th 2024

SCHEDULE	ISSUE	AIMED AT	INSTRUCTOR
09:00 to 13:00 Hrs Mexico time	Current situation of poinsettia production and the history of its genetic improvement.	Japanese students	Dr. Jaime Canul Ku Dr. Edwin Javier Barrios Gómez Dra. Sandra Eloísa Rangel Estrada
13:00 to 14:00 Hrs Mexico time	Break		
14:00 to 16:00 Hrs Mexico time	Collection of germplasm as raw material for genetic improvement	Japanese students	Dr. Jaime Canul Ku Dr. Edwin Javier Barrios Gómez Dra. Sandra Eloísa Rangel Estrada

Session 2: Tuesday, July 16st 2024

SCHEDULE	ISSUE	AIMED AT	INSTRUCTOR
09:00 to 13:00 Mexico time	Germplasm characterization to identify parents	Japanese students	Dr. Jaime Canul Ku Dr. Edwin Javier Barrios Gómez Dra. Sandra Eloísa Rangel Estrada
13:00 to 14:00 Mexico time	Break		
14:00 to 16:00 Mexico time	Sexual and asexual propagation: Theory and practice	Japanese students	Dr. Jaime Canul Ku Dr. Edwin Javier Barrios Gómez Dra. Sandra Eloísa Rangel Estrada



Session 3: Wednesday, July 17th 2024

SCHEDULE	ISSUE	AIMED AT	INSTRUCTOR
10:00 to 14:00 Mexico time	Plant breeding strategy through hybridization	Japanese students	Dr. Jaime Canul Ku Dr. Edwin Javier Barrios Gómez Dra. Sandra Eloísa Rangel Estrada
13:00 to 14:00 Mexico time	Break		
14:00 to 16:00 Mexico time	Plant breeding strategy through mutagenesis	Japanese students	Dr. Jaime Canul Ku Dr. Edwin Javier Barrios Gómez Dra. Sandra Eloísa Rangel Estrada

Session 4: Thursday, July 18th 2024

SCHEDULE	ISSUE	AIMED AT	INSTRUCTOR
10:00 to 14:00 Mexico time	Selection of promising materials	Japanese students	Dr. Jaime Canul Ku Dr. Edwin Javier Barrios Gómez Dra. Sandra Eloísa Rangel Estrada
13:00 to 14:00 Mexico time	Break		
14:00 to 16:00 Mexico time	Transmission of phytoplasma through grafting to generate greater branching	Japanese students	Dr. Jaime Canul Ku Dr. Edwin Javier Barrios Gómez Dra. Sandra Eloísa Rangel Estrada



Session 5: Friday, July 19th 2024

SCHEDULE	ISSUE	AIMED AT	INSTRUCTOR
10:00 to 13:00 Mexico time	Varietal description, registration process and registered varieties	Japanese students	Dr. Jaime Canul Ku Dr. Edwin Javier Barrios Gómez Dra. Sandra Eloísa Rangel Estrada
13:00 to 14:00 Mexico time	Conclusions and closing	All	All

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 previous knowledge: in biology, botany, agronomy, statistics and principles of genetics.
- (b) Educational Background: Be graduated from Biology, Botany, Statistics, Genetics and/or Agronomy.
- (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 declares 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.
- (g) Teamwork and independence: Candidates should possess the ability to work both collaboratively within a team and independently, demonstrating initiative and problem-solving skills.



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 May 24th 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 May 31th, 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,

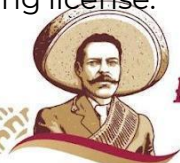
6.6 To observe the rules and regulations of the program implementing partners to provide the program or establishments.

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: Nadia Vélez Campos (nvelez@sre.gob.mx)

Receiving institution: National Institute of Forestry, Agriculture, and Livestock Research (Inifap)

Location: INIFAP CIRPAS- Zacatepec Experimental Field, located at Km 0.5 of the Zacatepec-Galeana highway, in the municipality of Zacatepec de Hidalgo, Morelos, Mexico.

Dr. Jaime Canul Ku, Researcher (canul.jaime@inifap.gob.mx)

Dr. Edwin Javier Barrios Gómez, Researcher (barrios.edwin@inifap.gob.mx)

Dra. Sandra Eloísa Rangel Estrada, Researcher (rangel.sandra@inifap.gob.mx)

7.1 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.

7.2 Accommodation in Mexico

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

7.3 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)

The following expenses in Mexico will be provided by Mexican institutions:

- (3) Expenses for program implementation, including materials.





8. Important remarks

1. Bring appropriate clothing for going out into the countryside (long-sleeved shirt, closed shoes or comfortable boots for walking, cap/hat, repellent, sunscreen).
2. Since the weather in Morelos at that time is hot (30-35° C), it is recommended to bring comfortable and cool clothing.
3. It is recommended to bring medications for your health/allergy care.

