Revista Mexicana de Ciencias Agrícolas

DOI: https://doi.org/10.29312/remexca.v16i3.3624

Description of cultivar

Lupita: a new variety of poinsettia

Amando Espinosa-Flores[1]
María de los Ángeles Rodríguez-Elizalde[1,§]
José Merced Mejía-Muñoz[1]
María Teresa Colinas-León[1]

1 1 Departamento de Fitotecnia-Universidad Autónoma Chapingo. Carretera México-Texcoco km 38.5. Chapingo, Estado de México, México. CP. 56230. (floresamando@yahoo.com.mx; jmerced58@hotmail.com; lozcol@gmail.com).

Autora para correspondencia: roelyma@gmail.com

Abstract

Ornamental horticulture is a dynamic and growing industry that develops new varieties of plants every year. In the case of poinsettia (*Euphorbia pulcherrima* Willd. ex Klotzsch), the growing demand for new materials in the Mexican market has motivated the Chapingo Autonomous University to generate at least 10 varieties of this species. The genotechnical method for obtaining the variety was the directed cross between the Charllote and Juan Pablo II V-1 varieties in 2018 and the subsequent selection of an individual from the progeny obtained. The progeny were evaluated for two years in Chapingo greenhouses, located in Texcoco, State of Mexico, selecting a segregant, which was named Lupita. This variety is a compact and highly branched indoor plant; the pigmentation of the bracts in Texcoco begins in mid-September and it is fully colored by the end of November, so it requires 10 weeks to pigment. It has intense red bracts in the middle of the inflorescence and a pink-veined red coloration in the other. This variety is a colorful and attractive option for indoor poinsettia producers to grow a variety of Mexican origin with characteristics different from those present in the national market.

Keywords:

breeders' rights, germplasm bank, poinsettia.

Revista Mexicana de Ciencias Agrícolas
DOI: https://doi.org/10.29312/remexca.v16i3.3624

The poinsettia (*Euphorbia pulcherrima*, Willd. ex Klotzsch), also known as cuetlaxóchitl, Christmas flower, or natal flower, can be found wild in the north of the state of Morelos as far as the municipality of Taxco, Guerrero (Ecke *et al*., 1990; Trejo *et al*., 2012). It is considered one of the most important products in the field of ornamental plants as it generates some 5 000 direct jobs, especially in the center of the country. Although Mexico is the center of origin of this plant, the production of indoor poinsettia depends on the varieties generated in other countries (Trejo *et al*., 2015).

Thus, in the face of a dynamic and demanding ornamental industry, ornamental plant producers in the state of Morelos and other producing states in the country constantly demand new varieties (Canul *et al*., 2017; Rodríguez-Elizalde *et al*., 2023). In relation to the above, in recent years, new cultivars of sun poinsettia (*Euphorbia pulcherrima* Willd. ex Klotzsch) have been generated by Mexican researchers, among them, the following varieties stand out: Ángel, Anna, Graciela, Gabriela, Rubí, Victoria, Alondra, Paula and Beatriz (Canul *et al*., 2017; García *et al*., 2019; García *et al*., 2020; Espinosa *et al*., 2022; Rodríguez-Elizalde *et al*., 2023).

Origin and genealogy

The development of this variety used an accession of the public domain variety Juan Pablo II V-1 of and the commercial variety Charllote (Figure 1).

Figure 1. Parents Juan Pablo II V-1 (left) and Charllote (right).

Obtaining method

It is a single-cross hybrid where the female was Juan Pablo II V-1 and the male was Charllote; for this, five plants from both parents were used to carry out the pollinations manually and their parents were selected according to the desirable characteristics, such as color and shape of leaves and bracts.

Characteristics

The Lupita variety is a compact and very branched indoor poinsettia plant (Figure 2); the pigmentation of the bracts begins in mid-September (3rd week) and it is fully colored by the end of November (4th week) (it needs 10 weeks of conditions of short days and long nights to promote

Revista Mexicana de Ciencias Agrícolas
DOI: https://doi.org/10.29312/remexca.v16i3.3624

floral differentiation and bract pigmentation); it has bracts that have a deep red color in half of the inflorescence and a pink-veined red color in the other (Figure 2).

Figure 2. Top view of the Lupita variety.

The main color of the adaxial side is red (red-orange group 51A) and the secondary color is mottled pink (red-orange group 54B) (Figure 3) (RHS, 2006). It presented intense green foliage that harmonizes with the bracts. Its leaves are oval, intense green on the adaxial side (green group 139 A) and 139 B (green group) on the abaxial side, their stems are smooth and deep green and anthocyanin pigmentation of the upper third (Figure 4).

DOI: https://doi.org/10.29312/remexca.v16i3.3624

Figure 3. Shape and color of the bracts of the Lupita variety of the adaxial side (a) and the abaxial side (b).

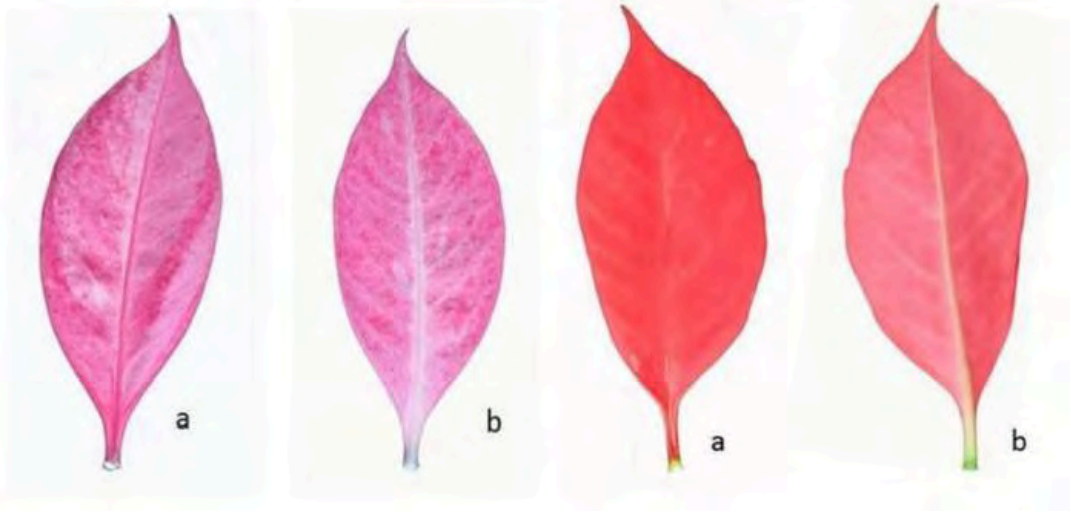
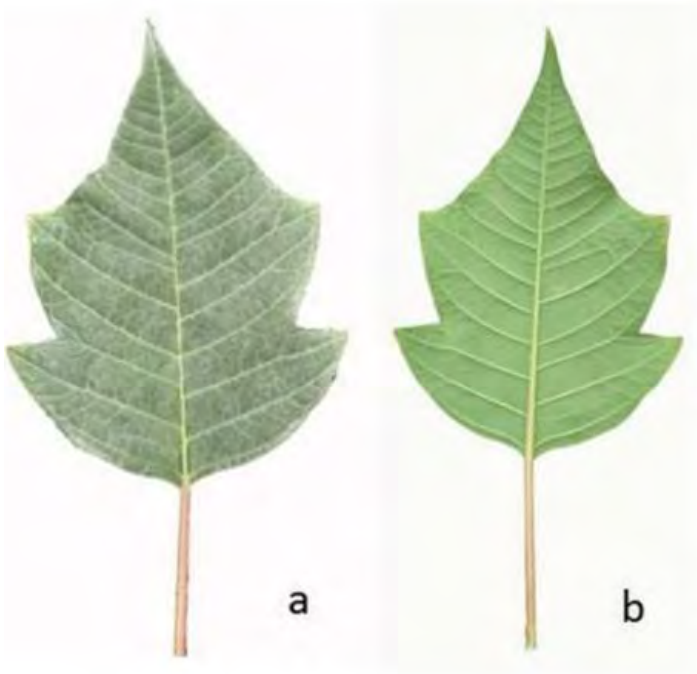


Figure 4. Shape and color of leaves of the Lupita variety of the adaxial side (a) and abaxial side (b).



The variety complied with the requirements of distinctness, homogeneity, and stability indicated by the International Union for the Protection of New Varieties of Plants (UPOV), for its acronym in Spanish, requesting the registration of the Lupita variety with the National Seed Inspection and Certification Service (SNICS), for its acronym in Spanish. It has the breeder's title with registration number 3442 for its exclusive use and exploitation, with its validity ending on May 17, 2042.

Table 1 describes the traits of the Lupita variety based on the descriptors developed by UPOV (2008) and compared with two varieties from the Germplasm Bank with valid registration.

Revista Mexicana de Ciencias Agrícolas

DOI: https://doi.org/10.29312/remexca.v16i3.3624

Table 1. Traits of poinsettia (*Euphorbia pulcherrima*) variety Lupita compared to Anna and Ángel.

Trait	Level	Var. Lupita	Level	Var. Anna	Level	Var. Ángel
Plant: num. of forks	5	Medium	5	Medium	5	Medium
Plant: height	5	Medium	3	Short	5	Medium
Plant: width (amplitude)	5	Medium	5	Medium	5	Medium
Stem: green intensity in the middle third	7	Strong	5	Medium	7	Strong
Stem: intensity of anthocyanin pigmentation in the middle third	5	Medium	5	Medium	5	Medium
Leaf (blade): length	7	Long	3	Short	5	Medium
Leaf (blade): width	5	Medium	3	Narrow	7	Wide
Leaf (blade): shape	2	Oval	4	Elliptical	2	Oval
Leaf (blade): base shape	2	Rounded	2	Rounded	2	Rounded
Leaf (blade): num. of colors of the adaxial side	1	One	3	More than two	1	One
Blade: color of the midrib of the adaxial side	1	Green only	2	Green and red	1	Green only
Blade: num. of lobes	2	Medium	1	None or few	1	None or very few
Blade: curvature of the midrib	1	Absent or weak	1	Absent or weak	2	Medium
Petiole: length	5	Medium	7	Long	5	Medium
Petiole: anthocyanin pigmentation of the adaxial side	5	Medium	5	Medium	1	Absent or very weak
Bracts: num.	5	Medium	7	Many	5	Medium
Major bract: length (including the petiole)	5	Medium	5	Medium	5	Medium
Major bract: shape	2	Elliptical	1	Oval	2	Elliptical
Bract: num. of colors of the adaxial side	2	Two	1	One	1	One
Bract: torsion	1	Absent	1	Absent	1	Absent
Bract: roughness between veins	3	Weak	1	Absent or very weak	5	Medium
Top: width	5	Medium	5	Medium	5	Medium
Cyathium: main color of the glands	1	Yellow	1	Yellow	1	Yellow
Time of opening of cyathia	5	Medium	5	Medium	3	Early

DOI: https://doi.org/10.29312/remexca.v16i3.3624

Requirements for its cultivation

During propagation, the mother plants should be kept under long days (at least 12.75 h) to ensure vegetative cuttings. To have an optimal quality of the mother plants and their cuttings, it is necessary to select a porous substrate (60% organic material + 40% mineral material) and sterilize it. In addition, it is recommended to have good control over fertilization based on a pH of 6.5 and electrical conductivity less than 2 dS m^{-1}, which guarantees their good development. They should be propagated using terminal cuttings, the best time for this being from February to July.

The cuttings obtained from the mother plants must be healthy and vigorous and have no signs of phytosanitary problems. Cuttings should be applied a root promoter and kept under long days during the rooting phase. It is recommended to carry out phytosanitary control in a preventive manner for whiteflies and red spider mites since, when pests appear, it is more difficult to control them due to the different stages in which the insects are found (larva, nymph, adult, or egg).

This variety has a very vigorous stem and is not very attractive to whitefly and red spider mite attacks, which is why producers can choose it. The temperature range for its growth and bract pigmentation should range from 17 to 30 °C during the day and from 13 to 18 °C at night. It does not withstand temperatures below 5 °C, when this happens, the foliage falls off, but the roots do not die and vegetative apexes can sprout from the crown.

The variety is available at the Inés Flores Germplasm Bank of the Academy of Floriculture of the Department of Phytotechnics and can be acquired through a licensing contract for the variety between poinsettia producers and the Chapingo Autonomous University.

Conclusions

The Lupita variety is an indoor poinsettia plant that has distinctive characteristics that differentiate it from the current varieties previously recorded. It had a compact and very branched appearance, with intense red bracts in the middle of the inflorescence and the other with a pink-veined red color. It is distinguished by intense green foliage that harmonizes with the bracts and its leaves are oval in shape and intense green in color. This variety is a novel option for poinsettia producers in the country.

Bibliography

1 Canul, K. J.; García, P. F.; Barrios, G. E. J.; Rangel, E. S. E.; Ramírez, R. S. G. y Osuna, C. F. J. 2017. Alondra: nuevo hibrido de nochebuena para interiores. Revista Mexicana de Ciencias Agrícolas. 8(5):749-754. 10.29312/remexca.v8i5.119.

2 Ecke, P. J.; Matkin, O. A. and Hartley, D. E. 1990. The poinsettia manual. Paul Ecke Poinsettias. 3-9 pp.

3 Espinosa, F. A.; Rodríguez-Elizalde, M. A.; Mejía, M. J. M. y Colinas, L. M. T. 2022. Desarrollo de la variedad de nochebuena (*Euphorbia pulcherrima* Willd. ex Klotzsch) var. 'Ángel'. Agro-Divulgación. 2(2):27-32.

4 García, P. F.; Canul, K. J.; Rangel, E. S. E.; Barrios, G. E. J. y Portas, F. B. 2020. Beatriz, variedad de nochebuena mexicana para interiores. Revista Fitotecnia Mexicana. 43(4):485-487. https://doi.org/10.35196/rfm.2020.4.485.

5 García, P. F.; Rangel, E. S. E.; Barrios, G. E. J.; Ramírez, R. S. G.; Portas, F. B. and Canul, K. J. 2019. Leticia: new Mexican variety of poinsettias for interiors. Revista Mexicana de Ciencias Agrícolas. 10(2):461-466. https://doi.org/10.29312/remexca.v10i2.1366.

DOI: https://doi.org/10.29312/remexca.v16i3.3624

6 Rodríguez-Elizalde, M. A.; Espinosa, F. A. y Mejía, M. J. M. 2023. Generación de variedades de *Euphorbia* spp. en México. *In*: Facciuto, G. y Soto, S. Ornamentales Nativas de Latinoamérica/ Notas de divulgación. 93-97 pp.

7 RHS. 2006. Royal Horticultural Society. Colour chart. The Royal Horticultural Society, London, England. https://www.upov.int/meetings/en/doc-details.jsp?meeting-id=48107&doc-id=416979.

8 Trejo, H. L.; Feria, A. T.; Olsen, K. M.; Eguiarte, L. E.; Arroyo, P. B.; Gruhn, J. A. and Olson, M. E. 2012. Poinsettia's wild ancestor in the Mexican dry tropics: historical, genetic, and environmental evidence. American Journal of Botanic. 99(7):1146-1157. 10.3732/ajb.1200072.

9 Trejo, H. L.; Olson, Z. M. E. y Bye, B. R. A. 2015. Datos históricos y diversidad genética de las nochebuenas (*Euphorbia pulcherrima*) del Distrito Federal, México. Revista Mexicana de Biodiversidad. 86(2):478-485. 10.1016/j.rmb.2015.04.033.

10 UPOV. 2008. Flor de Pascua, *Euphorbia pulcherrima* Willd. ex Klotzsch. Directrices para la ejecución del examen de la distinción, homogeneidad y estabilidad. Ginebra, Suiza. 36 p.

Revista Mexicana de Ciencias Agrícolas

DOI: https://doi.org/10.29312/remexca.v16i3.3624

Lupita: a new variety of poinsettia

Journal Information
Journal ID (publisher-id): remexca
Title: Revista mexicana de ciencias agrícolas
Abbreviated Title: Rev. Mex. Cienc. Agríc
ISSN (print): 2007-0934
Publisher: Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias

Article/Issue Information
Date received: 01 February 2025
Date accepted: 01 March 2025
Publication date: 19 May 2025
Publication date: Apr-May 2025
Volume: 16
Issue: 3
Electronic Location Identifier: e3624
DOI: 10.29312/remexca.v16i3.3624

Categories

Subject: Description of cultivar

Keywords:

Keywords:

breeders' rights

germplasm bank

poinsettia

Counts

Figures: 4

Tables: 1

Equations: 0

References: 10

Pages: 0