



CR·SiB

CERTIFICADO
DE REPORTE

1. INFORMACIÓN DEL CERTIFICADO

Número de certificado: **170CBF61E1B**

Fecha de la última actualización del conjunto de datos: **2020-03-12**

URL del conjunto de datos: https://ipt.biodiversidad.co/cr-sib/resource.do?r=rge0278_phytophthora_20200311

Número de registros biológicos reportados: **450**

2. INFORMACIÓN DEL PERMISO

Autoridad

Ministerio de Ambiente y Desarrollo Sostenible

Número del permiso

Artículo 252 Ley 1753 de 2015 CONTRATO RGE256

Titular

Universidad de los Andes

Nit o cédula

860.007.386-1

Fecha de emisión del permiso

2015-06-09

3. INFORMACIÓN DEL RECURSO

Título del proyecto

Análisis de la variación fenotípica y diversidad genética de las poblaciones de *Phytophthora* spp. en diferentes hospederos en Colombia

Resumen

Pathogen variation plays an important role in the dynamics of infectious diseases. In this study, the genetic variation of 279 *Phytophthora infestans* isolates was assessed using a combination of 12 microsatellite simple-sequence repeat markers. Isolates were collected from 11 different potato cultivars in 11 different geographic localities of the central region of Colombia. The objective of this study was to determine whether populations were differentiated by host genotype or geographic origin. Within a single clonal lineage, EC-1, 76 genotypes were detected. An analysis of molecular variance attributed most of the variation to differences within host genotypes rather than among the host genotypes, suggesting that host cultivars do not structure the populations of the pathogen. Furthermore, the lack of a genetic population structure according

to the host cultivar was confirmed by all of the analyses, including the Bayesian clustering analysis and the minimum spanning network that used the Bruvo genetic distance, which suggested that there are no significant barriers to gene flow for *P. infestans* among potato cultivars. According to the geographic origin, the populations of *P. infestans* were also not structured, and most of the variation among the isolates was attributed to differences within localities. Only some but not all localities in the north and west of the central region of Colombia showed some genetic differentiation from the other regions. The absence of sexual reproduction of this pathogen in Colombia was also demonstrated. Important insights are discussed regarding the genetic population dynamics of the *P. infestans* populations of the central region of Colombia that were provided by the results. In Colombia, there is a high genetic variation within the EC-1 clonal lineage with closely related genotypes, none dominant, that coexist in a wide geographic area and on several potato cultivars.

Palabras clave

Phytophthora Colombia Population Structure Genetic variation Host, Specimen

3.1 Contacto del recurso

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3.2 Contacto del permiso

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3.3 Proveedor de los metadatos

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3.4 Cobertura geográfica

Colombia Cundinamarca Bojacá Bojacá Colombia Cundinamarca Mosquera Venecia Colombia Cundinamarca Madrid Monte Cristo Colombia Cundinamarca El Rosal Casa Blanca Colombia Cundinamarca Subachoque Vereda Guamal Colombia Cundinamarca Chocontá Vereda Tilatá Colombia Cundinamarca Villapinzón Tibita Colombia Cundinamarca Sesquilé El Uval Colombia Cundinamarca Sesquilé El Hato Colombia Cundinamarca Sesquilé Agua Blanca Colombia Cundinamarca Villapinzón Chasques Colombia Cundinamarca Villapinzón Bosavita Cundinamarca Villapinzón San Pablo Cundinamarca Villapinzón Salitre Alto Cundinamarca Villapinzón Salitre Bajo Colombia Cundinamarca Bogotá Pasquilla Colombia Cundinamarca Bogotá Pasquillita Colombia Cundinamarca Bogotá Olarte Colombia Cundinamarca Sesquile El Hato Colombia Cundinamarca Sesquile Chaleche Colombia Cundinamarca Sesquile Tierra Negra Colombia Cundinamarca Sesquile Agua Blanca Colombia Cundinamarca Sesquile Rancheria Colombia Cundinamarca Sesquile El Uval Colombia Cundinamarca Zipaquirá La florida Colombia Cundinamarca Zipaquirá Rio Frio Colombia Cundinamarca Zipaquirá El Cruce Colombia Cundinamarca Zipaquirá Paramo Guerrero Colombia Cundinamarca Tausa LlanoGrande Colombia Cundinamarca Tausa Paramo Bajo Colombia Cundinamarca Tausa Lagunita Colombia Cundinamarca Tausa Tierra Negra Colombia Cundinamarca Cogua Salitre Colombia Cundinamarca Tausa Salitre Colombia Cundinamarca Subachoque La Porquera Colombia Cundinamarca Subachoque Galdamez Colombia Cundinamarca Subachoque Cascajal Colombia Cundinamarca Subachoque El paramo Colombia Cundinamarca Subachoque El guamal Coordenadas: 4°25'1.2"N y 5°17'34.8"N Latitud; 74°17'13.2"W y 73°32'9.6"W Longitud

3.5 Cobertura taxonómica

Muestras del género *Phytophthora*.

Categorías taxonómicas

Género: Phytophthora

3.6 Cobertura temporal

7 de julio de 2016 - 6 de diciembre de 2016

3.7 Métodos de muestreo

In total, 1,298 putatively infected leaves that exhibited symptoms akin to late potato blight were collected between July and December 2016 from potato crops (*S. tuberosum* Andigenum and Phureja Groups) in the central region of Colombia (Cundinamarca region). The host cultivars that corresponded to the Phureja Group were Criolla Colombia, Criolla Dorada, Criolla Ocarina, Milagros, and Paola; and the Andigenum Group cultivars were Diacol Capiro, Parda Pastusa, Superior, Pastusa Suprema, Tuquerren a, and ICA Unica. The Pastusa Suprema and Paola cultivars were considered resistant to late blight disease; the Milagros and ICA Unica cultivars were considered moderately resistant to late blight disease; and the Tuquerreña, Superior, Parda Pastusa, Diacol Capiro, Criolla Colombia, Criolla Ocarina, and Criolla Dorada were considered susceptible to late blight disease. In total, 11 geographic localities were sampled, including the north (N) of the central region, which included the localities of Tausa, Cogua, and Zipaquirá; the west (W) of the central region, which included Subachoque, El Rosal, Bojacá, and Mosquera; the central (C) part of the central region, which included Bogotá; and the northeast (NE) of the central region, which included Villapinzón, Chocontá, and Sesquilé. The classification of regions as N, W, C, and NE was based on the characteristics of the agronomic and production systems of each locality. Three to four leaves were sampled from 15 randomly selected plants that showed late blight symptoms from each field. Approximately 1 cm² of infected leaf, between the necrotic and sporulating areas, was excised and placed in contact with a potato dextrose agar (PDA) medium that contained antibiotics (1 ml of rifampicin, 1 ml of ampicillin, 1 ml of chloramphenicol, and 1 ml of pentachloronitrobenzene per liter) (Danieles et al. 2013). In total, 278 isolates were successfully isolated and subsequently transferred again into a fresh PDA medium. All plates were grown at 18°C in the dark for 7 days and were stored in the Phytophthora collection at Universidad de los Andes (Bogotá, Colombia). Duplicates of all isolates collected in this study were stored in the Museum of Natural History at Universidad de los Andes.

La veracidad de este certificado se puede corroborar en la siguiente dirección web:
https://ipt.biodiversidad.co/cr-sib/pdf.do?r=rge0278_phytophthora_20200311&n=170CBF61E1B

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