

Thirteenth EuroBlight workshop  
St. Petersburg (Russia), 9-12 October 2011

---

**Phenotypic characteristics of Belgian populations of  
*Phytophthora infestans* (2005-2010)**

VINCENT CÉSAR, VÉRONIQUE LABBE,  
LAURENT LAGUESSE AND JEAN-LOUIS ROLOT

Walloon Agricultural Research Center, Rue de Serpont 100, 6800 Libramont, Belgium

# Phenotypic characteristics of Belgian populations of *Phytophthora infestans* (2005-2010)



Vincent César, Véronique Labbe, Laurent Laguesse and Jean-Louis Rolot

Walloon Agricultural Research Center, Rue de Serpont 100, 6800 Libramont, Belgium. E-mail: v.cesar@cra.wallonie.be

## Summary

A total of 216 isolates of *Phytophthora infestans* were collected in the South part of Belgium (Wallonia) in several potato fields, volunteers and dumps during 2005-2010. Most of isolates were tested for several phenotypic characteristics, such as mating type, virulence and sensitivity to metalaxyl. 55% of the Belgian isolates were A2 mating type. All 11 virulence factors were found among the tested isolates. 86% of the A2 isolates are resistant to metalaxyl and 94% of the A1 isolates are sensitive to metalaxyl. A2 isolates have more complex virulence profiles than A1.



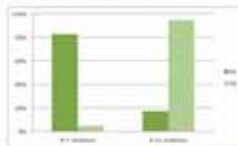
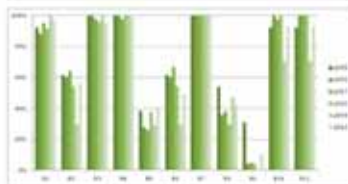
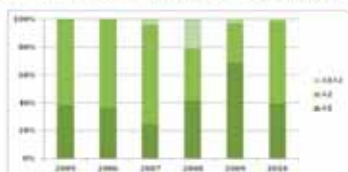
## Materials and Methods

- The mating type was tested by growing isolates on rye agar with the known references strains of the A1 and A2 mating types. After 7-14 days incubation at 16°C, the presence or absence of oospores was recorded under a microscope
- Virulence pattern were determined using Black's differential set of potato clones, each having one of the R1-R11 pathotype-specific resistance genes.
- The floating potato leafdisc method (Cooke) was used to determine metalaxyl sensitivity. Isolates were tested on 0.1, 1, 10 and 100 mg metalaxyl/ml. Isolates sporulating on water containing 10 and 100 mg/ml were rated as resistant, those on 1 mg/ml were rated as moderately resistant and those that sporulated only on water and 0.1 mg/ml were rated as sensitive.

## Results

Among the 215 tested isolates, 55% were A2 mating type, 41% were A1 mating type and 4% were self-fertile. From 2005 to 2010, A2 mating type were predominant except in 2009 where 60% of strains were A1.

All known virulence factors were found among tested isolates. Virulence against R7 was found in 100% of isolates. Virulence factors corresponding to genes R1, R3, R4, R10 and R11 were found in more than 90%. Virulence factors against R2, R5, R6 and R8 were found in between 30 to 60%. Virulence for R9 was rare, up to 10% of tested isolates with exception of R9 in 2005 (31%). The most frequency race were 1-3-4-7-10-11 (19%), avirulent to R9 (13%) and 1-2-3-4-6-7-10-11 (13%).



In total, 202 isolates were screened for resistance to metalaxyl. During the 5 years, 52% were resistant, 4% were moderately resistant and 44% were sensitive to metalaxyl. The association between metalaxyl resistance and mating type were significant. Of the A2 mating type strains, 85% were resistant and of the A1 mating type, 94% were sensitive.

A2 isolates have more complex virulence profiles than A1. Among 199 tested isolates, 83% of the A1 strains have 4 to 7 virulences and 95% of the A2 strains have 8 to 11 virulences.

EuroLight Workshop – A potato late blight for Europe – St-Petersburg, Russia – 9-12 October 2011  
This work is supported by The Walloon Ministry of Agricultural

Centre wallon de Recherches agronomiques  
Département Sciences du vivant  
Unité Amélioration des espèces et biodiversité  
www.cra.wallonie.be



Centre wallon de Recherches agronomiques