



Differential selection pressures exerted by host resistance quantitative trait loci on a pathogen population: a case study in an apple × *Venturia inaequalis* pathosystem

Submitted by Emmanuel Lemoine on Thu, 02/12/2015 - 13:16

Titre	Differential selection pressures exerted by host resistance quantitative trait loci on a pathogen population: a case study in an apple × <i>Venturia inaequalis</i> pathosystem
Type de publication	Article de revue
Auteur	Lê Van, Amandine [1], Caffier, Valérie [2], Lasserre-Zuber, Pauline [3], Chauveau, Aurélie [4], Brunel, Dominique [5], Le Cam, Bruno [6], Durel, Charles-Eric [7]
Editeur	Wiley
Type	Article scientifique dans une revue à comité de lecture
Année	2013
Date	2013
Numéro	3
Pagination	899 - 908
Volume	197
Titre de la revue	New Phytologist
ISSN	1469-8137
Mots-clés	broad-spectrum resistance [8], durability [9], <i>Malus × domestica</i> [10], quantitative pyrosequencing [11], Quantitative resistance [12], resistance erosion [13], selection pressure [14], <i>Venturia inaequalis</i> [15]
Résumé en anglais	<p>Understanding how pathogens evolve according to pressures exerted by their plant hosts is essential for the derivation of strategies aimed at the durable management of resistant cultivars. The spectrum of action of the resistance factors in the partially resistant cultivars is thought to be an important determinant of resistance durability. However, it has not yet been demonstrated whether the pressures exerted by quantitative resistance are different according to their spectrum of action. To investigate selection pressures exerted by apple genotypes harbouring various resistance quantitative trait loci (QTLs) on a mixed inoculum of the scab disease agent, <i>Venturia inaequalis</i>, we monitored <i>V. inaequalis</i> isolate proportions on diseased apple leaves of an F1 progeny using quantitative pyrosequencing technology and QTL mapping. Broad-spectrum resistances did not exert any differential selection pressures on the mixed inoculum, whereas narrow-spectrum resistances decreased the frequencies of some isolates in the mixture relative to the susceptible host genotypes. Our results suggest that the management of resistant cultivars should be different according to the spectrum of action of their resistance factors. The pyramiding of broad-spectrum factors or the use of a mixture of apple genotypes that carry narrow-spectrum resistance factors are two possible strategies for the minimization of resistance erosion.</p>
URL de la notice	http://okina.univ-angers.fr/publications/ua7891 [16]
DOI	10.1111/nph.12086 [17]

Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=21663](http://okina.univ-angers.fr/publications?f[author]=21663)
- [2] <http://okina.univ-angers.fr/v.caffier/publications>
- [3] [http://okina.univ-angers.fr/publications?f\[author\]=12075](http://okina.univ-angers.fr/publications?f[author]=12075)
- [4] [http://okina.univ-angers.fr/publications?f\[author\]=12781](http://okina.univ-angers.fr/publications?f[author]=12781)
- [5] [http://okina.univ-angers.fr/publications?f\[author\]=12782](http://okina.univ-angers.fr/publications?f[author]=12782)
- [6] <http://okina.univ-angers.fr/b.lecam/publications>
- [7] <http://okina.univ-angers.fr/c.durel/publications>
- [8] [http://okina.univ-angers.fr/publications?f\[keyword\]=12299](http://okina.univ-angers.fr/publications?f[keyword]=12299)
- [9] [http://okina.univ-angers.fr/publications?f\[keyword\]=12300](http://okina.univ-angers.fr/publications?f[keyword]=12300)
- [10] [http://okina.univ-angers.fr/publications?f\[keyword\]=11801](http://okina.univ-angers.fr/publications?f[keyword]=11801)
- [11] [http://okina.univ-angers.fr/publications?f\[keyword\]=12301](http://okina.univ-angers.fr/publications?f[keyword]=12301)
- [12] [http://okina.univ-angers.fr/publications?f\[keyword\]=12062](http://okina.univ-angers.fr/publications?f[keyword]=12062)
- [13] [http://okina.univ-angers.fr/publications?f\[keyword\]=12302](http://okina.univ-angers.fr/publications?f[keyword]=12302)
- [14] [http://okina.univ-angers.fr/publications?f\[keyword\]=12303](http://okina.univ-angers.fr/publications?f[keyword]=12303)
- [15] [http://okina.univ-angers.fr/publications?f\[keyword\]=12058](http://okina.univ-angers.fr/publications?f[keyword]=12058)
- [16] <http://okina.univ-angers.fr/publications/ua7891>
- [17] <http://dx.doi.org/10.1111/nph.12086>

Publié sur *Okina* (<http://okina.univ-angers.fr>)