



**HAL**  
open science

## Genetic mapping of broad-spectrum QTLs and strain-specific major QTL for resistance to *Ralstonia solanacearum* in eggplant using GBS

Sylvia Salgon, Cyril Jourda, Christopher Sauvage, Marie-Christine Brand-Daunay, Emmanuel Wicker, Jacques Dintinger

### ► To cite this version:

Sylvia Salgon, Cyril Jourda, Christopher Sauvage, Marie-Christine Brand-Daunay, Emmanuel Wicker, et al.. Genetic mapping of broad-spectrum QTLs and strain-specific major QTL for resistance to *Ralstonia solanacearum* in eggplant using GBS. 16. Eucarpia Capsicum and Eggplant Meeting, Sep 2016, Kecskemét, Hungary. hal-01512188

**HAL Id: hal-01512188**

**<https://hal.science/hal-01512188v1>**

Submitted on 5 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



# XVI. EUCARPIA

Capsicum and Eggplant Meeting

KECSKEMÉT • HUNGARY • 12-14. SEPT. 2016

*in memoriam*  
*Dr. Alain Palloix*



# PROCEEDINGS

**Editors:**

Katalin Ertsey-Peregi  
Zsuzsanna Füstös  
Gábor Palotás  
Gábor Csilléry



## Genetic mapping of broad-spectrum QTLs and strain-specific major QTL for resistance to *Ralstonia solanacearum* in eggplant using GBS

Sylvia Salgon<sup>1,2,3</sup>, Cyril Jourda<sup>1</sup>, Christopher Sauvage<sup>4</sup>, Marie-Christine Daunay<sup>4</sup>, Emmanuel Wicker<sup>1</sup>, Jacques Dintinger<sup>1</sup>

<sup>1</sup> CIRAD, UMR PVBMT, Saint-Pierre, La Réunion (France)

<sup>2</sup> ARMEFLHOR, Saint-Pierre, La Réunion (France)

<sup>3</sup> Université de la Réunion, Saint-Denis, La Réunion (France)

<sup>4</sup> INRA UR1052, Montfavet, France

### Abstract

The Solanaceae family includes major agricultural crops cultivated worldwide such as tomato, potato, pepper and eggplant. Production of these crops in tropical and subtropical areas is limited by *Ralstonia solanacearum*, the causal agent of the bacterial wilt disease. This pathogen represents a threat for crops due to its large host range, its persistence in fields and its extensive genetic diversity. The species complex of *R. solanacearum* is divided into four phylotypes, which all are able to wilt eggplant.

Seeking for efficient and stable resistance to bacterial wilt, an intraspecific population of 178 eggplant recombinant inbred lines (RILs) was evaluated for resistance to *R. solanacearum* strains belonging to phylotypes I, IIA, IIB, and III. In addition of 162 AFLP and SSR markers, genotyping-by-sequencing (GBS) of the RILs provided 661 SNPs used to construct a dense genetic map anchored to the physical map of tomato. Quantitative Trait Loci (QTL) analysis showed the presence of a major QTL (ERs1) specifically associated with resistance to phylotype I strains on the chromosome 9 of eggplant. Two broad-spectrum QTLs were also identified on chromosome 2 and chromosome 5. Although less efficient than ERs1, these QTLs were found to partially control strains belonging to phylotype I, IIA and III.

Molecular markers linked to QTLs will be very useful for breeding resistance to *Ralstonia solanacearum* in eggplant. The anchored map will also help to identify candidate genes underlying the so far identified resistance factors.

**Keywords:** Eggplant, *Ralstonia solanacearum*, resistance, breeding

Mult  
contri

Yoshiyuki

Graduate Scho

### Abstract

*Capsicum chin*  
Amazon and is co  
species is high pu  
Caribbean region.  
elucidate the genet  
in this study carries  
of vanillylamine fr  
produced capsino  
characterized using  
*pamt* alleles had a  
expression. A phy  
Combined with str  
were involved in th  
alleles showed that  
conclusion, the resu  
low pungency in  
demonstrated the  
metabolic profiles i

**Keywords:** Hot pep