



Algemene gegevens	
PPS-nummer	KV 1409-029
Titel	Genetics and mechanism of Aphid resistance in <i>Capsicum</i>
Roadmap/Koepel	Topsector Tuinbouw & Uitgangsmaterialen, Meer met Minder
Uitvoerende kennisinstelling(en)	Plant Breeding Wageningen University and Research
Projectleider onderzoek (naam + emailadres)	Dr. Ben Vosman
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Startdatum	June 1, 2015
Einddatum	December, 31 2019
Korte omschrijving inhoud	Aphids can cause severe problems in pepper cultivation. We have identified a resistance source on which <i>M. persicae</i> shows a strongly reduced reproduction rate. In this project we study the genetics of the resistance and the resistance mechanism.

Highlights
<p>Several aphids can cause problems in pepper cultivation, and produce all kinds of damage, such as chlorosis, necrosis, wilting, defoliation and fruit loss. Also they produce honeydew, but the most important damage is caused indirectly by the viruses that are transmitted by the aphids. During the last years we (Plant Breeding Wageningen University and Research (WUR-PB)) together with leading Dutch pepper breeding companies) have evaluated wild relatives of the cultivated pepper for resistance against the aphid <i>Myzus persicae</i>. This has resulted in the identification of a resistance source on which <i>M. persicae</i> shows a strongly reduced reproduction rate. In this project we want to analyze the genetics of the resistance and study the resistance mechanism to facilitate its use in breeding aphid resistant pepper varieties. An F2 population derived from a cross between an aphid resistant and susceptible plant was available for the project.</p> <p>In 2016 a QTL mapping was carried out, resulting in the identification of one major QTL explaining 40% of the variation and a minor QTL explaining 7%. The mapping also resulted in the identification of several chromosomal rearrangements between the parents of the population. The resistance was further characterized using EPG measurements which indicated that the resistance is most likely phloem based. The resistance is accompanied by callose deposition in the phloem vessels. Three <i>Myzus</i> populations from different geographical origins responded differently to the resistance, ranging from strongly affected to hardly affected.</p> <p>To promote research on host plant resistance, a symposium (1) was organized as part of the International Conference on Entomology (ICE2016, Orlando, FL.) and our work (2) was presented during that meeting. The project was also presented during the EUCARPIA Capsicum-Eggplant working group meeting (3).</p>

Aantal opgeleverde producten in 2016			
Wetenschappelijke artikelen	Rapporten	Artikelen in vakbladen	Inleidingen/workshops
1	-	-	2

Bijlage: Titels van de producten of een link naar de producten op een openbare website

- (1) <https://esa.confex.com/esa/ice2016/meetingapp.cgi/Session/25614>
- (2) <https://esa.confex.com/esa/ice2016/meetingapp.cgi/Paper/105645>
- (3) Voorrips, R.E., G. Steenhuis-Broers, W. van 't Westende & B. Vosman. (2016) Aphid resistance in a Capsicum collection. In: Proceedings of XVIth EUCARPIA Capsicum and Eggplant working group meeting (eds K. Ertsey-Peregi, Z. Füstos, G Palotás and G. Csilléry) Diamond congress Ltd, Budapest, Hungary. Page 66-68.