Multidisciplinary approach to study effects of beneficial rhizobacteria on induced plant defences to abovegroung herbivorous insects

Berichterstattung

Projektinformationen

RHIZO-INSECT

ID Finanzhilfevereinbarung: 234895

Projekt abgeschlossen

Startdatum
1 Juli 2009

Enddatum
30 Juni 2011

Finanziert unter
Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Gesamtkosten
€ 169 425,40

EU-Beitrag
€ 169 425,40

Koordiniert durch
WAGENINGEN UNIVERSITY
Netherlands

Dieses Projekt findet Erwähnung in ...

Final Report Summary - RHIZO-INSECT (Multidisciplinary approach to study effects of beneficial rhizobacteria on induced plant defences to abovegroung herbivorous insects)

See the attached document for the final publishable summary report

Research objectives, main results and conclusions:
1) the preference of generalist and specialist herbivores for the host plant
Our experiments show that the presence of rhizobacteria has no effects on herbivore preference.
2) the performance of generalist and specialist herbivores when they are developing on the plant, by measuring growth and development rate
The performance of specialist herbivores was not affected by the presence of rhizobacteria. In contrast, rhizobacteria had a differential effect on generalist herbivores. Rhizobacteria induced systemic resistance against leaf chewers (the caterpillars Spodoptera exigua and Mamestra brassicae) whereas the colonization by rhizobacteria induced systemic susceptibility to phloem feeders (in this case the aphid Myzus persicae).
3) the attraction of parasitoids to herbivore-infested plants (indirect defences)
The colonization by rhizobacteria triggers a strong modification in the plant, and such modification interferes with the host recognition by aphid parasitoids.
4) the composition of volatiles emitted by host plants, which can trigger the parasitoids behaviour
The composition of the volatiles has been analysed and the results show that after rhizobacteria colonization of the roots, the volatile profile induced by herbivores is affected compared to plants without rhizobacteria colonization of the roots.

These results show that plant growth promoting rhizobacteria that occur in the soil can affect the performance of insects on the plant's shoot. It will be important to further investigate this so as to allow for optimal exploitation in durable pest control strategies that do not rely on chemical pesticides but on a combination of biological pest management practices. This will be important for plant growth promoting rhizobacteria to become valuable components of Integrated Pest Management.

Verwandte Dokumente

final1-publishable-summary-final-attached-document.pdf

Letzte Aktualisierung: 14 März 2012

Permalink: https://cordis.europa.eu/project/id/234895/reporting/de