

Poster Presentations

Viruses

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Study of critical points that lead of spotted wilt (*Tospovirus*) outbreaks in sweet pepper in Uruguay

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Tomato spotted wilt virus causes important damages in greenhouse sweet pepper in Uruguay, even in resistant varieties. Some growers have more losses due to some specific conditions that favor the disease. The effect of insect-proof nets (50 mesh) in seedbed and crop and cultivars with and without *Tsw* gene on spotted wilt incidence and its vector (thrips) was studied during 2011-2014. Five replications were planted in two greenhouses, one of them net-isolated. Treatments were net during seedbed/crop and varieties. Number and kind of thrips (inside and outside greenhouses) were periodically evaluated in yellow sticky traps and in weeds and pepper flowers. Percentage of infected (DAS-ELISA) and symptomatic pepper plants was recorded. TSWV infection on weeds was analyzed. In 2011-2012, TWSV was on the property before trial and spread quickly destroying all crops. This was associated with a high number of thrips in traps and flowers and a large number of weeds (some infected). Conversely 2012-2013 and 2013-2014 seasons were had fewer infected plants, less weeds (few infected). 2012-2013 infection started on plants from non covered seedbeds and this of 2013-2014 in the non netted greenhouse. In both disease did not spread highly. The number of thrips/day in the outside of greenhouses was smaller during 2012-2013. All varieties (Troyano, Yatasto, Kaiman, resists and Margarita susceptible) were not different on frequency and intensity of symptoms. Sanitary measures, as weed eradication and production of seedlings under net, were implemented by the grower after plant removal in 2012. This could account to the subsequent disease reduction. The results remark the importance of preventive disease management by elimination of inoculum sources (weeds and infected seedlings) and vector exclusion by insect-proof nets mainly on seedbeds.

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Occurrence of EMARaV and CLRV in *Sorbus aucuparia* and *Betula* spp. in Scandinavia

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Introduction: *Cherry leaf roll virus* (CLRV) is a worldwide occurring RNA virus (*Secoviridae* family, genus *Nepovirus*) infecting naturally several tree species including many birch species (*Betula* spp.) as well as rowans (*Sorbus aucuparia*). It can also cause damage in cultivated crops such as walnut. *European mountain ash ringspot-associated virus* (EMARaV) is distributed in many parts of Europe. It is a RNA containing 4 genome segments. The virus has a restricted host range limited to *Sorbus* species inducing typical symptoms such as chlorotic ringspots and mottling on leaves.

Objective: The objective of this study was the assessment of symptoms indicative of a virus infection occurring in the important Scandinavian deciduous tree species *Betula* spp. and rowans and the detection of CRLV and EMARaV to evaluate the occurrence of these two viruses in forests as well as in urban areas.

Materials and methods: A survey assessing the presence of virus-like symptoms in rowans and birches was conducted in 3 Scandinavian countries in 2012 and 2014. Leaf samples from symptomatic trees were collected and total nucleic acids were extracted. EMARaV detection was carried out by RT-PCR using primer sets targeting all four genome segments. Nested-RT-PCR was applied for CRLV detection with primers amplifying fragments of the RdRp- (RNA1) and the CP-coding region (RNA2). PCR products were sequenced to confirm the infection with the respective virus.

Results: EMARaV occurs frequently in rowans as estimated by observation of mottle and chlorotic ringspots on leaves and detection by RT-PCR. Wide geographic distribution of the virus in Scandinavia was confirmed by sequencing. 37 *B. pubescens* and 13 *B. pendula* trees showed chlorotic or necrotic veinbanding, leaf roll or chlorotic spots characteristic for a CRLV infection. However, the virus was only sporadically detectable in birches and *S. aucuparia* trees with the RNA1 specific primer set, but infection was not confirmed with the primers targeting the viral CP.

Conclusion: Results of this study confirm that EMARaV widely affects rowans in different Northern European countries. The distribution in Scandinavia and host range of CRLV, an important virus of main deciduous tree species needs to be further assessed in order to determine its impact on diseased birch species and rowans.