Bois noir phytoplasma infecting grapevine in Srpska (Bosnia and Herzegovina)

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Current status and perspectives of phytoplasma disease research and management
Sitges, Spain, February 1st and 2nd, 2010
Monday February 01, 2010

COST FA0807 Scientific Meeting and 2nd Management Committee Meeting
31 January - 2 February 2010, Sitges, Spain
**GRAPEVINE YELLOWS**

**PHYTOPLASMAS IN B&H**

- First monitoring 2004-2005
- In 2007 *Scaphoideus titanus* Ball was identified in vineyards from Trebinje region (Delić et al., Bull. Insect., 60 (2), 369-370, 2007)
GY PHYTOPLASMAS IN NEIGHBORING COUNTRIES

• Croatia- BN, AY (Šeruga et al., 2001; Mikec et al., 2005)
• Serbia – FD, BN -(Duduk et al., 2003; 2004)
• Montenegro- BN (Radonjić et al., 2009)
OBJECTIVES OF THE STUDY

Detailed monitoring of vineyards in Srpska region for presence of GY phytoplasmas
July–August 2008

- 71 GRAPEVINE SAMPLES (27 cultivars)
- 14 WEED SAMPLES (Convolvulus arvensis, Clematis vitalba, Setaria spp.)
- SYMPTOMATIC AND SYMPTOMLESS PLANTS
TOTAL DNA EXTRACTION

- DNeasy Plant Mini kit (Qiagen, USA) protocol with slight modifications
DETECTION

nested PCR

PCR mix

Universal primers
-P1/P7 (direct) and R16F2n/R16F2 (nested)

Specific primers
fstol/rstol (nested)
FD9R/FDF (direct) and FD9R2/FD9F3b (nested)

PCR PRODUCTS WERE VISUALISED BY ELECTROPHORESIS ON 1% AGAROSE GEL IN 1XTAE BUFFER
# RESULTS nested-PCR

## UNIVERSAL PRIMERS

### GRAPEVINE SAMPLES

<table>
<thead>
<tr>
<th>Location</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galčići/Popovo polje</td>
<td>7/8</td>
</tr>
<tr>
<td>Popovo polje</td>
<td>9/9</td>
</tr>
<tr>
<td>Trebinje</td>
<td>1/4</td>
</tr>
<tr>
<td>Trebinje /Petrovo polje</td>
<td>4/4</td>
</tr>
<tr>
<td>Mokro polje</td>
<td>12/13</td>
</tr>
<tr>
<td>Romanovci/Gradiška</td>
<td>2/7</td>
</tr>
<tr>
<td>Romanovci/Gradiška</td>
<td>0/12</td>
</tr>
<tr>
<td>Bistrica/Banjaluka</td>
<td>0/14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>35/71</strong></td>
</tr>
</tbody>
</table>
## Weed Samples

<table>
<thead>
<tr>
<th>Plant</th>
<th>Location</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clematis vitalba</td>
<td>Galčići/Popovo polje</td>
<td>0/2</td>
</tr>
<tr>
<td>Clematis vitalba</td>
<td>Dobromani</td>
<td>0/1</td>
</tr>
<tr>
<td>Setaria spp</td>
<td>Popovo polje</td>
<td>0/1</td>
</tr>
<tr>
<td>Convolvulus arvensae</td>
<td>Galčići/Popovo polje</td>
<td>0/2</td>
</tr>
<tr>
<td>Clematis vitalba</td>
<td>Trebinje</td>
<td>0/2</td>
</tr>
<tr>
<td>Clematis vitalba</td>
<td>Trebinje/Petrovo polje</td>
<td>0/2</td>
</tr>
<tr>
<td>Convolvulus arvensae</td>
<td>Trebinje/Petrovo polje</td>
<td>0/1</td>
</tr>
<tr>
<td>Clematis vitalba</td>
<td>Banjaluka</td>
<td>0/1</td>
</tr>
<tr>
<td>Convolvulus arvensae</td>
<td>Modriča</td>
<td>0/1</td>
</tr>
<tr>
<td>Convolvulus arvensae</td>
<td>Derventa</td>
<td>0/1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>0/14</strong></td>
</tr>
</tbody>
</table>
PHYTOPLASMA IDENTIFICATION

Bois noir, BN

570 bp
CONCLUSIONS

• BN was found as a main causal agent of GY Srpska vineyards.

• Presence of *S. titanus* as well as constant importing of plant propagation material threatening to occurrence of FD.
Further studies ...

- Characterization of BN
- Identification of other potential vectors of GY phytoplasmas