



European workshop on
"Flavescence dorée"

Recent acquisitions and management strategies

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Book of Abstracts

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Insect vectors of "flavescence dorée" and related phytoplasmas in natural areas of riparian habitats in Serbia

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"Flavescence dorée" (FD) outbreaks in Serbian vineyards first emerged in the early 2000s and were directly correlated with dense populations of the North American insect vector *Scaphoideus titanus*. The FD phytoplasma associated with the disease was first treated as alien and introduced, like it happens for its insect vector. However, the genetic peculiarities of FD phytoplasma strains from Serbia, as well as their occurrence in native alder trees in riparian areas and clematis plants in vineyard surroundings and in natural habitats, proved otherwise. Molecular data on the ecological properties of epidemiological cycles driving the epidemic outbreaks of FD in Serbia today indicated the importance of alders as reservoir plants for the epidemics (Krstić *et al.*, 2022). Riparian habitats hosting alder trees, alongside wild *Vitis*, *Salix* sp., clematis, tree of heaven, and other FD phytoplasmas reservoir plants, were screened for native leafhopper vectors as well as for *Orientus ishidae*, a newly established vector of Asian origin in Serbia (Cvrković *et al.*, 2021). Leafhopper *Allygus modestus* and *A. mixtus* were commonly found in association with alders in many sites, with the former being the dominant species. An established population of *O. ishidae* feeding on alders was found in a single location of riparian habitat in eastern Serbia. Among the analyzed leafhopper specimens, using epidemiologically informative *map* gene typing, nearly all *A. modestus* individuals were found carrying FD or -related phytoplasmas, while nearly 50% of *O. ishidae* were found infected at the same location. However, *A. modestus* specimens had a lower phytoplasma load ($Cq > 25$) than *O. ishidae* ($Cq < 20$ in 50% of infected individuals), even though they were collected in the same period of the year. When comparing the *map* genotypes carried by each of the putative vector species, *A. modestus* most often carried AldY

genotypes, while *O. ishidae* was dominantly found harboring FD phytoplasma genotypes of both Map-FD1 and FD2 clusters. The experimental verification of the transmission capability and role in FD phytoplasma epidemiology for each of the leafhopper species is under study.

Literature cited

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