



SESSION V

AGRICULTURAL ENTOMOLOGY

Diffusion of *Orientus ishidae* (Hemiptera: Cicadellidae) in Northern Italy apple orchards and study on host preference

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Flavescence dorée (FD) is a serious grapevine disease associated with phytoplasmas belonging to the ribosomal subgroup 16SrV. The disease is widespread in the major European grape-growing areas where it causes considerable economic losses and is transmitted from grapevine to grapevine by the alien leafhopper *Scaphoideus titanus* Ball.

Others potential vectors have been identified over the last few decades (e.g. *Dictyophara europaea*, *Allygus* spp.) though they seem to play a minor role in the FD epidemiology, acting more as a reservoir of phytoplasma in the environment. One of these species included a non-European leafhopper, *Orientus ishidae* (Matsumura), found positive to FD in different European countries, both in vineyards and wild hosts. Moreover, laboratory experiments have shown that it is capable of transmitting FD from bean to vine or from wild plant to wild plant (e.g. alder to alder).

For this reason, the species has been monitored in Trentino (North-East Italy) vineyards since 2015, but so far the populations found have always been scarce. Unexpectedly, since 2019 abundant populations of the mosaic leafhopper have been reported within apple orchards in Trentino province. In 2022, the monitoring activities of the adult flight activity using yellow sticky traps was extended to other North Italian orchards confirming the widespread presence of *O. ishidae*. A comparison between different management regimes showed higher populations of the leafhoppers in organic orchards (82.1 ± 78 , means \pm SD) compared to conventional orchards (8.4 ± 10.5 , means \pm SD).

Furthermore, to explain the discrepancy between the monitoring data in vineyards and the high catches in apple orchards, we set up a laboratory experiment to investigate whether there was an insect preference between different host plants. The parameters taken into account were mortality and the 'nymph-adult' development time in two cultivated hosts (apple and grapevine) and two wild plants (hazelnut and hornbeam). On apple trees, mortality was not statistically different from wild hosts, whereas on vines a very high value was found (97% of individuals dead by the end of the experiment). Finally, the apple tree turned out to be the host on which the shortest development time to the adult stage was recorded compared to the other substrates (nymph-adult in 26.2 ± 2.2 days).

These data show that *O. ishidae* is better adapted and more widespread on apple trees than on grapevines in Italy, although there is still no certain information on its danger in apple orchards (e.g. its role as a vector of phytoplasma). Further research is ongoing to define these aspects.

KEY WORDS: alien species, leafhopper, development dynamic.

ORAL PRESENTATION