

Microsatellite markers for the study of host races and dispersal biology of the “bois noir” vector *Hyalesthes obsoletus*

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Epidemiological cycles of vector-transmitted diseases are highly influenced by the dispersal biology and host specificity of both vector and pathogen. The polyphagous planthopper *Hyalesthes obsoletus* is the main vector of stolbur 16SrXII-A phytoplasma to grapevine. The epidemiology of the associated yellows disease “bois noir” is primarily determined by vector populations infesting field bindweed (*Convolvulus arvensis*) and stinging nettle (*Urtica dioica*). The existence of phenological differences between the two vector populations and the presence of plant-specific stolbur strains indicate separate host races of both pathogen and vector, hence two independent epidemiological disease cycles. However, the ability to test for genetic host-races of the vector populations, as well as their dispersal biology, has been hampered by extremely low genetic polymorphism of the markers so far analysed (mtDNA, RAPD-DNA, allozymes). The lack of polymorphism is most likely due to genetic drift resulting from recent range expansion to large parts of the current European distribution range. To obtain information about the dispersal biology and to gain insights into the evolution of plant-specific host races of *H. obsoletus*, we developed microsatellite genetic markers for *H. obsoletus*. We have successfully tested eight polymorphic loci in 95 specimens caught on both host plants over two flight periods (2005 and 2006) at a syntopic site in Germany. Gene diversity and alleles per locus and population varied between 0.50-0.90 and 5-15, respectively. Genetic differentiation, F_{ST} , between *H. obsoletus* populations sampled in 2005 and 2006 on bindweed ($F_{ST} = 0.004$) and on stinging nettle ($F_{ST} = 0.030$) was lower than between host plant related populations ($F_{ST} = 0.066-0.108$). The results indicate host-plant associated genetic differentiation at this site. The applicability of the microsatellite markers is being tested on further European populations.