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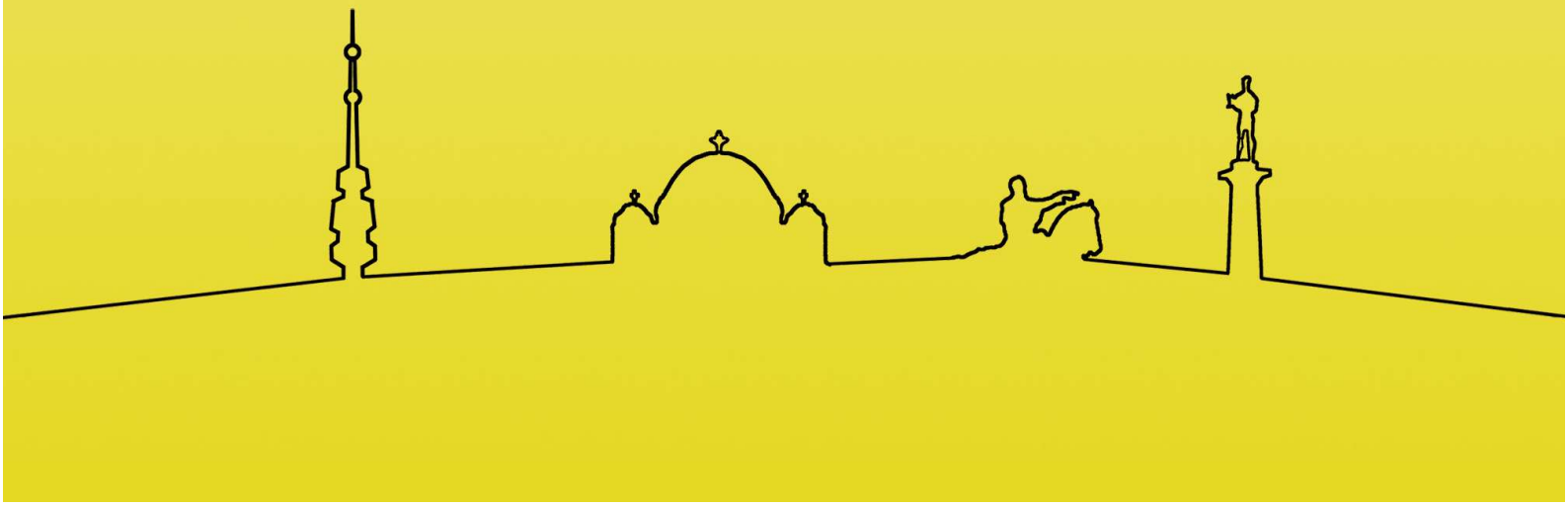

A SURVEY OF IMPORTANT HONEY BEE VIRUSES IN THE AZORES ARCHIPELAGO

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The Azores archipelago is an interesting place to study honey bee viruses and their associations with *Varroa destructor*, given that there are islands with (Pico, Flores, and Faial) and without the mite. With the goal of establishing a baseline for future viruses studies, here we sampled 494 colonies distributed across eight islands, in the summers of 2014/2015 and 2020. These samples were screened for the most important honey bee viruses (BQCV, CBPV, SBV, BeeMLV, and the LSV-, DWV-, and AKI-complexes) and the viral loads were determined by RT-qPCR for the positive samples. Of the seven viruses, only BeeMLV and the AKI-complex were not detected. The BQCV was found on all the islands with a high prevalence (>79%) with a wide range of viral loads. São Miguel showed the lowest median BQCV loads ($3.18x10^2$copies/µL) and Terceira the highest ($6.19x10^3$copies/µL). In the 2020 sampling, the BQCV loads showed a significant increase on São Jorge and Santa Maria. The LSV was also found on all the islands. Notably, the LSV prevalence increased significantly in 2020, but not the viral loads. Only Faial and Pico (both with varroa) had SBV, but there was no statistical difference in viral loads between the two islands. CBPV was detected on Pico, São Miguel, Graciosa, Terceira, and Faial, but only in a few colonies (5.3%), although with high viral loads. DWV was never found on São Jorge and Terceira in either sampling period. With the exception of Faial, DWV prevalence was higher on the islands with varroa (Pico and Flores) than on the varroa-free islands. The viral loads were not statistically different between islands with and without varroa for any of the viruses, suggesting that varroa is not the only factor contributing to infection. This study suggests that, in addition to varroa- and *Nosema ceranae*-free honey bee populations, some of the islands seem to harbor populations that are also free of some important viruses like DWV, CBPV, SBV, BeeMLV and AKI-complex.

Keywords: viruses, real-time qPCR, prevalence