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PRELIMINARY HONEYBEE VIRUSES SURVEY
ON THE ISLAND OF PANTELLERIA

Indagine preliminare sui virus delle api nell'isola di Pantelleria

Apis mellifera is a eusocial insect that carries out a fundamental role in wild habitats and agriculture, pollinating a wide variety of crops and allowing the reproduction of several angiosperm species (KEARNS *et al.*, 1998; AIZEN *et al.*, 2008). Unfortunately, in the last decade, a great decline in both managed and wild honey bee populations was observed around the world. Globalization in general and the global trade of *Apis mellifera* colonies are considered a serious threat for the managed and also for the natural honeybee colonies because they cause the spread of dangerous diseases (DASZAK *et al.*, 2000; MORENS *et al.*, 2008). If not managed, these diseases could jeopardize the fragile balance of local ecosystems. In a global context, understanding the spread and distribution of these diseases represents the key to planning effective and environmentally friendly control strategies. Among the pathogens able to cause a devastating loss of bee colonies, viruses are the most widespread and dangerous because they can quickly reach new hosts and cause vast-scale epidemics (DUFFY *et al.*, 2008).

This research aims to investigate the presence of five among the most serious and common honeybees virus diseases in the world and to measure the viral load variation in bee samples collected both from natural and managed colonies on Pantelleria island (Fig. 1).

The viruses that have been considered are acute bee paralysis virus (ABPV), black queen cell virus (BQCV), chronic bee paralysis virus (CBPV), deformed wing virus (DWV), and sacbrood virus (SBW). Three bee sam-

plings were carried out, collecting insects from about 20 managed and unmanaged colonies spread throughout the island, and realtime PCR assays were performed to assess the viral load.

Preliminary analyses showed that the virus present in most of the collected samples was DWV, whose viral load was on average higher in November compared with the samples collected in April (Fig. 2). BQCV was found just in some samples, but the viral load was at the limit of detection. ABPV, CBPV, and SBW were not found in any of the collected samples. It was not possible to make a clear comparison between the viral load of managed and unmanaged colonies due to the limited number of bee samples collected at different times of the year.

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Fig. 1 — A wild colony of *Apis mellifera* established since some years in a building in Pantelleria vilage (photo by Paolo Fontana).

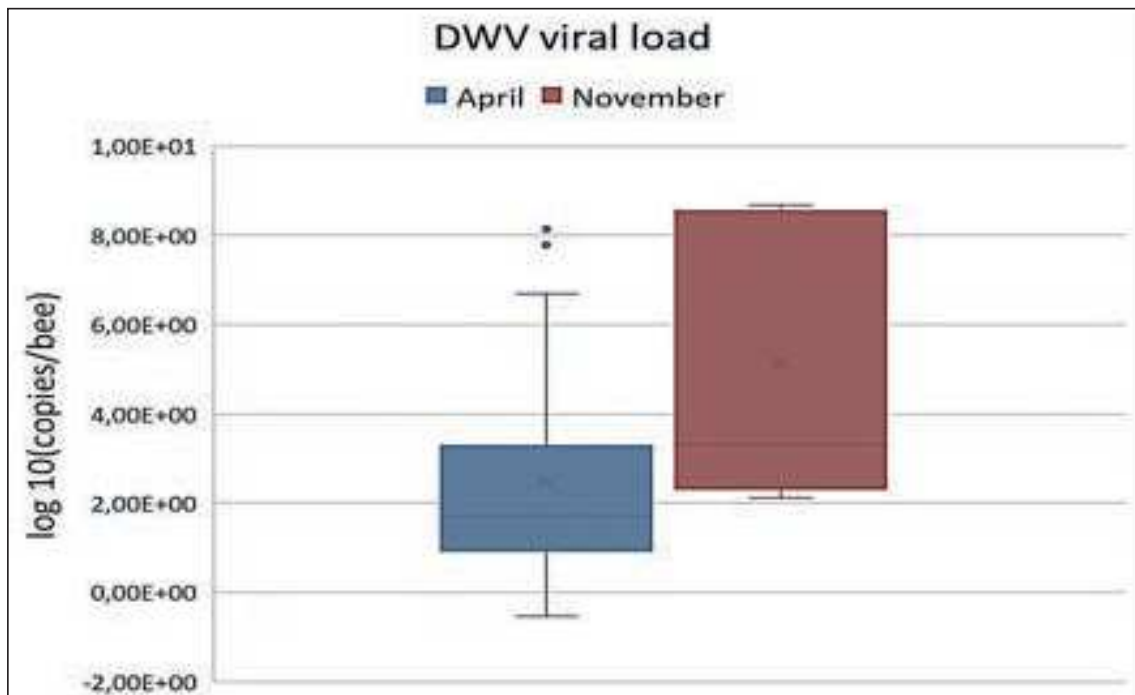


Fig. 2 — DWV viral loads in *Apis mellifera* colonies from Pantelleria island sampled in April and November 2021.

