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# CERTIFICATE
## of attendance

# JANA PRODELALOVA

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# USING OF SURROGATE ENTEROVIRUS 71 FOR THE STUDY OF HONEYBEE VIRUSES INACTIVATION

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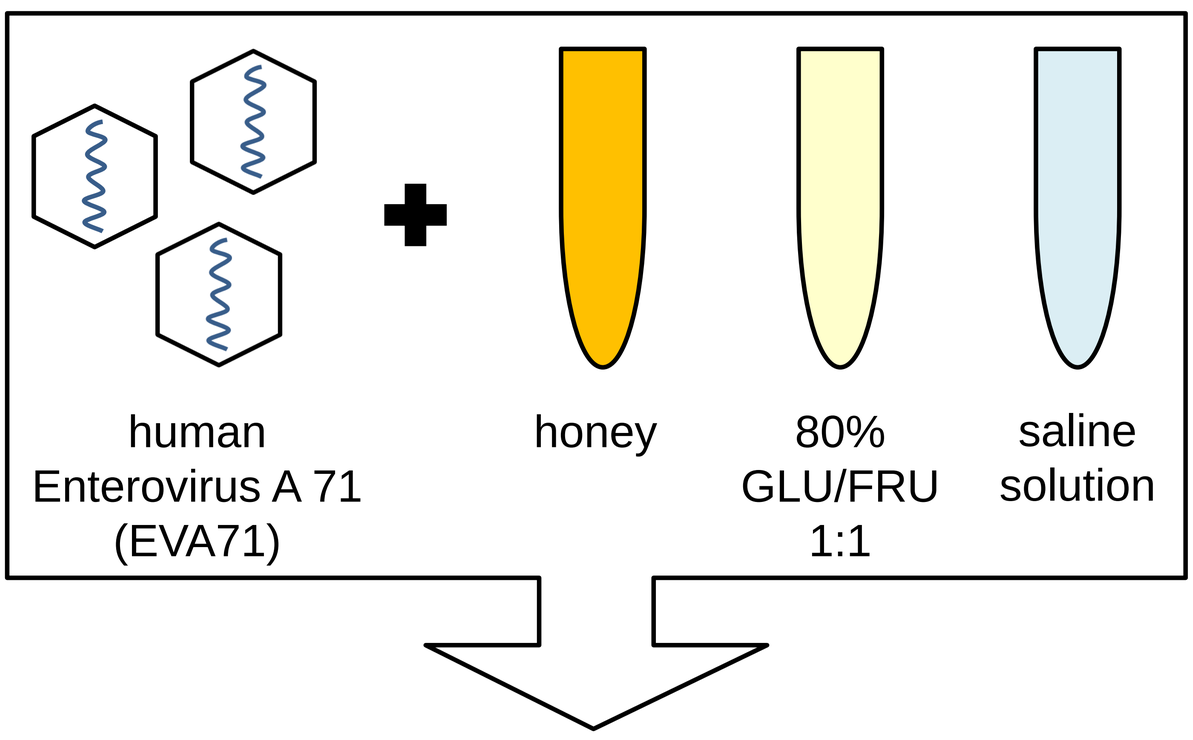
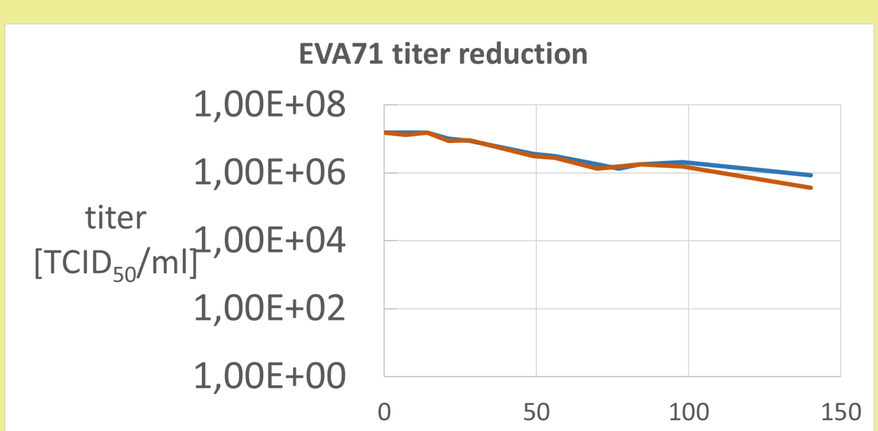
**The aim of the study was to answer a question frequently asked by beekeepers regarding the presence and importance of honeybee viruses in both honey and sugar stocks.**




- **ctrl** of potential antiviral effect of **honey**: EVA71 titer wasn‘t affected
- **ctrl** of effect of **saline solution**: EVA71 titer wasn‘t affected

- end-point titration on VERO cell line;
- detection of cytophatic effect using optical microscope;
- the viral infectivity titre [the median tissue culture infective dose (log10 TCID50)] was calculated using the Spearman−Karber method.

**Testing of the effectiveness of chemical and physical disinfection** of honeybee viruses is limited by the unavailability of a suitable experimental model based on the honeybee virus and a permanent cell line. Therefore, it is necessary to choose **a surrogate** which can be tricky.

The surrogate should meet the following criteria:

1. taxonomic relatedness to the target virus;
2. resistance of the surrogate under the test conditions;
3. the ability to grow on a cell line to a sufficiently high titre;
4. safety for laboratory workers (not BSL3 level).

Therefore, we chose human Enterovirus A 71 (EVA71) for testing. It is structurally similar to black queen cell virus and, like many other honey bee viruses, it is a small, non-enveloped virus with a single-stranded RNA within *Picornavirales* order. Both chemical and physical decontamination procedures usable in beekeeping were tested on this model picornavirus. EVA71 showed considerable thermal stability and, in particular, the ability to survive long-term at normal outdoor temperatures.[1]

Effective inactivation of EVA71 was only achieved at a higher temperature. When exposed to a temperature of 50 °C for 48 hours, the amount of infectious EVAA71 in honey decreases by at least 99.999%.
It means that after 48 hours at 50 °C no infectious EVA71 was detected.[1]

*Reference:*

1. *Prodělalová, J., Malenovská, H., Moutelíková, R. and Titěra, D. Virucides in apiculture: persistence of surrogate enterovirus under simulated field conditions. Pest Manag Sci 2017; 73: 2544-2549.*

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