



# ICbees

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## **Editor's Note**

The Third International Congress on Bee Sciences was successfully held online. We are delighted to have offered this event free of charge. It was an honor to bring together experts from various fields of bee sciences. This Congress allowed to exchange of innovative ideas and fostering the development of new research and collaborative projects. With 44 invited speakers representing 30 countries and a scientific committee composed of nearly 300 distinguished scientists from over 65 countries, the congress truly reflected global participation. We extend our heartfelt thanks to everyone who contributed and supported the event. We look forward to seeing you at our next congress.

Warm regards from Turkey!

Assoc. Prof. Dr. Ulaş ACARÖZ

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## **Comparative Analysis of DNA Extraction Methods for Individual *Varroa destructor***

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### **Abstract:**

The ectoparasitic mite *Varroa destructor* is one of the major honey bee threats and it is associated to population worldwide decline. Genetic analyses using the mtDNA of *V. destructor* are fundamental for establishing the taxonomy and distribution of the mites. Consequently, low-quality DNA can lead to inaccurate or inconsistent data, making genetic interpretation more challenging. In this study, we compared the concentration and quality of DNA extracted from individual female *V. destructor* using two different commercial kits, aiming to identify the optimal method for obtaining high-quality DNA. Total DNA was extracted from mites using both an automated and manual extracted method. In addition, manual kit extraction tested three incubation procedure (1h, 5h, and overnight). DNA concentration was quantified using three different instruments: the SpectroStarVR Nano LVis Plate spectrophotometer, the Quantus™ Fluorometer apparatus, and NanoDrop™. The manual extraction DNA concentration did not vary across incubation times and the concentration values varied between 0.240-0.545 ng/μl (Quantus), 0.72-4.49 ng/μl (spectrophotometer), and 0.0-1.47 ng/μl (NanoDrop). While extraction automatic approach yielded higher respectively 0.483-0.631 ng/μl, 20.33-9.0 ng/μl, and 5.3-6.8 ng/μl. In conclusion, the automated kit extraction seems to be the best extraction method since it produced the higher-concentration DNA using only one individual mite.

**Keywords:** DNA extraction, quantification, DNA quality, *Varroa destructor*.

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