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DNA extraction from *Eois* (Geometridae) moths

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CONTEXT

DNA barcoding uses a standardized mitochondrial DNA fragment to distinguish and identify species.

Individual specimens of small sized moths have to be extracted. In order to save as much as possible for morphological analyses the amount of material available for DNA extraction is often very small. Insects collected in the field are usually in less than optimal condition for DNA extraction (i.e. DNA may be partially degraded). A suitable method for extraction needs to provide fast, easy and contamination free homogenization of tissue samples. Specimens are usually irreplaceable and therefore highly valuable, homogenization methods need to conform to high standards of reliability, reproducibility and efficient use of even the smallest amount of sample.[1]

MATERIAL

- Precellys®24 homogenizer.
- Precellys® kit: 03961-1-003 (1.4mm ceramic beads).
- Samples: 1 to 6 legs and/or head/thorax of single moths.
-Buffer: none (dry)

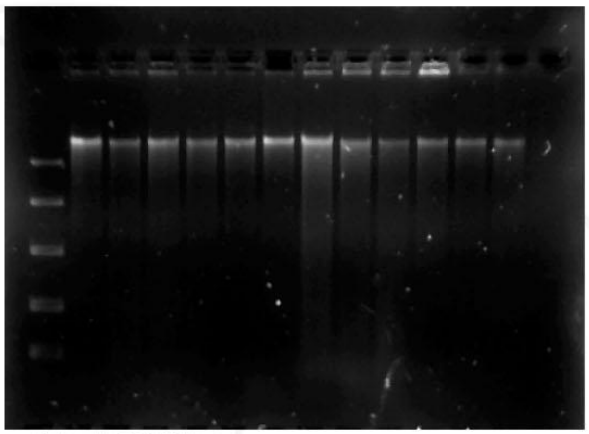
PROTOCOL

- Precellys®24: 5000 rpm, 2x20 sec.
- Subsequent DNA extraction with method of choice (commercial extraction kit or phenol/chloroform protocol).
- Analysis: Agarose gel electrophoresis to assess the quality of extracted DNA.

[1] Strutzenberger, P., Brehm, G. and Fiedler, K. , DNA barcoding-based species delimitation increases species count of Eois (Geometridae) moths in a well-studied tropical mountain forest by up to 50%. Insect Science, no. doi: 10.1111/j.1744-7917.2010.01366.x

RESULTS

Figure 1 shows an agarose gel loaded with extracted DNA of Eois moths homogenized with Precellys®24. High quality DNA (>10000bp) could be obtained from all extracted specimens. Tissue lysis with Precellys®24 is very efficient and time saving as subsequent proteinase digestion can be drastically shortened. Precellys homogenizers provide fast and cross contamination safe DNA extraction. Tissue homogenization with Precellys®24 provided the maximum possible DNA yield from small sized moths as used in this study.



Photograph by Brigitte Gottsberger

Figure 1: Agarose gel electrophoresis of extracted specimens Lane 1: Size marker; lanes 2-13: DNA extracted from legs

CONCLUSION

The **Precellys®24** provides the optimal balance of efficiency, speed, ease of use. Precellys®24 enables cross-contamination free homogenization as opposed grinding with a mortar.

Precellys®24 is a suitable homogenizer when the material available for DNA extraction is very small and when the specimens are irreplaceable and therefore highly valuable.

For more details, please contact precellys@bertin.fr

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