

DNA extraction from bovine liver tissue using Precellys® Evolution vs Precellys®24-Dual PEQLAB, Erlangen, Germany

CONTEXT

The new Precellys® Evolution is even more powerful (up to 10000 rpm) and versatile (0.5, 2.0, 7.0 and 15 ml tubes). Increased grinding power is beneficial for tough or stringy tissues. However, for soft tissues it is known that too much power can lead to degradation of target molecules like DNA.

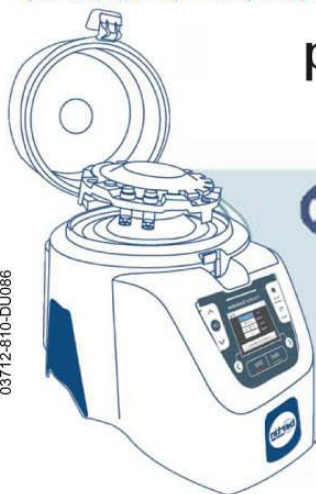
Therefore the goal was to compare DNA quality (integrity) and quantity (yield) after homogenization of bovine liver by Precellys® Evolution or Precellys®24-Dual at given rpm.

MATERIAL

- Precellys® Evolution and Precellys®24-Dual.
- Precellys lysing kit: CKMix_2mL (KT03961-1-009.2).
- Sample: 25 mg of bovine liver per prep.
- Buffer: 100 µl TE (pH 8.0).

PROTOCOL

- Precellys® Evolution: 4600, 5900, 7200, 8200, 8800 rpm; 1 x 20 sec.
- Precellys®24-Dual: 4000, 5000, 6000, 6500 rpm; 1 x 20 sec.
- DNA was isolated using peqGOLD Tissue DNA Kit and analyzed by agarose gel electrophoresis for quantity (yield) and quality (integrity/degradation).



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CONCLUSION

The homogenizer **Precellys® Evolution** is suitable and convenient for **DNA extraction from soft animal tissues like bovine liver**. Considering the higher grinding energy of **Precellys® Evolution** in comparison to Precellys®24(-Dual), optimal speed (rpm) has to be applied to avoid DNA degradation.

Optimized homogenisation protocols for thousands of different samples can be found in the Precellys Application Center on www.precellys.com.

RESULTS

The gel picture obtained for Precellys® Evolution (Figure 1) shows that rpm values >7200 rpm lead to visible DNA degradation in bovine liver tissue. Yield from 4600 – 7200 rpm was 48 µg; higher energy reduced the yield to approximately 28 µg DNA.

The gel picture obtained for Precellys®24-Dual (Figure 2) shows that no degradation is observed up to 6500 rpm. The average yield was 45 µg DNA.

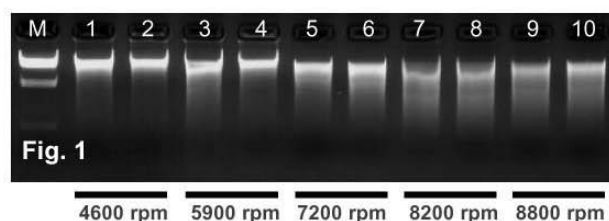


Fig. 1

4600 rpm 5900 rpm 7200 rpm 8200 rpm 8800 rpm

Figure 1: Agarose gel (1.5%, 1xTAE) electrophoresis of DNA isolated from bovine liver homogenized with Precellys® Evolution at given rpm. M = DNA sizer II

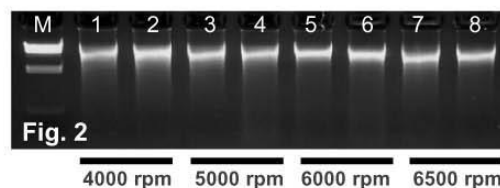


Fig. 2

4000 rpm 5000 rpm 6000 rpm 6500 rpm

Figure 2: Agarose gel (1.5%, 1xTAE) electrophoresis of DNA isolated from bovine liver homogenized with Precellys® 24-Dual at given rpm. M = DNA sizer II

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