

Homogenization of 1 g of plant in a 15mL Precellys® tube using the Precellys® Evolution

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CONTEXT

The laboratory of Bertin Pharma works in the field of pharmacy, biotechnologies, cosmetics and nutrition (GLP & GMP). It is specialized in bioanalysis, formulation analysis, pesticide assays and membrane protein quantification.

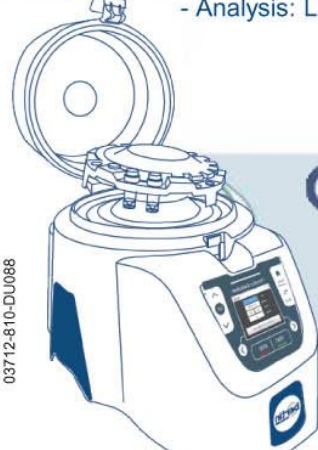
In several applications, matrices are crushed before LC/MS/MS or LC-UV analysis. Different kind of matrices are studied (brain, liver, muscle, spinal cord of rats, plants, pollens, vegetable, bees) and different systems are used for sample preparation (Ultra-Turrax, Precellys®24-Dual and Precellys® Evolution).

MATERIAL

- Precellys® Evolution vs Ultra-Turrax.
- Precellys lysing kit: CK68_15mL (KT03961-1-514.15).
- Sample: 1 g of plants (Colza, Barley or Phacelia leaves).
- No buffer during the first run. 10mL of methylene chloride were added to the 15mL Precellys tube before the 2nd run.

PROTOCOL

- Precellys® Evolution:
 - 1st run: 8200 rpm, 2x30sec, 30sec break.
 - 2nd run: 4500 rpm, 1x30s.
- Ultra-Turrax: 30sec + two rinsing steps of 1 min.
 - Analysis: LC/MS/MS.



03712-810-DU088



CONCLUSION

For plant samples, the **single-use 15mL Precellys® tube and Precellys® Evolution** reduces the time dedicated to crushing the samples (more samples treated simultaneously, less washing, no cross-contamination risk) compared to the procedures currently used at the lab.

Precellys® Evolution is a **versatile, efficient and high-throughput homogenizer with no cross-contamination** that can process up to 6 samples of 15mL tubes, 12 samples of 7mL tubes and 24 samples of 2mL (or 0.5mL) tubes at the same time.

RESULTS

The 15mL Precellys® tube available in the Precellys® Evolution worked well on 1 g of plant (sample amount validated using Ultra-Turrax homogenizer). First, the crushing was performed without solvent. Ten mL of methylene chloride were then added to the tube and a second program was applied. The obtained plant homogenate was judged adequate to replace the current sample preparation protocol (Figure 1).

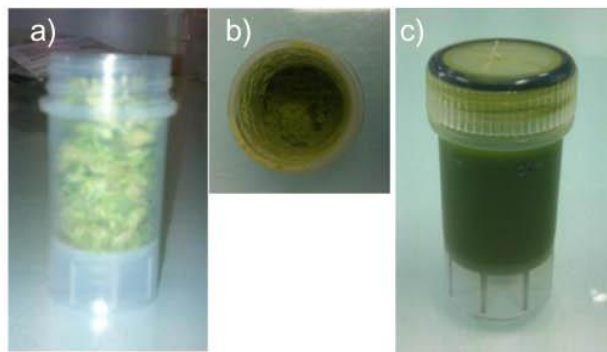


Figure 1: 1g of plants in a 15mL Precellys® tube before (a) and after homogenization without solvent (b) and after a 2nd run with 10mL of methylene chloride using Precellys® Evolution.

The Precellys® Evolution will be useful to replace our crushing procedure in order to prepare 6 samples simultaneously and not one by one as with the Ultra-Turrax homogenizer. It will also eliminate the washing step between two samples, which is needed by the Ultra-Turrax homogenizer



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