

Protein extraction using the Precellys® Evolution from food samples

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CONTEXT

In this study, the objective is the identification of allergens recognized by the IgE antibodies from allergic patients. Genclis SAS used the Precellys® Evolution to homogenize food samples for protein extraction. The quality of proteins extracted with the Precellys® Evolution was evaluated by Coomassie Blue staining.

MATERIAL

- Precellys® Evolution.
- Precellys lysing kit: 15mL empty tube (KT03961-1-406.15) + 2.4g CK28 beads (KT03961-1-102.BK) + 4g CK14 beads (KT03961-1-103.BK) + 4 CK50 beads (KT03961-1-106.BK).
- Sample: 1.2g of dog biscuits (a), 1.6g of cashew nuts (b) and 1.6g of frozen green beans (c).
- Buffer: 8mL of PBS pH7.4 (Sigma) added before or after the sample homogenization.

PROTOCOL

- Precellys® Evolution: 6500rpm, 2x30sec, 30sec break.
- After homogenization without buffer, 8mL of PBS pH7.4 was added for the protein extraction step.
- Analysis: Protein extracts (15 µg of dog biscuits and cashew nuts; 30µL of green beans) were loaded on a 12% polyacrylamide gel and separated using SDS-PAGE electrophoresis, followed by Coomassie blue staining.

RESULTS

Even in absence of an aqueous buffer during the homogenization step, good quality protein extracts were obtained using the Precellys® Evolution

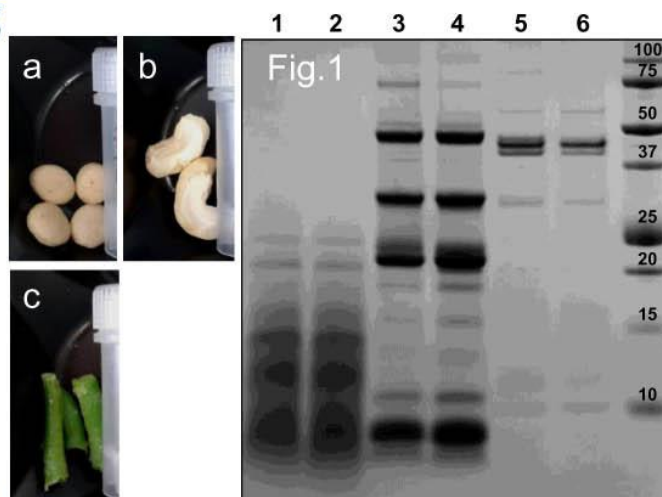


Figure 1: SDS-PAGE analysis of food extracts homogenized with or without PBS pH7.4 addition. Lane 1 - dog biscuits homogenized with PBS pH7.4; 2 - dog biscuits homogenized without PBS pH7.4; 3 - cashew nuts homogenized with PBS pH7.4; 4 - cashew nuts homogenized without PBS pH7.4; 5 - green beans homogenized with PBS pH7.4; 6 - green beans homogenized without PBS pH7.4.

The ability of the Precellys® Evolution to homogenize highly hydrated samples (vegetables and fruits) without added aqueous buffer is a real advantage for obtaining more concentrated protein samples.



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CONCLUSION

Precellys® Evolution homogenizer is suitable and convenient for **protein extraction from dry or highly hydrated food samples without buffer**, which is a real advantage for obtaining highly concentrated protein. One to six **15mL samples** can be homogenized at the same time and in less than two minutes. Moreover, the **Precellys® Evolution** avoids the problem of protein cross-contamination between samples with the use of individual tubes.




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