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EasyMag Food DNA Purification Kit

Catalog Number: D134-1, D134-2

Table 1. Kit Components and Storage

Kit Component	D134-1 (50 preps)	D134-2 (200 preps)	Storage	Stability
Buffer AP1	25 mL	100 mL	RT	The product is stable for one year when stored as directed.
Buffer AP2	10 mL	40 mL	RT	
Buffer AP3*	15 mL	2×30 mL	RT	
Buffer AW2*	15 mL	2×25 mL	RT	
Buffer AE	15 mL	30 mL	RT	
Proteinase K (20 mg/mL)	1 mL	4×1 mL	-20 °C	
MagBinding Beads	2.5 mL	10 mL	2-8 °C	

***** Prior to use, add absolute ethanol to **Buffer AP3, Buffer AW2** according to the bottle label.

Product Description

EasyMag Food DNA Purification Kit is designed for the rapid and reliable isolation of high-quality genomic DNA from raw or processed food from plant, animal, or mixed origins. This kit is designed for manual or fully automated high throughput preparation of genomic DNA. The buffer system is specifically designed to minimize co-purification of polysaccharides and polyphenols. There are no organic extractions, and time-consuming precipitation steps. Purified DNA is suitable for PCR, restriction digestion, next-generation sequencing, and hybridization applications.

Features

- ❖ Fast – DNA purification process in less than 60 min.
- ❖ Safe – No organic extraction, no ethanol precipitation.
- ❖ High-quality – DNA is suitable for a variety of downstream applications.

Things to do before starting

- Buffer AP1 and Buffer AP3 may form precipitates upon storage. If necessary, warm to 50°C to redissolve.
- Buffer AP3 and Buffer AW2 are supplied as concentrates. Before using for the first time, add the appropriate amount of ethanol (96-100%) as indicated on the bottle to obtain a working solution.
- Preheat a water bath or heating block to 65°C.

Purification Protocol

1. Food disruption.
    - Solid food: Grind the solid food to a fine powder under liquid nitrogen using a mortar and pestle. Transfer 100 mg of the food powder into a 2 mL microcentrifuge tube. Do not allow the sample to thaw.
    - Semi-solid food: Transfer the semi-solid food into a 2 mL microcentrifuge tube. Centrifuge at 13,000 x g for 5 min. Carefully remove the supernatant and discard. If the sample contains lot of impurities, wash with PBS buffer a few times.

      Note: The volume of the food sample used depends on the solid content of the food sample. The volume of the precipitate after centrifuge should not exceed 0.2 mL. For food samples without precipitation after centrifugation, add 0.7 volume of isopropanol and 0.1 volume of 3 M NaOAc to the sample, mix and centrifuge to collect the precipitate.
2. Immediately add 400 µL Buffer AP1 and 20 µL Proteinase K solution to the disrupted food sample and vortex vigorously.
3. Incubate the mixture for 1-3 hr at 65°C. Mix every 20 min during incubation by inverting tube.
4. Add 130 µL Buffer AP2 to the lysate. Mix and incubate for 10 min on ice.

   Note: This step precipitates detergent, proteins and polysaccharides.
5. Centrifuge the lysate at 14,000 x g for 5 min. Carefully transfer 400 µL the cleared lysate to a new 2 mL microcentrifuge tube. Do not disturb or transfer any of the insoluble pellet.
6. Add 1.5 volumes of Buffer AP3 to the cleared lysate, and mix by pipetting.

   Note: A precipitate may form after the addition of Buffer AP3, pipette up and down several times to disperse the sediment. Buffer AP3 must be diluted with absolute ethanol according to the bottle label before use.
7. Add 50 µL MagBinding Beads to the sample, and vortex at maximum speed for 15-20 seconds.
8. Incubate with shaking at RT for 5 min.
9. Transfer the tube to a magnetic rack for an additional 2 min or until beads pellet and supernatant is cleared. With the tube on the magnetic rack remove the supernatant and discard.
10. Add 600 µL of Buffer AW2 to the tube. Resuspend the beads by pipetting up and down or vortexing at 1,500 rpm for 30 seconds. Replace the tube on the magnetic rack for 2 min or until beads pellet. Remove and discard the supernatant.

    Note: Buffer AW2 must be diluted with absolute ethanol according to the bottle label before use.
11. Repeat step 10 for a second wash step.
12. Leave the tube on the magnetic rack, open the cap and air dry the beads at RT for 10-15 min.

    Note: This step is critical for removing of trace ethanol that may interfere with downstream applications.
13. Add 100-200 µL Buffer AE to the tube, resuspend the beads by vortexing. Incubate at 55ºC for 5 min, vortex for 15 seconds every 1-2 min for 5 min.
14. Replace the tube on the magnetic rack for 2 min or until beads pellet. Transfer the cleared supernatant to a clean tube.
15. Store the DNA at -20ºC.

Troubleshooting

Problem	Possible cause and suggestions
Low yield	• Insufficient disruption: Ensure that the starting material is completely disrupted. • Insufficient lysis: Reduce the amount of starting material and/or increase the amounts of Buffer AP1 and Buffer AP2. • Incorrect binding conditions: Make sure that the correct amount of Buffer AP3 is added to adjust the binding conditions correctly. • DNA still bound to beads: Increase the volume of Buffer AE to 200 µL, and incubate the bead suspension at 55°C for 5 min.
Poor performance in downstream applications	• Salt contamination: Remove any residual liquid with a pipettor after each wash step. • Ethanol contamination: Ensure the beads are completely dried before elution.