Spin Plant DNA Mini Kit

Cat.No.: HYC251

Product Description

This kit adopts DNA-specific spin columns and a unique buffer system to isolate and purify high-quality genomic DNA from various plants. Its proprietary solutions effectively precipitate and remove proteins, polysaccharides, polyphenols and other impurities in plant samples rich in secondary metabolites. The whole procedure is simple and can be finished within 30 minutes. Genomic DNA obtained by this kit features high yield, high purity and stable quality, which is suitable for PCR, qPCR, molecular marker analysis, library construction and other downstream experiments.

Components

Components	50T	200T
Buffer GSL	33 mL	132 mL
RNase A	300 μL	1.2 mL
Buffer PSS	12 mL	48 mL
Buffer PA	33 mL	132 mL
Buffer GW1*	13 mL	52 mL
Buffer GW2*	15 mL	60 mL
Buffer TB	15 mL	60 mL
Spin Columns FS With Collection Tubes	50	200
Spin Columns DM With Collection Tubes	50	200

Storage

All components can be stably stored in a dry place at room temperature (15-30℃).

Required Reagents and Equipment

- 1.5 mL centrifuge tubes
- 2 mL centrifuge tubes
- Absolute ethanol

Compatible Sample Types

1. Seeds: For samples rich in starch, lipids, etc., a starting material of 30–50 mg is recommended.
2. Leaves: 50–100 mg of fresh plant material or 15–20 mg of dried plant material is recommended.
3. Fruits: Due to their high water content and low DNA yield, 200–300 mg of sample is recommended.

Instructions

Preparations

- Before first use, add absolute ethanol to Buffer GW1 and Buffer GW2 as indicated on the respective reagent bottle labels.
- If a precipitate forms in Buffer GSL, dissolve it in a 37℃ water bath and mix thoroughly before use. This does not affect the performance of the kit.

Protocol

1. Sample processing

- Add 50–100 mg of fresh plant material or 15–20 mg of dried plant material to a 2 mL centrifuge tube. Add 600 µL of Buffer GSL, 5 µL of RNase A and one steel bead. Immediately secure the tube in a tissue homogenizer for disruption. After disruption, perform a brief spin-down, then incubate at 70℃ with shaking at 1600 rpm for 10 min in a metal bath.
- Weigh approximately 50–100 mg of fresh plant powder or 15–20 mg of dried plant powder that has been thoroughly ground in liquid nitrogen. Quickly transfer the powder into a 2 mL centrifuge tube preloaded with 600 µL of Buffer GSL and 5 µL of RNase A. Mix thoroughly by inverting the tube, perform a brief spin-down, then incubate at 70℃ with shaking at 1600 rpm for 10 min in a metal bath.

  Note: For particularly recalcitrant plant samples, adding 5% β-mercaptoethanol can improve DNA yield. For simple plant samples, after disruption, vortex to mix thoroughly and incubate at room temperature for 10 min without heating.

2. Add 200 µL Buffer PSS into the above 2 mL centrifuge tube, vortex thoroughly for 1 min, then centrifuge at 16000 g for 5 min. Transfer all supernatant into Spin Columns FS placed

in a collection tube, centrifuge at 10,000 rpm for 1 min, and transfer the filtrate into a new centrifuge tube.

3. Add 600 µL Buffer PA and mix well (Flocculent precipitate may appear at this stage, which has no adverse effect on the experiment). Transfer the whole mixture including precipitate into Spin Columns DM assembled with a collection tube. Transfer in several times if needed. Centrifuge at 10,000 rpm for 1 min, discard waste liquid and put the column back into the collection tube.
4. Add 500 µL Buffer GW1 (confirm absolute ethanol has been added before use), centrifuge at 10,000 rpm for 1 min, discard waste liquid and reinstall the column.
5. Add 500 µL Buffer GW2 (confirm absolute ethanol has been added before use), centrifuge at 10,000 rpm for 1 min, discard waste liquid and reinstall the column.
6. Repeat step 5 once.
   If obvious pigment residue remains on the column membrane after washing, rinse once with 500 µL absolute ethanol.
7. Centrifuge at 13,000 rpm for 2 min and discard waste liquid. Open the column lid and air-dry at room temperature for 1 min to fully remove residual ethanol.
8. Place the spin column into a new 1.5 mL centrifuge tube. Add 100 µL Buffer TB vertically onto the center of the column membrane, close the lid, incubate at room temperature for 1 min, then centrifuge at 10,000 rpm for 1 min to collect DNA solution. Store DNA at -20℃.