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PrimeMag Plant Genomic DNA Extraction Kit (KIT-9230)

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For Research Use Only. Not for use in Diagnostic Procedures.

Product No: KIT-9230

The **PrimeMag Plant Genomic DNA Extraction Kit** offers a fast and efficient magnetic-based method for isolating high-quality genomic DNA from plant samples. The kit is designed for the isolation of genomic DNA from plant tissue using optimized lysis buffer based on the established CTAB methods.

With special proprietary buffer system, PrimeMag Plant Genomic DNA Extraction Kit able to remove proteins, RNA, metabolites and other PCR inhibitors to deliver superior DNA purity (A260/A280 > 1.6) and excellent integrity (DIN > 8), making it suitable for most of the downstream applications such as PCR, restriction analysis and NGS.

The kit is compatible with manual workflows using a magnetic rack and can be easily integrated with automated magnetic bead extraction platforms, offering flexibility for both low- and high-throughput laboratories.

Kit Contents

No	Product	KIT-9230-10 10 preps	KIT-9230-48 48 preps	KIT-9230-96 96 preps	Storage
1	Plant Lysis Buffer	9 mL	45 mL	87 mL	Room temperature (21 °C – 25 °C)
2	PG Buffer	1 mL	3 mL	6 mL	
3	BD2 Buffer	1.6 mL	7.5 mL	15 mL	
4	WB1 Buffer	4 mL	16 mL	30 mL	
5	Elution Buffer	1.5 mL	6 mL	13 mL	
6	RNase A	10 mg/mL	10 mg/mL	10 mg/mL	4 °C
7	PlantMag Beads	0.4 mL	1.8 mL	3.6 mL	

Storage

This kit will be delivered at room temperature (21 °C – 25 °C). Upon receipt, store the kit components according to the storage temperatures indicated on the box label.

Product Specification

	KIT-9230-10/48/96
Sample Type	Suitable for most plant types and tissues
Sample size	50 mg to 150 mg plant tissues
Elution	60 µL to 100 µL
Duration	65 minutes
Packaging Size	10, 48, 96 Preps

Materials Supplied by Users

- ✓ Centrifuge at speed of 10,200 rpm – 14,800 rpm
- ✓ Thermomixer with temperature settings of 65 °C, 56 °C and room temperature (DLAB HM100-Pro Thermo Mix or equivalent)
- ✓ Magnetic Rack (1st BASE, KIT-MAG16A)
- ✓ Vortex mixer
- ✓ 2 mL microcentrifuge tubes
- ✓ 1.5 mL microcentrifuge tubes
- ✓ Isopropanol (IPA)
- ✓ Absolute ethanol (≥ 99.5%)

Precautions for Users

- ✓ Plant lysis buffer contains irritants. Handle with care and avoid contact with skin. In case of contact, wash skin with a copious amount of water; seek medical attention.
- ✓ Always wear a lab coat, disposable gloves and surgical mask.

Protocol

Preparation

I. Prepare 50 mg (up to 150 mg) of pulverized plant tissue using liquid nitrogen.

Tips:

- ✓ *To obtain the best result from plant nucleic acid extraction, bring liquid nitrogen to plant field to snap-freeze the plant tissue immediately during sample collection before process in laboratory.*
- ✓ *Pulverize plant tissue in liquid nitrogen using a set of sterilized mortar and pestle.*
- ✓ *Replenish the liquid nitrogen in the mortar 2 to 3 times and continue to grind sample until a fine, homogenous powder is obtained.*

II. Set thermomixer to 65 °C.

III. Freshly prepare 80% ethanol.

Example: For 1 prep, to prepare 600 µL 80% ethanol, add 480 µL into 120 µL of dH_2O

IV. Add absolute ethanol (≥ 99.5%) to WB1 Buffer as following:

Kit Preps	WB1 Buffer	Ethanol to be added
10 preps	4 mL	6 mL
48 preps	16 mL	24 mL
96 preps	30 mL	45 mL

Lysis

1. Transfer 50 mg of pulverized plant sample into 2 mL tube. Add **700 µl Plant Lysis Buffer**, **50 µl PG Buffer** and **10 µL RNase A into the sample tube.** Mix the sample by gently inverting the tube 10 times.

   Note: *Always add Plant Lysis Buffer and PG Buffer separately and never premix the solution.*

2. Incubate the mixture at 65 °C for 30 minutes in Thermo Mix (e.g. DLAB HM100-Pro) while shaking at 1,000 rpm.

Binding

3. Vortex the **PlantMag Beads** for 30 seconds to ensure they remain in suspension before use.

4. Prepare the **binding mixture (BindMix)** in a 2 mL microcentrifuge tube as following:

Components	BindMix Volume (per prep)
Isopropanol (IPA)	360 µL
BD2 Buffer	120 µL
PlantMag Beads	30 µL

Note: *Mix isopropanol and Binding Buffer just before use. The freshly prepared mixture must be used within 1 hour.*

5. After 30 minutes of incubation from step 2, centrifuge the lysate at 16,160 x *g* at room temperature for 5 minutes. Change the Thermo Mix to room temperature.

7. Transfer **480 µL of supernatant** (middle layer) to the **BindMix** tube.

8. Mix the mixture in the **BindMix** tube by pipetting up and down for 10 times and shake at 1,000 rpm in room temperature, for 5 minutes in Thermo Mix.

9. Place the tube on a magnetic rack (e.g. 1st BASE, KIT-MAG16A) for 2 minutes, or until the **PlantMag Beads** separation has been completed.

10. Remove and discard the supernatant.

Washing

11. Add **600 µL WB1 Buffer** (ethanol added) into the **PlantMag Beads** tube.

12. Shake at 1, 000 rpm in room temperature, for 5 minutes in Thermo Mix.

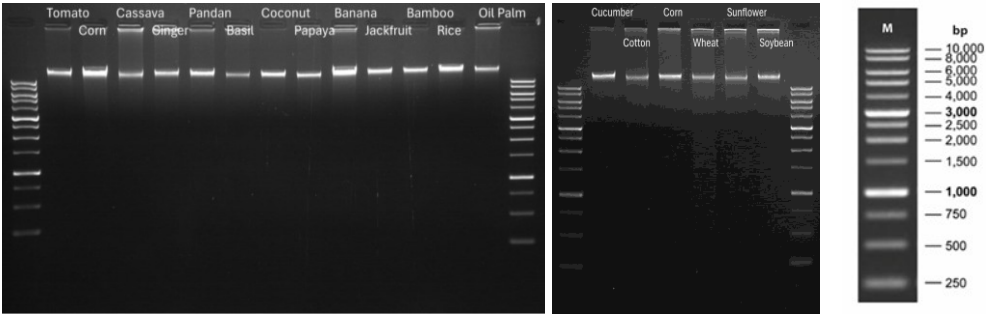
13. Place the tube on a magnetic rack for 1 minute or until the **PlantMag Beads** separation has been completed.

14. Remove and discard the supernatant.

15. Add **600 µL 80% ethanol** into the **PlantMag Beads** tube.

Washing	16. Shake at 1, 000 rpm in room temperature for 5 minutes in Thermo Mix. 17. Place the tube on a magnetic rack for 1 minute or until the **PlantMag Beads** separation has been completed. 18. Remove and discard the supernatant. 19. Air-dry the **PlantMag Beads** at room temperature for 5 to 10 minutes. ***Note:*** *DO NOT over dry the beads. Over drying could result low DNA yield.*
Elution	20. Remove **PlantMag Beads** tube from the magnetic rack. Add **60 to 100 µL of Elution Buffer** into the **PlantMag Beads** tube. 21. Shake at 1,000 rpm at 56 ℃ for 5 minutes. 22. Place the tube on a magnetic rack for 1 minute or until the **PlantMag Beads** separation has been completed. 23. Transfer the **supernatant** with purified DNA to a new 1.5 mL tube.

Agarose Gel Electrophoresis



Genomic DNA (gDNA) is extracted from 50 mg of leaf and seed samples, including tomato, corn, cassava, ginger, pandan, basil, coconut, papaya, banana, jackfruit, bamboo, rice, oil palm, cucumber, cotton, corn, wheat, sunflower and soybean. 50 ng of gDNA was run on 1% TAE agarose gel at 100 V for 70 mins.

Samples Tested using PrimeMag Plant Genomic DNA Kit

The kit has been tested with wide range of plant samples shown on the table below:

Tissue		Plant Samples					
Leaf	Vegetable & herbs	Tomato	Corn	Cassava	Ginger	Pandan	Basil
	Fruit	Coconut	Papaya	Banana	Jackfruit		
	Crop	Bamboo	Rice	Oil palm			
Seed	Crop	Cucumber	Cotton	Corn	Wheat	Sunflower	Soybean

Troubleshooting Guidelines

Problems	Possible Reason	Recommended Action
Low yield of nucleic acid	Coarsely ground sample	1. Grind sample to a fine powder.
	The samples were incompletely homogenized or lysed.	1. Decrease or increase the amount of starting material. 2. Ensure the sample is completely immersed in the Plant Lysis Buffer to achieve total lysis. 3. Incubate the mixture in Thermo Mix at 65 °C for 30 minutes with shaking at 1, 000 rpm.
	Crystals appear on the Plant Lysis Buffer and PG buffer	1. Prepare the plant Lysis Buffer and PG buffer immediately before use.
	The upper layer is pipetted up with the aqueous layer during lysis step.	1. Do not attempt to transfer the entire aqueous layer after phase separation during lysis step.

Product Ordering Information

Product Number	Product Description	Remarks
KIT-9230-10	PrimeMag Plant Genomic DNA Kit	Sufficient for 10 preps.
KIT-9230-48	PrimeMag Plant Genomic DNA Kit	Sufficient for 48 preps.
KIT-9230-96	PrimeMag Plant Genomic DNA Kit	Sufficient for 96 preps.
KIT-MAG16A	1st BASE Magnetic Rack	For 16 tubes processing.