



Part No.: H-020-000771-00

# MGIEasy

## Plant gDNA Extraction Set

### Instructions for Use

Version: 2.0

Leading Life Science Innovation

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Research Use  
Only

**Wuhan MGI Tech Co., Ltd.**

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## About the instructions for use

This instructions for use is applicable to MGIEasy Plant gDNA Extraction Set. The version of the instructions for use is 2.0 and the set version is 1.0.

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## Revision history

| Version | Date              | Description                |
|---------|-------------------|----------------------------|
| 2.0     | November 17, 2023 | Updated the operation part |
| 1.0     | June 27, 2023     | Initial release            |

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# Chapter 1 Introduction

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## 1.1 Product name

MGIEasy Plant gDNA Extraction Set

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## 1.2 Specifications

| Set name   | Model   | Component                         | Cat. No.      | Specification |
|--|---------|-----------------------------------|---------------|---------------|
| MGIEasy Plant gDNA Extraction Set<br>Cat. No.: 940-001323-00 | PDT-96  | MGIEasy Plant gDNA Extraction Kit | 940-001321-00 | 96 RXN/Set    |
|  |         | RNase A                           | 940-001304-00 |               |
| MGIEasy Plant gDNA Extraction Set<br>Cat. No.: 940-001324-00 | PDT-384 | MGIEasy Plant gDNA Extraction Kit | 940-001322-00 | 384 RXN/Set   |
|  |         | RNase A                           | 940-001303-00 |               |

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## 1.3 Intended use

This set is used to extract high-quality and high-purity gDNA from fresh leaves and seeds of plants rich in polysaccharides and polyphenols.

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## 1.4 Working principle

By using this product, salt ions with high concentration lyse and release DNA from plants. The released DNA is then captured by magnetic beads and washed by a specific wash buffer to remove proteins, salt and other impurities. After being dried, the DNA in magnetic beads is eluted by the elution buffer and high-purity DNA is obtained.

## 1.5 Main components

**Table 1 MGIEasy Plant gDNA Extraction Set (PDT-96) Cat. No.: 940-001323-00**

| Name   | Component        | Specification | Storage condition | Validity period | Transportation condition |
|--|------------------|---------------|-------------------|-----------------|--------------------------|
| MGIEasy Plant gDNA Extraction Kit<br>Cat. No.: 940-001321-00 | Buffer PL        | 68 mL/tube×1  | 2 °C to 30 °C     | 18 months       | 2 °C to 30 °C            |
|  | Buffer PB        | 48 mL/tube×1  |                   |                 |                          |
|  | Buffer WB I      | 34 mL/tube×1  |                   |                 |                          |
|  | Buffer WB II     | 28 mL/tube×1  |                   |                 |                          |
|  | Buffer TE        | 15 mL/tube×1  |                   |                 |                          |
|  | Magnetic Beads T | 2 mL/tube×1   |                   |                 |                          |
|  | Proteinase K     | 2 mL/tube×1   |                   |                 |                          |
| RNase A<br>Cat. No.: 940-001304-00                           | RNase A          | 1 mL/tube×1   | 2 °C to 8 °C      |                 | 2 °C to 8 °C             |

**Table 2 MGIEasy Plant gDNA Extraction Set (PDT-384) Cat. No.: 940-001324-00**

| Name   | Component        | Specification | Storage condition | Validity period | Transportation condition |
|--|------------------|---------------|-------------------|-----------------|--------------------------|
| MGIEasy Plant gDNA Extraction Kit<br>Cat. No.: 940-001322-00 | Buffer PL        | 269 mL/tube×1 | 2 °C to 30 °C     | 18 months       | 2 °C to 30 °C            |
|  | Buffer PB        | 192 mL/tube×1 |                   |                 |                          |
|  | Buffer WB I      | 135 mL/tube×1 |                   |                 |                          |
|  | Buffer WB II     | 109 mL/tube×1 |                   |                 |                          |
|  | Buffer TE        | 60 mL/tube×1  |                   |                 |                          |
|  | Magnetic Beads T | 8 mL/tube×1   |                   |                 |                          |
|  | Proteinase K     | 8 mL/tube×1   |                   |                 |                          |
| RNase A<br>Cat. No.: 940-001303-00                           | RNase A          | 4 mL/tube×1   | 2 °C to 8 °C      |                 | 2 °C to 8 °C             |

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## Chapter 2 Applicable device

- MGISP-960RS High-throughput Automated Sample Preparation System
- MGISP-NE384RS Automated Nucleic Acid Extractor

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## Chapter 3 Sample requirements

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### 3.1 Applicable sample

This product is applicable to fresh leaves and seeds of plants rich in polysaccharides and polyphenols.

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### 3.2 Sample amount requirements

|               | Fresh plant leaves | Air-dried plant seeds |
|---------------|--------------------|-----------------------|
| Sample amount | 10 mg to 100 mg    | 10 mg to 50 mg        |

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## Chapter 4 Operation

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### 4.1 Preparing materials


Prepare the following materials:

**Table 3 User-supplied materials**

| Type      | Item                 | Description  |
|-----------|----------------------|--|
| Equipment | Mini centrifuge      | With a speed no less than 13000 rpm  |
|           | Vortex mixer         | None   |
|           | Thermomixer compact  | It can be replaced by a water bath   |
|           | 1.5 mL magnetic rack | None   |
|           | Pipette              | 1 mL/200 µL/20 µL  |
|           | Grinding media       | <ul style="list-style-type: none"><li>• 3 mm</li><li>• Zirconia</li><li>• RNase-free</li></ul> |

| Type        | Item             | Description       |
|-------------|------------------|-------------------|
| Equipment   | Grinding mill    | None              |
| Reagent     | Ethanol absolute | Analytically pure |
| Consumables | Pipette tips     | None              |
|             | Centrifuge tube  | 2 mL/1.5 mL       |

## 4.2 Extracting the nucleic acids

-  **Tips**
- To realize high concentration and purity, please select fresh and young plants, and plump air-dried seeds, and fully grind them before extraction.
  - You can extract the nucleic acids manually or on automation devices. For automated nucleic acid extraction, ensure that you prepare applicable consumables.

### 4.2.1 Extracting the nucleic acids manually

Before extraction, add ethanol absolute into Buffer WB I and Buffer WB II according to the label.

#### 4.2.1.1 Plant leaves

Perform the following steps:

1. Freeze the fresh plant leaves with liquid nitrogen for 10 seconds, or store it at -80 °C for over 30 minutes.
2. Select one of the following methods to grind the leaves:

 **Tips** To avoid thawing the leaves, grind leaves quickly or in liquid nitrogen.

- Place the leaves in a cooled mortar and use a pestle to grind them into powder. Transfer the powder into a new 1.5 mL or 2 mL centrifuge tube.
  - Place the leaves into a new 2 mL centrifuge tube. Add grinding media into the tube. Place the tube into a grinding mill to grind leaves into powder.
3. Add 700  $\mu$ L of Buffer PL and 10  $\mu$ L of RNase A into the centrifuge tube. Vortex the tube to mix thoroughly and place at a thermomixer compact at 60 °C at 1000 rpm for 10 minutes or 20 minutes (Only for plants rich in polysaccharides and polyphenols), or vortex the tube every 2 minutes with 10 seconds for each time.
  4. Place the tube into a centrifuge at 13000 rpm for 7 minutes.
  5. Aspirate 600  $\mu$ L of supernatant to a new 1.5 mL centrifuge tube.





**Tips** If the volume is less than 600  $\mu\text{L}$ , just aspirate all the supernatant and transfer them to the tube.

6. Add 20  $\mu\text{L}$  of Magnetic Beads T, 300  $\mu\text{L}$  of Buffer PB and 20  $\mu\text{L}$  of Proteinase K into the centrifuge tube. Vortex the tube to mix thoroughly and place at room temperature for 6 minutes during which vortex the tube every 2 minutes with 10 seconds for each time.
7. Place the tube on the magnetic rack for 30 seconds. Invert the magnetic rack and collect the magnetic beads on the wall and at the bottom of the tube. When Magnetic Beads T is adsorbed completely on the tube wall, use a pipette to remove the supernatant and remove the tube from the rack.
8. Add 700  $\mu\text{L}$  of Buffer WB I into the centrifuge tube. Vortex the tube for 30 seconds and place the tube on the magnetic rack for 30 seconds. Invert the magnetic rack and collect the magnetic beads on the wall and at the bottom of the tube. When Magnetic Beads T is adsorbed completely on the tube wall, use a pipette to remove the supernatant and remove the tube from the rack.
9. Add 700  $\mu\text{L}$  of Buffer WB II into the centrifuge tube. Vortex the tube for 30 seconds and place the tube on the magnetic rack for 30 seconds. Invert the magnetic rack and collect the magnetic beads on the wall and at the bottom of the tube. When Magnetic Beads T is adsorbed completely on the tube wall, use a pipette to remove the supernatant and remove the tube from the rack.
10. Repeat step 9 once. Decap and dry the tube for 10 minutes during which remove the liquid continuously until no liquid remains on the tube.
11. Add 60  $\mu\text{L}$  to 150  $\mu\text{L}$  of Buffer TE into the tube. Vortex the tube to mix thoroughly and place at room temperature for 5 minutes during which vortex the tube every 2 minutes with 10 seconds for each time.
12. Place the tube on the magnetic rack for 30 seconds. When Magnetic Beads T is adsorbed completely on the tube wall, aspirate the supernatant and transfer it into a new sterile centrifuge tube. The supernatant is the extracted DNA.

#### 4.2.1.2 Plant seeds

Perform the following steps:


1. Select one of the following methods to grind the seeds:
  - Place the seeds into a cooled mortar and use a pestle to grind them into powder. Transfer the powder into a new 1.5 mL or 2 mL centrifuge tube.
  - Place the seeds into a new 2 mL centrifuge tube. Add grinding media into the tube. Place the tube into a grinding mill to grind seeds into powder.
2. Add 20  $\mu\text{L}$  of Proteinase K, 700  $\mu\text{L}$  of Buffer PL and 10  $\mu\text{L}$  of RNase A into the centrifuge tube. Vortex the tube to mix thoroughly and place at a thermomixer compact at 60  $^{\circ}\text{C}$  at 1000 rpm for 10 minutes or vortex the tube every 2 minutes with 10 seconds for each time.

 **Tips** Please do add reagents according to the above order.

3. Place the tube into a centrifuge at 13000 rpm for 7 minutes.
4. Aspirate 500  $\mu\text{L}$  of supernatant to a new 1.5 mL centrifuge tube.

 **Tips** If the volume is less than 500  $\mu\text{L}$ , just aspirate all the supernatant and transfer them to the tube.

5. Add 20  $\mu\text{L}$  of Magnetic Beads T and 300  $\mu\text{L}$  to 500  $\mu\text{L}$  of Buffer PB into the centrifuge tube. Vortex the tube to mix thoroughly and place at room temperature for 6 minutes during which vortex the tube every 3 minutes with 10 seconds for each time.

 **Tips** For seeds containing too much fat, you can reduce the use of Buffer PB. The following table shows the recommended use of Buffer PB for some type of seeds.

|                             | Soybean seed | Cotton seed | Corn seed | Strawberry seed |
|-----------------------------|--------------|-------------|-----------|-----------------|
| Buffer PB ( $\mu\text{L}$ ) | 300          | 400         | 500       | 300             |

6. Place the tube on the magnetic rack for 30 seconds. When Magnetic Beads T is adsorbed completely on the tube wall, use a pipette to remove the supernatant and remove the tube from the rack.
7. Add 700  $\mu\text{L}$  of Buffer WB I into the centrifuge tube. Vortex the tube to mix thoroughly and place the tube on the magnetic rack for 30 seconds. When Magnetic Beads T is adsorbed completely on the tube wall, use a pipette to remove the supernatant and remove the tube from the rack.
8. Add 700  $\mu\text{L}$  of Buffer WB II into the centrifuge tube. Vortex the tube to mix thoroughly and place the tube on the magnetic rack for 30 seconds. When Magnetic Beads T is adsorbed completely on the tube wall, use a pipette to remove the supernatant and remove the tube from the rack.
9. Repeat step 8. Decap and dry the tube for 10 minutes until no liquid remains on the tube.
10. Add 60  $\mu\text{L}$  to 150  $\mu\text{L}$  of Buffer TE into the tube. Vortex the tube to mix thoroughly and place at room temperature for 5 minutes during which vortex the tube every 2 minutes with 10 seconds for each time.
11. Place the tube on the magnetic rack for 30 seconds. When Magnetic Beads T is adsorbed completely on the tube wall, aspirate the supernatant and transfer it into a new sterile centrifuge tube. The supernatant is the extracted DNA.

## 4.2.2 Extracting the nucleic acids automatically on MGISP-960RS

### 4.2.2.1 Preparing consumables

According to the following table, prepare consumables for a workflow of automated extraction on MGISP-960RS and place them at room temperature until use.

| Name  | Brand | Cat. No.   | Number |
|---|-------|------------|--------|
| 250 $\mu$ L automated filter tips               | MGI   | 1000000723 | 5      |
| 2.2 mL V-bottom 96-well deep-well plate         | MGI   | 1000008088 | 4      |
| 1.3 mL U-bottom 96-well deep-well plate         | MGI   | 1000004644 | 1      |
| Hard-shell thin-wall 96-well skirted PCR plates | MGI   | 1000012059 | 1      |

### 4.2.2.2 Preparing reagents

Perform the following steps:

1. Add ethanol absolute into Buffer WB I according to the label.
2. Add ethanol absolute into Buffer WB II according to the label.
3. Prepare the Mix according to the sample type:

| Sample type | Buffer PB                  | Magnetic Beads T | Proteinase K |
|-------------|----------------------------|------------------|--------------|
| Leaves      | 300 $\mu$ L                | 20 $\mu$ L       | 20 $\mu$ L   |
| Seeds       | 300 $\mu$ L to 500 $\mu$ L | 20 $\mu$ L       | /            |



- Tips**
- The prepared Mix is required to be used within 30 minutes. If you want to prepare the Mix in advance, add Proteinase K before adding the Mix to the plate to avoid inactivating Proteinase K caused by long-time preparation.
  - For seeds containing too much fat, you can reduce the use of Buffer PB. The following table shows the recommended use of Buffer PB for some type of seeds.

|                      | Soybean seed | Cotton seed | Corn seed | Strawberry seed |
|----------------------|--------------|-------------|-----------|-----------------|
| Buffer PB ( $\mu$ L) | 300          | 400         | 500       | 300             |


4. Take out 5 96-well deep-well plates and a PCR plate. Add sample and reagents according to the following table:

| Reagent name            | Adding volume  | Plate   |
|-------------------------|--|---|
| Mix                     | <ul style="list-style-type: none"> <li>Leaves: 340 <math>\mu\text{L}</math>/well</li> <li>Seeds: 320 <math>\mu\text{L}</math>/well to 520 <math>\mu\text{L}</math>/well</li> </ul> | 2.2 mL V-bottom 96-well deep-well plate         |
| Buffer WB I             | 700 $\mu\text{L}$ /well  | 2.2 mL V-bottom 96-well deep-well plate         |
| Buffer WB II            | 1400 $\mu\text{L}$ /well   | 2.2 mL V-bottom 96-well deep-well plate         |
| Buffer TE               | 100 $\mu\text{L}$ /well  | 1.3 mL U-bottom 96-well deep-well plate         |
| Plate for waste (empty) | /  | 2.2 mL V-bottom 96-well deep-well plate         |
| DNA product (empty)     | /  | Hard-shell thin-wall 96-well skirted PCR plates |

### 4.2.2.3 Preparing samples


You can extract 1 to 96 samples on MGISP-960RS.


- Plant leaves

- Freeze the fresh plant leaves with liquid nitrogen for 10 seconds, or store it at  $-80\text{ }^{\circ}\text{C}$  for over 30 minutes.
- Select one of the following methods to grind the leaves:
  -  **Tips** To avoid thawing the leaves, grind leaves quickly or in liquid nitrogen.
    - Place the leaves into a cooled mortar and use a pestle to grind them into powder. Transfer the powder into a new 1.5 mL or 2 mL centrifuge tube.
    - Place the leaves into a new 2 mL centrifuge tube. Add grinding media into the tube. Place the tube into a grinding mill to grind leaves into powder.
- Add 700  $\mu\text{L}$  of Buffer PL and 10  $\mu\text{L}$  of RNase A into the centrifuge tube. Vortex the tube to mix thoroughly and place at a thermomixer compact at  $60\text{ }^{\circ}\text{C}$  at 1000 rpm for 10 minutes or 20 minutes (Only for plants rich in polysaccharides and polyphenols), or vortex the tube every 2 minutes with 10 seconds for each time.
- Place the tube into a centrifuge at 13000 rpm for 7 minutes.
- Aspirate 600  $\mu\text{L}$  of supernatant to the deep-well plate containing the Mix.

 **Tips** If the volume is less than 600  $\mu\text{L}$ , just aspirate all the supernatant and transfer them to the plate.



- Plant seeds
  - 1) Select one of the following methods to grind the seeds:
    - ◆ Place the seeds into a cooled mortar and use a pestle to grind them into powder. Transfer the powder into a new 1.5 mL or 2 mL centrifuge tube.
    - ◆ Place the seeds into a new 2 mL centrifuge tube. Add grinding media into the tube. Place the tube into a grinding mill to grind seeds into powder.
  - 2) Add 20  $\mu$ L of Proteinase K, 700  $\mu$ L of Buffer PL and 10  $\mu$ L of RNase A into the centrifuge tube. Vortex the tube to mix thoroughly and place at a thermomixer compact at 60 °C at 1000 rpm for 10 minutes or vortex the tube every 5 minutes with 10 seconds for each time.



 **Tips** Please do add reagents according to the above order.
  - 3) Place the tube into a centrifuge at 13000 rpm for 7 minutes.
  - 4) Aspirate 500  $\mu$ L of supernatant to the deep-well plate containing the Mix.

 **Tips** If the volume is less than 500  $\mu$ L, just aspirate all the supernatant and transfer them to the plate.

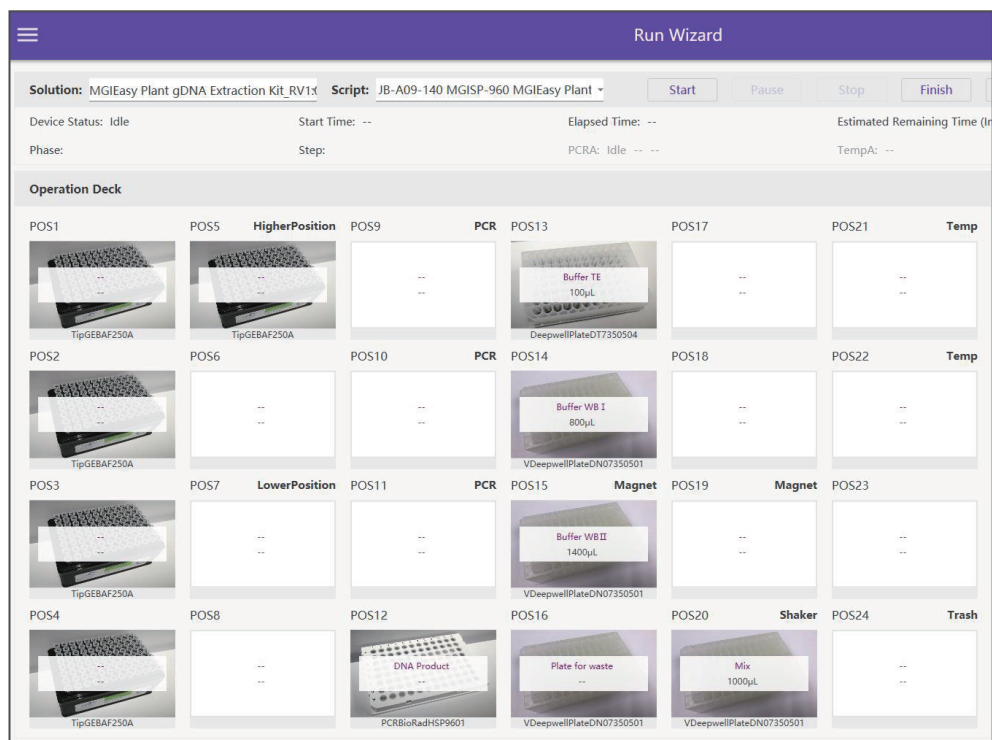
#### 4.2.2.4 Starting extraction

Perform the following steps:

1. Switch to the | position to power on the device.
2. Turn on the computer and the desktop appears. Double-click  to run the software.
3. Select **User** and **Real**. Enter the password.
4. Click **Login** to enter the main interface.
5. On the upper-right corner of the control software, click  and select **WDesigner**. The home interface is displayed.
6. Ensure that the application file in the .wfex format has been prepared.
7. Click  in the toolbar and find the file location in the pop-up window.
8. Select the file and click **Open**, fill in the **Application** and **Project**, and click **Confirm** to save the application file. Then this application file can be executed in the control software.
9. After the file is imported successfully, click  in the toolbar.
10. Click **Initialize** on the top of the interface to start initializing.  
You will be prompted after a successful initialization.

11. Click the menu button on the left of the interface, and select **Clean>Pre-clean>Start**.
12. Follow the on-screen instructions to complete operations and click **Continue**. The UV lamp and air filter start working.  
 **CAUTION** The ultraviolet radiation is harmful to the human body, so do not open the door after the pre-clean starts.
14. Import the application scripts according to *MGISP-100&MGISP-960 Application Script Installation Instructions*.
15. Tap  > **Run Wizard** to enter the Run Wizard interface.
16. Click the drop-down list of **Solution** and select **JB-A09-140 MGIEasy Plant gDNA Extraction Set\_RV1.0\_SV1.0**. Click the drop-down list of **Script** and select **JB-A09-140 MGIEasy Plant gDNA Extraction Set\_RV1.0\_SV1.0.py**. Place samples, reagents and consumables according to the following figure:

| Name                          | Position |
|-------------------------------|----------|
| DNA product (empty PCR plate) | POS12    |
| Buffer TE                     | POS13    |
| Buffer WB I                   | POS14    |
| Buffer WB II                  | POS15    |
| Plate for waste               | POS16    |
| Mix                           | POS20    |
| 250 µL automated filter tips  | POS1~5   |



**Figure 1 Plate position**

17. Click **Start**. The extraction workflow starts. It takes roughly 1 hour.  
During the workflow, click **Pause** to pause and click **Resume** to resume the workflow if required.
18. At the end of the workflow, remove the DNA product from POS12.  
If the product is not used immediately, seal and store it in a freezer at  $-80^{\circ}\text{C}$ .
19. Dispose of the used deep-well plates, PCR plates, and waste bag.

## 4.2.3 Extracting the nucleic acids automatically on MGISP-NE384RS

### 4.2.3.1 Preparing consumables

According to the following table, prepare consumables for a workflow of automated extraction on MGISP-NE384RS and place them at room temperature until use:

| Name                                    | Brand | Cat. No.   | Number         |
|---|-------|------------|----------------|
| 2.2 mL V-bottom 96-well deep-well plate | MGI   | 1000008088 | 5 (96 preps)   |
|   |       |            | 20 (384 preps) |
| 96-well tips comb                       | MGI   | 1000025661 | 1 (96 preps)   |
|   |       |            | 4 (384 preps)  |

### 4.2.3.2 Preparing reagents

Perform the following steps:

1. Add ethanol absolute into Buffer WB I according to the label.
2. Add ethanol absolute into Buffer WB II according to the label.
3. Prepare the Mix according to the sample type:

| Sample type | Buffer PB        | Magnetic Beads T | Proteinase K |
|-------------|------------------|------------------|--------------|
| Leaves      | 300 µL           | 20 µL            | 20 µL        |
| Seeds       | 300 µL to 500 µL | 20 µL            | /            |



- Tips**
- The prepared Mix is required to be used within 30 minutes. If you want to prepare the Mix in advance, add Proteinase K before adding the Mix to the plate to avoid inactivating Proteinase K caused by long-time preparation.
  - For seeds containing too much fat, you can reduce the use of Buffer PB. The following table shows the recommended use of Buffer PB for some type of seeds.

|                | Soybean seed | Cotton seed | Corn seed | Strawberry seed |
|----------------|--------------|-------------|-----------|-----------------|
| Buffer PB (µL) | 300          | 400         | 500       | 300             |

4. Take out 5 96-well deep-well plates and a PCR plate. Add sample and reagents according to the following table:



| Reagent name | Adding volume   | Plate                                   |
|--------------|---|---|
| Mix          | <ul style="list-style-type: none"> <li>Leaves: 340 <math>\mu</math>L/well</li> <li>Seeds: 320 <math>\mu</math>L/well to 520 <math>\mu</math>L/well</li> </ul> | 2.2 mL V-bottom 96-well deep-well plate |
| Buffer WB I  | 700 $\mu$ L/well  | 2.2 mL V-bottom 96-well deep-well plate |
| Buffer WB II | 700 $\mu$ L/well  | 2.2 mL V-bottom 96-well deep-well plate |
| Buffer TE    | 80 $\mu$ L/well   | 2.2 mL V-bottom 96-well deep-well plate |

#### 4.2.3.3 Preparing samples

You can extract 1 to 384 samples on MGISP-NE384RS.

- Plant leaves

- Freeze the fresh plant leaves with liquid nitrogen for 10 seconds, or store it at  $-80^{\circ}\text{C}$  for over 30 minutes.
- Select one of the following methods to grind the leaves:



**Tips** To avoid thawing the leaves, grind leaves quickly or in liquid nitrogen.



- Place the leaves into a cooled mortar and use a pestle to grind them into powder. Transfer powder into a new 1.5 mL or 2 mL centrifuge tube.
  - Place the leaves into a new 2 mL centrifuge tube. Add grinding media into the tube. Place the tube into a grinding mill to grind leaves into powder.
- Add 700  $\mu$ L of Buffer PL and 10  $\mu$ L of RNase A into the centrifuge tube. Vortex the tube to mix thoroughly and place at a thermomixer compact at  $60^{\circ}\text{C}$  at 1000 rpm for 10 minutes or 20 minutes (Only for plants rich in polysaccharides and polyphenols), or vortex the tube every 2 minutes with 10 seconds for each time.
  - Place the tube into a centrifuge at 13000 rpm for 7 minutes.
  - Aspirate 600  $\mu$ L of supernatant to the deep-well plate containing the Mix.



**Tips** If the volume is less than 600  $\mu$ L, just aspirate all the supernatant and transfer them to the plate.




- Plant seeds

- Select one of the following methods to grind the seeds:
  - Place the seeds into a cooled mortar and use a pestle to grind them into powder. Transfer powder into a new 1.5 mL or 2 mL centrifuge tube.

- ◆ Place the seeds into a new 2 mL centrifuge tube. Add grinding media into the tube. Place the tube into a grinding mill to grind seeds into powder.
- 2) Add 20  $\mu$ L of Proteinase K, 700  $\mu$ L of Buffer PL and 10  $\mu$ L of RNase A into the centrifuge tube. Vortex the tube to mix thoroughly and place at a thermomixer compact at 60 °C at 1000 rpm for 10 minutes or vortex the tube every 5 minutes with 10 seconds for each time.
-  **Tips** Please do add reagents according to the above order.
- 3) Place the tube into a centrifuge at 13000 rpm for 7 minutes.
- 4) Aspirate 500  $\mu$ L of supernatant to the deep-well plate containing the Mix.
-  **Tips** If the volume is less than 500  $\mu$ L, just aspirate all the supernatant and transfer them to the plate.

#### 4.2.3.4 Starting extraction

Perform the following steps:

1. Switch to the  position to power on the device.
2. Turn on the computer and the desktop appears. Double-click the icon of MGISP-NE384RS to run the software.
3. Select **User** and **Real**, and enter the password. Click **Login** to enter the main interface.
4. Click **Initialize** on the top of the interface to start initializing.  
You will be prompted after a successful initialization.
5. Click **Process manage** >  to import the script.
6. Click  > **Workflow**. Click the drop-down list of **Script** and select **MGIEasy Plant gDNA Extraction Set\_V1.0**. Place samples, reagents and consumables according to the following table:

| Reagent name | Position |
|--------------|----------|
| Mix          | POS1     |
| Buffer WB I  | POS2     |
| Buffer WB II | POS3     |
| Buffer WB II | POS4     |
| Buffer TE    | POS6     |

7. Click **Run**. The device starts extraction according to the following table. The whole workflow takes about 35 minutes.


During the workflow, click **Pause** to pause and click **Resume** to resume the workflow if required.

Heating settings are as follows:

Lysis temperature: 25 °C . Lysis heating ends at step 2.

Elution temperature: 25 °C . Elution heating starts at step 5.

| Step No.                | 1   | 2          | 3          | 4          | 5       | 6       |
|-------------------------|---|------------|------------|------------|---------|---------|
| Position                | 1   | 2          | 3          | 4          | 6       | 2       |
| Step name               | Lysis   | Wash       | Wash       | Wash       | Elution | Release |
| Volume (μL)             | 940 (Plant leaves extraction)<br>or 820 to 1020 (Plant seeds<br>extraction) | 700        | 700        | 700        | 80      | 700     |
| Mix time (s)            | 420   | 60         | 60         | 60         | 300     | 20      |
| Mix rate                | HighMiddle  | HighMiddle | HighMiddle | HighMiddle | High    | High    |
| Collect mode            | Cycle   | Cycle      | Cycle      | Cycle      | Cycle   | /       |
| Collect time (s)        | 1   | 1          | 1          | 1          | 1       | 1       |
| Collect cycle<br>(time) | 6   | 3          | 3          | 3          | 12      | 1       |
| Delay time (s)          | 0   | 0          | 0          | 0          | 300     | 0       |

 **Tips** The volume of POS1 is 940 μL for extraction from plant leaves, and 820 μL to 1020 μL for extraction from plant seeds.

8. After the program ends, transfer the 96-well tips comb with magnetic beads T to the medical waste bag.
9. Remove the 96-well plate from POS6 and transfer the DNA product to a new tube.

If the product is not used immediately, seal it and store it in a freezer at -80 °C .

10. Dispose of the used deep-well plates, PCR plates and waste bag.

## Chapter 5 Warnings and precautions

- This product is for research use only. Please read the instructions for use carefully before use.
- To realize high concentration and purity, please select fresh and young plants, and plump air-dried seeds, and fully grind them before extraction.

- The magnetic beads may be adhesive to the side or bottom of the tube during wash, which is a normal phenomenon and will not affect DNA extraction and downstream application.
- During extraction on MGISP-NE384RS, the magnetic beads may remain on the tube after elution. This will not affect the produce concentration and purity. You need to separate the beads again.
- Before experiment, be sure to be familiar with and master the operation methods and precautions of various devices to be used.
- Direct contact with skin and eyes should be avoided for all samples and reagents. Do not swallow. If accidental ingestion occurs, please get medical attention immediately. If skin exposure occurs, rinse with large amounts of water and get medical attention if irritation persists.
- All samples and wastes should be disposed of in accordance with relevant regulations.
- Do not use expired products.

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## Appendix 1 Manufacturer information

|                   |   |
|-------------------|---|
| Manufacturer      | Wuhan MGI Tech Co., Ltd.  |
| Address           | Building 24, Stage 3.1, BioLake Accelerator, No.388, 2nd Gaoxin Road, East Lake High-Tech Development Zone, 430075, Wuhan, P.R. China |
| Technical support | Wuhan MGI Tech Co., Ltd.  |
| E-mail            | MGI-service@mgi-tech.com  |
| Website           | en.mgi-tech.com   |