TANBead® Nucleic Acid Extraction Kit

Plant DNA Auto Plate

(For use with the SLA-16 / 32 / E13200 series)

RUO

613A46

(For Research Use Only) V3

1. Intended Use

TANBead® Nucleic Acid Extraction Kit (613A46) is suitable for isolating DNA from plant samples. Automated nucleic acids extraction can be performed by SLA-16/32/E13200 series. Extracted nucleic acids can be analyzed by downstream applications, such as real-time PCR, next-generation sequencing.

2. Purpose

TANBead® Nucleic Acid Extraction Kit (613A46) is suitable for a variety of samples, including plants, mushrooms, etc. this kit with TANBead® Smart LabAssist, simplifies nucleic acid extraction. With simple treatment of samples, it does not need repetitive centrifugations, reducing time for manual processing, and lowering the risk if cross-contamination. Moreover, this protocol can take up to 32 samples, enhancing the consistency and reproductivity.

3. The basic principle

The silicon dioxide layer coated on the magnetic beads can adsorb the negatively charged molecules to purify nucleic acids from samples.

4. Specification

Starting Materials	50 – 100 mg plant sample
Elution Volume	90~130 µL
Typical DNA yield	Up to 5 µg
Typical A260 / A280	≥ 1.7

5. Component Supplied with the Kit

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Auto Plate	6	Auto Plate with reagent buffers
Lysis Buffer	90 mL x 1	Guanidine salt, Tris buffer, surfactants
Elution Buffer	1.5 mL x 1	Nuclease-Free Water
Strip	12	8-channel strip
Protocol	1	Instruction guide for user

6. Auto Plate Content

Well	Buffer	Volume (µL)
1 / 7	-	-
2 / 8	Washing Buffer 1	800
3 / 9	Magnetic Beads	800
4 / 10	Washing Buffer 2	800
5 / 11	Washing Buffer 2	800
6 / 12	Elution Buffer	130

7. Kit Storage and Shelf Life

1) Components under room temperature (15~35°C) can be stored until the expiration date labeled on the box.

8. Precautions

1) For research use only.
2) Avoid using expired reagents.
3) When the temperature is below 20°C, place the Auto Plates in an oven (preheated 42~60°C) 5 to 10 minutes.
4) Avoid vigorous shaking, in order to avoid excessive formation of foam.
5) Carefully remove aluminum foil to avoid splashing.
6) Do not expose the opened reagents or Auto Plates to air. The evaporation would lead to pH change, or effect on the extraction effectiveness.
7) Please check the integrity of the Auto Plates and remember to insert the strips into the appropriate position of the suitable instrument before operating them.
8) Please wear a mask and disposable gloves when handling.
9) Use sterile consumables to avoid nuclease contamination.
10) Reagent solution contains guanidine salt, avoid using bleach containing detergent.
11) Avoid eyes, skin, and clothing contact with reagents. In case of any contact, flush with flowing water.
12) If any serious incident occurs, please report to the manufacturer and the competent authority of the member state in which the user and/or the patient is established.
13) Reagents are all colorless and transparent. Colored reagents indicate contamination, please replace a fresh plate before proceeding.

9. Materials required, Not Supplied

1) TANBead® Nucleic Acid Extraction System
   Model: SLA-16 / 32 / E13200 series (non-sterile)
2) Disposable gloves
3) Scissors, utility knives
4) Micropipette, disposable tips (10 µL / 200 µL / 1000 µL)
5) 1.5 mL microcentrifuge tube
6) 15 mL / 50 mL conical tube
7) IPA: Isopropanol for molecular biology
8) CTAB buffer: 2% CTAB, 100 mM Tris pH8.0, 20 mM EDTA, 1.4 M NaCl
9) Liquid nitrogen (Optional)

10. Sample Collection, Transportation, and Storage

■ **Sample collection and storage**

1) Plant sample can be stored at
   a. RT for 24 hours
   b. 2 - 8°C up to 7 days

■ **Sample transportation**

Transportation of plant samples should follow specific plant transportation related law. Plant sample should be kept between 2 - 25°C during transportation.

11. Nucleic Acids Extraction Protocol

Sample preparation

1) Add **800 µL Lysis Buffer** to the plant sample and grind it by using the grinder or disposable pestle.
   Note: If the sample is hard to grind, it could be ground with **liquid nitrogen.** Then add **800 µL Lysis Buffer** and mix well.
2) Incubate at room temperature for **10 min**.
3) Centrifuge at **5000 – 8000 RPM** for **5 min**.

Sample preparation (with high silicon content)

1) Add **appropriate volume of CTAB Buffer** to the sample and then grind it by using the grinder or disposable pestle.
   Note: The optimal volume of CTAB buffer may be varied according to different sample types. In general, **use 4 mL CTAB buffer for 1g plant sample.**
2) Incubate at **65°C for 0.5 - 1 hour** and then centrifuged at **4000 – 6000 RPM for 5 minutes**.
3) Transfer the supernatant to a new tube and add **ice-cold IPA (0.6–1x volume of the supernatant)** and gently invert for 5–10 times.
4) Centrifuge at **6000 – 10000 RPM for 5 minutes**.
5) Discard the supernatant.
6) Add **800 µL Lysis Buffer** and mix well.

Automatic process

Before operating, turn on the warm-up system of TANBead® Nucleic Acid Extractor, if it is equipped with temperature controller, please setting at **45°C.**

1) Carefully remove the aluminum foil on the Auto Plates.
2) Use micropipette to load **800µL Lysate** into the well of column **#1/ #7** of Auto Plate.
3) Push Auto Plates completely to the bottom of the plate the rack. Make sure that the chamfer of the plate is at the lower left.
4) Push strips completely to the bottom of strip rack frame.
5) Close the door panel.
6) Select the program **"B10-W4-AUTO".** The parameters are given in following section.
7) Carefully remove the Auto Plates when the program is finished.
8) Use micropipette to transfer the purified nucleic acids from wells of column **#6 / #12** to a clean tube.
9) Discard used Auto Plates and strips into the waste recycling bin.

12. Program

■ **SLA-16 / 32 series**

Program Name: B10-W4-AUTO					Model: SLA-16 / 32 series			
Step	Well	Mixing (M)	Collect (S)	Rod	Mixing speed	Volume (μL)	Pause	Vapor (M)
1	3	1	60	ON	Medium	800	OFF	0
2	2	1	60	ON	Medium	800	OFF	0
3	1	10	60	ON	Medium	800	OFF	0
4	2	2	60	ON	Medium	800	OFF	0
5	3	2	60	ON	Medium	800	OFF	0
6	4	2	60	ON	Medium	800	OFF	0
7	5	2	60	ON	Medium	800	OFF	10
8	6	10	120	ON	Medium	150	OFF	0
9	5	1	0	OFF	Medium	800	OFF	0
10	0	0	0	OFF	Medium	0	OFF	0

■ **SLA-E13200 series**

Program Name: B10-W4-AUTO						Model: SLA-E13200 series			
Step	Well	Temp (°C)	Mixing (M)	Collect (S)	Rod	Mixing speed	Volume (μL)	Pause	Vapor (M)
1	3	45	1	60	ON	Medium	800	OFF	0
2	2	45	1	60	ON	Medium	800	OFF	0
3	1	45	10	60	ON	Medium	800	OFF	0
4	2	45	2	60	ON	Medium	800	OFF	0
5	3	45	2	60	ON	Medium	800	OFF	0
6	4	45	2	60	ON	Medium	800	OFF	0
7	5	45	2	60	ON	Medium	800	OFF	10
8	6	45	10	120	ON	Medium	150	OFF	0
9	5	NA	1	0	OFF	Medium	800	OFF	0
10	0	NA	0	0	OFF	Medium	0	OFF	0
11	3	45	1	60	ON	Medium	800	OFF	0
12	2	45	1	60	ON	Medium	800	OFF	0

13. Reagent performance

■ **Repeatability**

Under repeatability conditions where nucleic acids are extracted with the same reagent kit on the same source samples by the same operator. The coefficient of variation of nucleic acids extraction concentration is less than 5%.

■ **Reproducibility**

A five-day reproducibility test was carried out with the same source samples for 5 consecutive days with the same reagent kit by different operators. The coefficient of variation of nucleic acid extraction concentration is less than 5%

■ **The stability of extracted DNA**

Storage Conditions	DNA stability
-80°C	Over 90 days
-20°C	28 days
4°C	14 days
25°C	2 days
Freeze-thaw	10 times

14. Explanation of Symbols

	Manufacturer		Consult instructions for use
15°C 35°C	Temperature limit	Σ	Contains sufficient for test
REF	Catalogue number		Caution
LOT	Batch code	NON STERILE	Non-sterile
	Do not re-use		Keep away from sunlight
	Date of manufacture		Use-by date
RUO	For research use only		

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