TANBead® Nucleic Acid Extraction Kit

Plant DNA Auto Plate

(for use with the SLA-16/32 and SLA-E132 Series)

RUO

613A46-SE

(For Research Use Only) V5

1. Intended Use

TANBead® Nucleic Acid Extraction Kit (613A46-SE) is suitable for isolating nucleic acids from plant samples. Automated nucleic acids extraction can be performed by TANBead® Smart LabAssist. Extracted nucleic acids can be analyzed by downstream application, such as real time PCR and next generation sequencing.

2. Purpose

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

Principle

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

Sample Types: 50 – 100 mg plant tissues

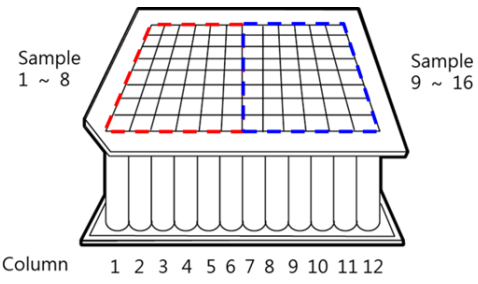
Suitable Instrument: SLA-16/32, SLA-E132 Series

3. Kit Components

613A46-SE		**96 Assays**
Auto Plates	6	96 well plate with reagent buffers
Lysis Buffer 1	60 mL	Sodium salt, Tris buffer, surfactants
Lysis Buffer 2	20 mL	IPA content buffer
Elution Buffer	20 mL	Nuclease-Free Water
Proteinase K	1.0 mL	Store at 4°C
Strip	12	8-channel strip
Protocol	1	Instruction guide for user

Auto Plate Content

Column	Buffer Solution	Volume
1/ 7	Binding Buffer	600 µL
2/ 8	Washing Buffer 1	800 µL
3/ 9	Magnetic Beads	800 µL
4/ 10	Washing Buffer 2	800 µL
5/ 11	Washing Buffer 2	800 µL
6/ 12	Elution Buffer	130 µL



4. Storage and shelf life

1) Components under room temperature (15 - 35°C) can be stored until the expiration date labeled on the box.
2) The Proteinase K was transported at room temperature. When received, please store at 4°C

5. Precautions

1) Avoid using expired reagents.
2) When the temperature is below 20°C, place the auto plates in an oven (preheated 42 - 60°C) 5 to 10 minutes.
3) Avoid vigorous shaking to prevent excessive formation of foam.
4) Do not expose the opened reagents or plates to air. The evaporation would lead to pH change or effect on the extraction effectiveness.
5) Only Lysis Buffer 2 and Washing Buffer 3 and Elution Buffer are colorless and transparent. Colored reagent indicates contamination, please replace it with a fresh Plate before proceeding.
6) Please check the integrity of the reagent plates and remember to insert the strips into the appropriate position of the suitable instrument before operating them.
7) Please wear a mask and disposable gloves when handling.
8) Carefully remove aluminum foil to avoid splashing.
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.

6. Materials required but not provided

1) TANBead® Nucleic Acid Extraction System
   Model: SLA-16/ 32 and SLA-E132 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

7. Sample collection, transport, storage and pre-treatment

■ Sample collection and storage

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

■ Specimen transportation

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

8. Nucleic acids extraction protocol

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

1) Grind **50 mg plant tissue** with **600 µL Lysis Buffer 1** by grinder or disposable pestle.
2) If samples are difficult to grind, **50 mg plant tissue** can be ground with liquid nitrogen then add **600 µL Lysis Buffer 1** and mix well.
3) Add **10 µL Proteinase K**, and vortex.
4) Incubate at **65°C for 30 minutes-1 hour**.
5) Add **150 µL Lysis Buffer 2** and mix well.
6) Incubate at **4°C for 5 minutes,** centrifuged at **8000 - 10000 RPM for 5 minutes**.
7) Carefully remove the aluminum foil from Auto Plate.
8) Gently transfer **600 µL supernatant** into Auto Plate column **#1/#7.**

   Note: Supernatant cannot transfer over 600 µL
9) Place the Auto Plate completely to the bottom of plate rack. Make sure that the missing corner of Auto Plate faces toward the door panel.
10) Push strips completely to the bottom of strip rack frame.
11) Select the program: "**613-SE**". The steps are given in following section.
12) Once the program has ended, buzzer shall alarm. Please take out Auto Plate carefully.
13) Use micropipette to transfer the purified nucleic acids from column **#6/ #12** to a clean tube.
14) Discard the used Auto Plate and strips into the waste recovery can.

9. Program

■ SLA-16/ 32 and SLA-E132 Series

Program Name: 613-SE						Model: SLA-16/ 32, SLA-E132 series			
Step	Well	Temp (℃)	Mixing (M)	Collect(S)	Rod	Mixing Speed(RPM)	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	4	45	2	60	ON	Medium	800	OFF	0
6	5	45	2	60	ON	Medium	800	OFF	10
7	6	45	10	120	ON	Medium	150	OFF	0
8	5	NA	1	0	OFF	Medium	800	OFF	0
9	0	NA	0	0	OFF	Medium	0	OFF	0

10. Result

- Total DNA yield: 1 - 5 μg
- 260/280 ratio of nucleic acid: 1.7 - 1.9

11. 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 acids extraction concentration is less than 5%.

■ The stability of extracted DNA/ RNA

Storage Conditions	DNA/RNA stability
-80℃	Over 90 days
-20℃	28 days
4℃	14 days
25℃	2 days
Freeze - thaw	10 times

12. Explanation of symbols

	Manufacturer		**Consult instructions for use**
15°C 25°C	**Temperature limitation**	Σ	**Contains sufficient for <N> test**
	Use by date	RUO	**For Research Use Only**
REF	**Catalog number**		**Caution**
LOT	**Batch code**	NON STERILE	**Non-sterile**
	Do not use if package is damaged		**Keep away from sunlight**
	Keep dry		**Do not re-use**