TANBead® Nucleic Acid Extraction Kit

Plant DNA Auto Tube

(for use with the Maelstrom 8)

CE

REF M613S46

(For Professional Use Only)

1. Intended Use

TANBead® Nucleic Acid Extraction Kit (REF M613S46) is suitable for isolating nucleic acid from plants and mushrooms specimen. Automated nucleic acid extraction can be performed by Maelstrom 8 Autostage. Extracted nucleic acids can be analyzed by downstream application, such as real-time PCR, next-generation sequencing.

2. Purpose

TANBead® Nucleic Acid Extraction Kit (REF M613S46) is suitable for a variety of samples, including plants, mushrooms, etc. This kit, with Maelstrom 8, simplifies nucleic acid extraction. With simple treatment of samples, it does not need repetitive centrifugations, reducing time for manual processing, and lowering the risk of cross-contamination.

3. Principle

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

Sample Types: 50-100 mg plant tissues

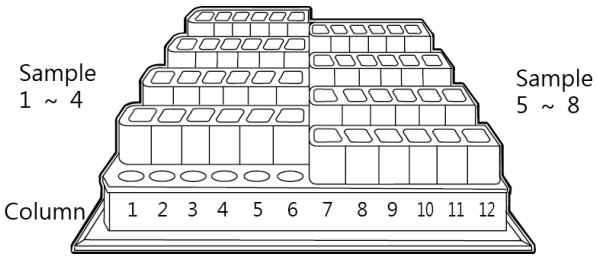
Suitable Instrument: Maelstrom 8 Autostage

4. Reagent Components

REF M613S46		Σ 96 Assays
Auto Tubes	96	6 well tube with reagent buffers
Base	2	A rack for 8 Auto Tubes
Lysis Buffer	90 ml x 1	Guanidine salt, Tris buffer, surfactants
Elution Buffer	20 ml	Nuclease-Free Water
Spin tips	96	Spin tip
Protocol	1	Instruction guide for user

Auto Tube Content

Column	Buffer Solution	Volume
1/7	-	-
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



5. Storage and shelf life

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

6. Precautions

1) Avoid using expired reagents.
2) When the temperature is below 20℃, place the reagent tubes in an oven (preheated 42 - 60℃) 5 to 10 minutes.
3) Avoid vigorous shaking, in order to avoid excessive formation of foam.
4) Do not exposure opened reagents or tubes to air. The evaporation would lead to pH change, or influence the extraction effectiveness.
5) Reagents are all colorless and transparent. Colored reagents indicate contamination, please replace a fresh tube before proceeding.
6) Before use, please check the integrity of the reagent tubes, and remember to mount the spin tips into the appropriate position.
7) Please wear a mask and disposable gloves when handling.
8) Remove aluminum foil carefully 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 that has occurred, please report to manufacturer and the competent authority of the member state in which the user and/or the patient is established.

7. Provided Materials

1) TANBead® Nucleic Acid Extraction Kit
   a. Auto Tubes
   b. Base
   c. Lysis Buffer
   d. Elution Buffer
   e. Spin tips

8. Required but not provided

1) TANBead® Nucleic Acid Extraction System
   Model: Maelstrom 8 Autostage(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) IPA (Isopropanol)
7) CTAB buffer: 2% CTAB, 100 mM Tris pH8.0, 20 mM EDTA, 1.4 M NaCl

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

■ Sample collection and storage

1) Plant tissues can be stored at
   - RT for 24 hours
   - 2-8℃ 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℃ during transportation.

10. Nucleic acid extraction protocol

■ Preparing samples

1) Grind the plant tissue and **800 µl Lysis buffer** with grinder or disposable pestle.
2) If samples are difficult to grind can be ground with liquid nitrogen, then add **800 µl Lysis Buffer** and mix well.
3) Incubate at room temperature for **10 mins**.
4) Centrifuge at **5000-8000 RPM** for **5 mins**.

■ Preparation of plants with high silicon content, such as rice leaf and palm oil leaf

1) Grind the plant tissue, add **CTAB buffer** and mix well. The optimal amount of CTAB buffer will change with sample. **(1g plant tissue for 4 ml CTAB buffer)**
2) After incubation at **65℃ for 30 mins-1 hr**, **centrifuged at 4000-6000 RPM for 5min** and transfer supernatant to a new tube.
3) Add **cold IPA (0.6-1X lysate volume)**, invert 5-10 times and check that DNA pellet in the bottom of tube.
4) **Centrifuged at 6000-10000 RPM for 5 min**.
5) Remove supernatant, add **800 µl Lysis Buffer** and mix well.

■ Preparing Auto Tubes

1) Prepare the Assembled Auto Tubes by inserting Auto Tubes into the Base completely.

2) Carefully remove the aluminum foil from Assembled Auto Tubes.
3) Use micropipette to load **800 µl Lysate** into column **#1/#7**.
4) Place Assembled Auto Tubes completely to the autostage of tube. Make sure that the missing corner of base faces toward the lower left.
5) Mount spin tips on Maelstrom 8.
6) Select the program "**613-1/7**". The parameters are given in following section.
7) Once the program has ended, take out Assembled Auto Tubes carefully.
8) Use micropipette to transfer the purified nucleic acid from column **#6/ #12** to a clean tube.
9) Discard the used Auto Tube and spin tips into the waste recovery can.

11. Program

Program Name:613-1/7					
well 1/7	well 2/8	well 3/9	well 4/10	well 5/11	well 6/12
800 (µl)	800 (µl)	800 (µl)	800 (µl)	800 (µl)	150 (µl)

Step	Well	Action	RPM	Time (Second)	CW/CCW (Second)	Temperature	Temperature_ Control
1	3/9	Mixing	3000	60	0	55	YES
2	3/9	Collection	0	30	0	55	YES
3	2/8	Mixing	3000	60	0	55	YES
4	2/8	Collection	0	30	0	55	YES
5	1/7	Mixing	3000	600	0	55	YES
6	1/7	Collection	0	30	0	55	YES
7	2/8	Mixing	3000	120	0	45	YES
8	2/8	Collection	0	30	0	45	YES
9	3/9	Mixing	3000	120	0	45	YES
10	3/9	Collection	0	30	0	45	YES
11	4/10	Mixing	3000	120	0	45	YES
12	4/10	Collection	0	30	0	45	YES
13	5/11	Mixing	3000	120	0	45	YES
14	5/11	Collection	0	30	0	45	YES
15	5/11	Vapor	0	300	0	45	YES
16	6/12	Mixing	2700	600	0	45	YES
17	6/12	Collection	0	60	0	45	YES
18	6/12	Collection	0	60	0	45	YES
19	5/11	Mixing	3000	60	0	0	NO

12. Result

- Total DNA yield: 2-5 µg;
- 260/280 ratio of nucleic acid: 1.7-1.9

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 acid extraction concentration is less than 5%.

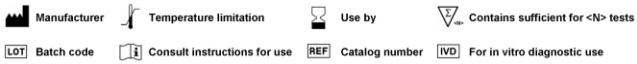
- Reproducibility

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/RNA

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

14. Explanation of Symbols



Lot: As indicated on pack label
Shelf life: As indicated on pack label

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