MB218_IFU_EN_V2401

NZY Soil gDNA Isolation kit

Catalogue number
MB21802

Presentation
50 columns

Description

NZY Soil gDNA Isolation kits are designed for the simple and rapid small-scale preparation of highly pure genomic DNA from a wide variety of soil microorganisms, such as bacteria, archaea, fungi, and algae in soil, sludge, and sediment samples. This kit is suitable for samples from forest, bog, farmland, grassland, and stool samples. The samples are mechanically disrupted using ceramic beads. Proteins and other PCR inhibitors in solution are precipitated with Buffer NSL3 followed by centrifugation with the ceramic beads. Any residual humic substances and other PCR inhibitors are efficiently removed in the washing steps. High yields with excellent purity from all types of samples are possible due to the combination of Buffer NSL1 and Buffer NSL2 with the additive NS enhancer.

NZY Soil gDNA Isolation kit is optimized to isolate 2-10 µg of DNA from up to 500 mg of soil or sediment.

Shipping & Storage Conditions

This product is shipped at room temperature. All kit components can be stored at room temperature (15-25 °C) and are stable till the expiry date if stored as specified.

Components

COMPONENT	MB21802 (50 COLUMNS)
Buffer NSL1	60 mL
Buffer NSL2	60 mL
Buffer NSL3	10 mL
NS Enhancer	10 mL
Buffer NSB	60 mL
Buffer NSW1	30 mL
Buffer NSW2 (concentrate)	25 mL
Buffer NSE	13 mL
NZYSpin Soil Bead Tubes	50
NZYSpin Soil Inhibitor Removal Columns (red rings)	50
NZYSpin Soil Columns (green rings)	50
Collection Tubes (2 mL)	50
Collection tubes (2 mL, lid)	50

Reagents, Materials and Equipment Required but Not Provided

- 96-100% ethanol
- 1,5 mL microcentrifuge tubes and disposable tips
- Centrifuge for 1,5 mL microcentrifuge tubes

Specifications

Expected genomic DNA Yield: This protocol was designed for purification up to 10 µg of pure DNA (from up to 500 mg of soil or sediment) with an A_{260}/A_{280} ratio between 1.7 and 1.9.

Columns type: silica membrane technology

Elution Volume: 30-100 µL

Standard Protocol

Recommendations before starting

- Buffers NSB and NSW1 contain guanidine hydrochloride which can form highly reactive compounds when combined with bleach. DO NOT add bleach or acidic solutions directly to the sample-preparation waste. Wear gloves and goggles when using this kit.

Procedures before starting

Reagents Preparation

- Buffer NSW2: add 100 mL of 96-100% ethanol to Buffer NSW2 bottle.

Procedure

1. Sample preparation

Place 250-500 mg of sample material in a NZYSpin Soil Bead Tube.

Note: *Do not exceed the 1 mL mark.*

Add 700 µL of Buffer NSL1 or Buffer NSL2.

- If the sample material is very dry and soaks too much lysis buffer, fill the tube up to 1.5 mL mark;

- If the sample material is very wet, remove the excess liquid before the addition of lysis buffer.

Note: *Due to the wide variety of samples that can be used, it is impossible to predict which buffer is best. It is wise to test both buffers and analyse which one presents best results.*

2. Sample Lysis

Add 150 µL of NS Enhancer to the tube and close the cap.

Put the NZYSpin Soil Bead tubes horizontally in a vortex (by taping or using an adapter). Vortex at full speed for 5 min at room temperature.

3. Contaminants precipitation

To eliminate the foam caused by the detergent, centrifuge for 2 min at 11,000 × *g*.

After this, add 150 µL of Buffer NSL3 and vortex for 5 s. Proceed by incubating for 5 min at 0-4 ºC. Centrifuge for 1 min at 11,000 × *g.*

4. Lysate Filtration

Load up to 700 µL of the supernatant from the previous step into the filter of a NZYSpin Soil Inhibitor Removal Column (red ring) placed in a Collection tube (2 mL, lid).

Centrifuge at 11,000 × *g* for 1 min and discard the NZYSpin Soil Inhibitor Removal Column.

Note: *If the sample volume exceeds 700 µL, transfer the NZYSpin Soil Inhibitor Removal Column to a new collection tube and load the excess supernatant. After this, combine the flowthroughs*.

5. DNA Binding

To adjust binding conditions, add 250 µL of Buffer NSB and vortex for 5 s.

Load 550 µL of the sample into a NZYSpin Soil Column (green ring) placed in a collection tube.

Centrifuge at 11,000 × *g* for 1 min. Discard the flow-through and put the column in the collection tube.

Load the remaining sample and repeat the process.

6. Silica membrane washing and drying

Add 500 µL Buffer NSB to the NZYSpin Soil Column, centrifuge for 30 s at 11,000 × *g* and discard flow-through.

Add 550 µL of Buffer NSW1 to the column, centrifuge for 30 s at 11,000 × *g* and discard flow-through.

After this, add 700 µL Buffer NSW2 to the column, close the lid and vortex for 2 s, followed by a centrifugation at 11,000 × *g* for 30 s.

Discard flow-through and repeat the previous step for a more efficient wash of the column. To dry the silica membrane, centrifuge for a further 2 min at 11,000 × *g*.

7. DNA Elution

Place the NZYSpin Soil column into a clean microcentrifuge tube and add the elution buffer volume that is most suitable for your downstream application:

- 30 µL Buffer NSE if a high concentration of DNA is required;
- 50 µL Buffer NSE for a recovery with medium concentration and yield;
- 100 µL Buffer NSE for a high yield.

With the lid open, incubate for 1 min at room temperature. Close the lid and centrifuge at 11,000 × *g* for 30 s.

The genomic DNA can be stored at 4 °C or, preferably, at -20 °C.

Quality control assay

All components of NZY Soil gDNA Isolation Kit are tested following the isolation protocol described above. The purification system must isolate 2-10 µg of gDNA/column, depending on the source of the tested samples.