NZY Food gDNA Isolation kit

Catalogue numbers: MB21602, 50 columns

Description

NZY Food gDNA Isolation kits are designed for the simple and rapid small-scale preparation of highly pure genomic DNA from a wide variety of food samples. The method is spin column silica-based and requires no phenol or chloroform extractions. This kit ensures lysis using Lysis Buffer NFL and guarantees a good recovery yield from complex and processed food matrices such as spices or ketchup. To remove cellular debris or contaminants the lysis mixtures should be cleared by centrifugation. The clear flow-through is mixed with Binding buffer NFB for optimal binding of DNA to the silica membrane. Then, the DNA is selectively absorbed into the NZYSpin Food Column and others impurities such as proteins and salts are removed during the washing steps. The eluted genomic DNA has an $A_{260/280}$ ratio between 1.6 and 1.9, which makes it ready to use in applications like sequencing, PCR, multiplex-PCR, genotyping and a wide range of other enzymatic manipulations.

NZY Food gDNA Isolation kit is optimized to isolate up to 10 µg of DNA from up to 200 mg of food samples, depending on the food source used.

Storage conditions and reagents preparation

All kit components can be stored at room temperature (18-25 °C) and are stable till the expiry date. Before use add 48 mL of 100% molecular biology grade ethanol to each bottle of buffer NFW2. Add 0.6 mL (MB21602) of Proteinase Buffer to the Proteinase K vial. Store the Proteinase K solution at -20 °C for up to 6 months. Buffers NFB and NFW1 contain guanidine hydrochloride and/or detergents. Wear gloves and goggles when using this kit. Buffers NFB and NFW1 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.

System Components

Component	50 columns
Buffer NFB	30 mL
Buffer NFL	100 mL
Buffer NFW1	30 mL
Buffer NFW2 (concentrate)	12 mL
Buffer NFE	13 mL
Proteinase Buffer	1.8 mL
Proteinase K	6 mg
NZYSpin Food columns	50
Collection tubes (2 mL)	50

Standard protocol for isolating genomic DNA

1. Sample homogenization

Homogenize up to 200 mg of biological material using a commercial homogenizer, for example bead mills. Alternatively, froze the sample in the presence of liquid nitrogen and grind it to a dust using a pestle and mortar.

2. Cell lysis (Buffer NFL)

Transfer the resulting powder to a new tube and add 550 µL Buffer NFL. Mix carefully for 15s, add 10 µL Proteinase K and mix for 2s

Note: *If the samples are large add more volume of lysis buffer and Proteinase K, enough to dissolve and completely ressuspend the sample.*

Incubate for 30 min at 65 ºC. Centrifuge the mixture for 10 min at 10,000 g in order to precipitate contaminants and cell debris.

3. DNA Binding

Transfer the supernatant from the previous step into a microcentrifuge tube. Add 1 volume of NFB Buffer and 1 volume of Ethanol to the supernatant and vortex for 30s.

Pipette 700 µL of each preparation into one NZYSpin Food Column. Centrifuge the column for 1 min at 11,000 g. Discard the flow-through. Load the remaining mixture into the column and repeat the procedure.

4. Wash silica membrane

Add 400 µL of Buffer NFW1 to the NZYSpin Food column. Centrifuge for 1 min at > 11,000 x*g*. Discard the flow-through and place the column back into the collection tube.

Add 700 µL of Buffer NFW2 (make sure ethanol was previously added) to the NZYSpin Food column and centrifuge for 1 min at > 11,000 x*g*. Discard the flow-through.

Add another 200 µL of Buffer NFW2 to the NZYSpin Food column and centrifuge for 2 min at > 11,000 x*g* in order to completely remove remaining wash buffer and dry the silica membrane completely.

5. Elute DNA

Place the NZYSpin Food column into a clean microcentrifuge tube and add 100 µL of Buffer NFE directly in the membrane column (preheating of elution buffer to 70 °C may improve yield). Incubate 5 min at room temperature and centrifuge at > 11,000 x*g* for 1 min to elute DNA.

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

Quality control assay

Functional assay

All components of NZY Food gDNA Isolation kit are tested following the isolation protocol described above. The purification system must isolate 1-10 µg of gDNA/column, depending on the source of the tested samples.

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Certificate of Analysis

Test	Result
Functional assay	Pass

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