ENVIRONMENTAL MICROBIOLOGY

Discover the World of Metagenomics

MPBRO-EM202410-02

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OPTIMIZE YOUR ENVIRONMENTAL RESEARCH *WORKFLOW* WITH MP BIOMEDICALS

SAMPLE PREPARATION SOLUTION

FastPrep®
Sample Preparation

FastPrep® Instruments

FastPrep-24™ Classic

Catalogue Number: 116004500

Time-tested sample prep system

Effective

Unique optimized figure-8 motion ensuring a thorough grinding of the most resistant samples.

Proven

Backed by 8,500 publications.

Flexible

Easily interchangeable adapters to process any sample size (2 mL, 4.5 mL, 5 mL,15 mL or 50 mL tubes) at cryogenic or room temperature.

FastPrep-24™ 5G

Catalogue Number: 116005500

The most advanced sample prep system available

Powerful

Highest speed available (10 m/s) offering the best performance for the lysis of the most resistant samples.

Intuitive

Interactive user-friendly interface and touchscreen with more than 70 pre-programmed protocols.

Flexible

Easily interchangeable adapters to process any sample size (2 mL, 4.5 mL, 5mL, 15 mL or 50 mL tubes) at cryogenic or room temperature.

Typical settings for grinding various environmental samples with the FastPrep-24™ 5G instrument

Below is a table illustrating the typical speed and time settings for grinding 50 mg of various environmental samples with the **FastPrep-24™ 5G** instrument and Lysing Matrix E tubes.

Sample Type	FastPrep® Speed (m/s)	FastPrep® Time
Soil / Rock	5.5	2 x 30 sec
Sandy Sample	4.0	4 x 30 sec
Litter	5.5	30 sec
Brunisol Dark Gray Luvisol	5.5	40 sec
Soil from Grassland	5.5	2 x 30 sec
Rhizosphere	6.0	40 sec
Marine Sediment	5.5	2 x 40 sec
Asphalt-Permeated Soil	6.0	40 sec

FastPrep-96™ Pro

Catalogue Number: 116014500

Real Time Monitoring: LED indicators display run status

Easy Operation

Touchscreen inteface simplifies setup.

Efficient Motion

True linear motion ensures consistent results.

Flexible

Various adapters available for any sample size, from 2 to 250 mL and 96-well plates.

FastPrep-96™

Catalogue Number: 116010500

High throughput sample grinding

High throughput

Process up to 192 samples simultaneously in 2 x 96 deep well plates.

Exceptional versatility

Easily interchangeable adapters available for 2 x 96 deep well plates, 96 x 2 mL tubes, 48 x 4.5 mL tubes, 20 x 15 mL tubes, 8 x 50 mL tubes and 2 x 250 mL bottles.

True linear motion

Eliminates the need to reorient plates mid-cycle.

Super FastPrep-2™

Catalogue Number: 116012500

Portable field testing

Thorough grinding

Omnidirectional motion and unique, patent-pending balanced crankshaft-slider mechanism for aggressive bead beating lysis and amazing performance.

Time saving

Complete sample lysis of even the most difficult samples in 5 to 15 seconds, and processing designed for two 2 mL Lysing Matrix tubes.

Portable

Handheld system for lab and field use, with cordless battery power supply.

FastPrep® Adapters

FastPrep-24™ 5G/Classic General Adapters

Description	Size	Catalogue No.
QuickPrep (Classic)	24 x 2 mL	116002512
QuickPrep (5G)	24 x 2 mL	116005512
HiPrep	48 x 2 mL	116002527
TallPrep	24 x 4.5 mL	116002540
TeenPrep	12 x 15 mL	116002526
BigPrep	2 x 50 mL	116002525

FastPrep-24™ 5G/Classic Metal Adapters

Description	Size	Catalogue No.
Metal QuickPrep	24 x 2 mL	116002545
Metal TeenPrep	12 x 15 mL	116002546
Metal BigPrep	2 x 50 mL	116002547
Metal MidiPrep	18 x 5 mL	116002544

FastPrep-24™ 5G/Classic Cryogenic Adapters

Description	Size	Catalogue No.
CoolPrep	24 x 2 mL	116002528
CoolTeenPrep	6 x 15 mL	116002530
CoolBigPrep	2 x 50 mL	116002531

FastPrep-96™

Description	Size	Catalogue No.
Dual Plates	2 x 96	119696168
QuickFlex	96 x 2 mL	116010570
TallFlex	48 x 4.5 mL	116010580
TeenFlex	20 x 15 mL	116010560
BigFlex	8 x 50 mL	116010550
LargeFlex	2 x 250 mL	116010590
ConeFlex	up to 40g	116010595
Metal Dual Plate Holder (also applicable for FastPrep-96™ Pro)	2 x 96	119696169
Metal QuickFlex™ (also applicable for FastPrep-96™ Pro)	2 x 96	116010575

FastPrep® Comparison Table

	FastPrep-24™ Classic	FastPrep-24™ 5G
Description	Bench-Top Bead Beating Lysis System	Advanced Bench-Top Bead Beating Lysis System
Sample Capacity	Up to 48	Up to 48
Adapters	Interchangeable	Interchangeable
Tube Compatibility	2ml, 4.5ml, 5ml, 15ml, 50ml	2ml, 4.5ml, 5ml, 15ml, 50ml
Cryogenic Lysis	Yes	Yes
Interface	LCD/membrane keyboard	Touch Screen
Pre-Defined Protocols	No	72
User Defined Protocols	5	12
Min Speed	4.0 m/s	4.0 m/s
Max Speed	6.5 m/s	10.0 m/s
Acceleration	<2 sec to max	<2 sec to max
Deceleration	< 2 sec to stop	< 2 sec to stop
Motion	Figure 8 Tridimensional	Figure 8 Tridimensional
Typical Lysis Time (s)	40	20
Dimensions	465 mm (H) x 437 mm (W) x 332 mm (L)	490 mm (H) x 472 mm (W) x 385 mm (L)
Weight	17.5 kg (45 lb)	23.6 kg (52 lb)
Loudness	70 dB	<70 dB
Power requirements	90-250 V AC, 50/60 Hz, 500W	120 VAC/60 Hz, 500W; 230 VAC/50 Hz, 500 W
110/230V switch	Automatic	Automatic

FastPrep-96™ Pro	FastPrep-96™	Super FastPrep-2™
High Throughput, Performance, Compact Bead-Beating Lysis System	High Throughput, High-Performance Bead Beating Lysis System	High-Performance, Handheld Field Lysis system
Up to 192	Up to 96	2
Interchangeable	Interchangeable	No
2 mL, 4.5 mL, 15 mL, 50 mL, 250 mL, 96-well plate	2ml, 4.5ml, 15ml, 50ml, 96 plate, 250 ml	2ml
Yes	Yes	No
Touch Screen / industrial buttons	VFD/ industrial buttons	manual-button
No	No	No
1	1	No
800 RPM	800 RPM	500 CPM
1800 RPM	1800 RPM	4,400 CPM
< 10 seconds to max	<2 sec to max	Ø 500 G
<2 sec to stop	< 2 sec to stop	NA
Vertical	Vertical Linear	Reciprocating
40	40	5
540 mm (H) x 400 mm (W) x 660 mm (L)	700mm (H) x 440mm (W) x 660mm (L)	13"L x 3.4"W x 4.6"H
31.5 kg (69 lbs)	49 kg (108 lb)	2.2 kg
< 80 dB	<65 dB	<100 dB
110V AC / 60Hz, 11A; 220 V AC / 50Hz, 15A	110VAC/60 Hz, 5.2A; 220 VAC/50 Hz, 2.6A	90-240 V for battery charger, cordless operation
Automatic	Automatic	Battery loader spec

FastPrep® Lysing Matrix

Tailored to environmental samples

The use of MP Bio's Lysing Matrix E and Y in combination with FastPrep® instruments ensures complete and quantitative lysis, resulting in higher yields of DNA. Lysing Matrix E and Y tubes are designed to lyse all microorganisms present in environmental samples, including difficult sources such as eubacterial spores and endospores, gram positive bacteria and yeast, and plant and animal tissues.

Our complete portfolio of Lysing Matrix tubes can be found on our website at **www.mpbio.com**.

Sample Type	Lysing Matrix															
Microorganisms	A	B	C	D	E	F	G	H	I	J	K	M	S	SS	Y	YB	Z
Bacteria (gram + and -)	•	•				•				•							
Yeast, Mold	•		•			•	•				•				•		
Bacterial & Fungal spore	•	•				•	•		•	•	•			•			
Algae	•		•				•								•		
Virus	•	•															
Environmental Samples	A	B	C	D	E	F	G	H	I	J	K	M	S	SS	Y	YB	Z
Soil, Marine sediment, Rhizosphere, Manure, Compost, Sludge, Feces, Wastewater					•		•	•	•							•	
Plant Tissues	A	B	C	D	E	F	G	H	I	J	K	M	S	SS	Y	YB	Z
Leaf	•			•		•	•										•
Seed	•					•	•	•	•			•	•	•			
Root	•					•	•						•				
Needle	•					•	•					•	•				
Wood	•					•	•	•	•								
Stem, Flower	•			•		•	•										•

Lysing Matrix E Tubes

1.4 mm ceramic beads, 0.1 mm silica beads and 4 mm glass beads

Description	Catalogue No.
50 x 2 mL	116914050
100 x 2 mL	116914100
500 x 2 mL	116914500
25 x 4.5 mL	116974025
25 x 15 mL	116934025
10 x 50 mL	116954010
1x 96 well plate	116984001
1x 96 barcoded well plate	116984001B

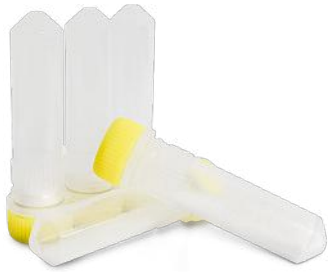
Lysing Matrix Y Tubes

0.5 mm Yttria-stabilized Zirconium Oxide Spheres

Description	Catalogue No.
50 x 2 mL	116960050
100 x 2 mL	116960100
500 x 2 mL	116960500
25 x 4.5 mL	116977025
25 x 15 mL	116975025
10 x 50 mL	116976010
1 x 96 well plate	116960001

Lysing Matrix YB Tubes

0.5 mm diameter Yttria-stabilized zirconium oxide beads,
0.1 mm silica spheres



Description	Catalogue No.
50 x 2 mL	116547050
100 x 2 mL	116547100
500 x 2 mL	116547500

Preservation Solutions

Soil Preservation Solution (Lytic)

Long Preservation Period

Stabilizes soil nucleic acids for up to 1 month

Provides immediate nucleases inactivation which helps prevent rapid nucleic acid degradation.

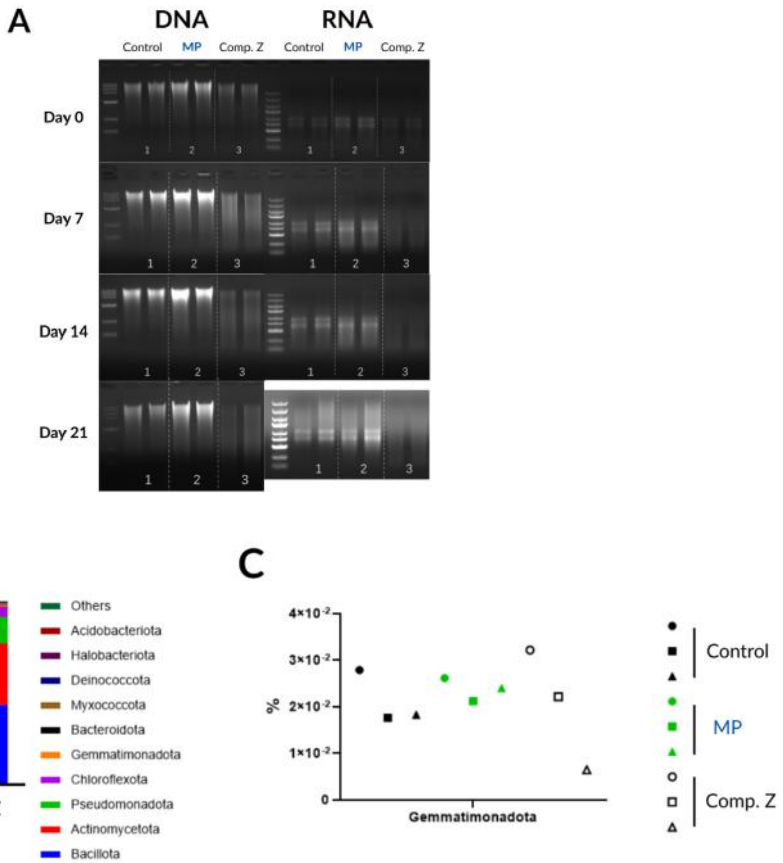
Easy-to-use protocol

Add and preserve with ready-to-use buffer

Compatibility

Works well with any commercial extraction kits for downstream applications

Performance



Soil Preservation Solution (Lytic) protects nucleic acids and preserves microbiome profiles during ambient storage.

Compost soil samples stored at room temperature for up to 21 days showed better RNA integrity and more stable microbiome composition with MP Soil Preservation Solution (Lytic) than with Competitor Z.

Order Information

Product Name	Size	Catalogue No.
Soil Preservation Solution (Lytic)	100 ml	116567100
	500 ml	116567500

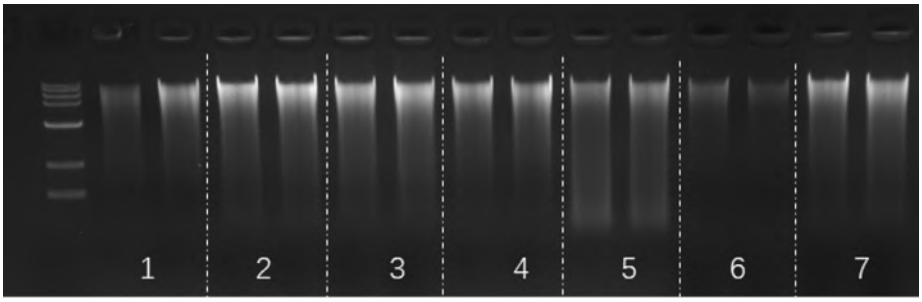
Soil Preservation Solution (Non-Lytic)

Long Preservation Period
Stabilizes soil nucleic acids for up to 1 month

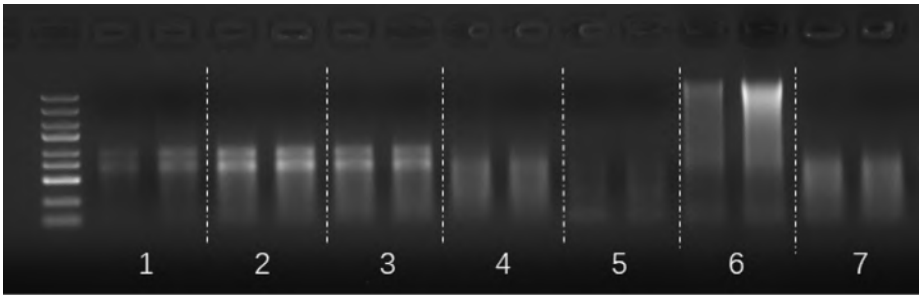
Preserves Intact Cells
Stabilize DNA and RNA without disrupting cellular integrity

Safety
No hazardous ingredient at the applicable concentrations

DNA



RNA



Lane 1: *Control (no buffer)*
Lane 2: *Soil Preservation Solution (Non-Lytic)*
Lane 3-7: *Competitors (M, N, Z, T, Q)*

Compost soil (200 mg) was treated with preservation buffers and stored at 25°C for 28 days. DNA and RNA were extracted using the SPINeasy DNA/RNA Kit for Soil (Cat. No. 116554050). Compared with the no-buffer control and competitor products, Soil Preservation Solution (Non-Lytic) supported strong nucleic acid stability during ambient storage.

Order Information

Product Name	Size	Catalogue No.
Soil Preservation Solution (Non-Lytic)	100 ml	116568100
	500 ml	116568500

Fecal Preservation Solution

Long sample stability
Supports sample stability for at least 60 days

DNA Preservation
Enabling room-temperature storage and shipping

Pathogen inactivation
Suppresses Gram-negative and Gram-positive bacteria, fungi, and inactivates viral particles

Designed for the preservation of genomic DNA in fecal samples, this solution suppresses the growth of Gram-positive and Gram-negative bacteria and fungi, while inactivating viral particles to ensure samples are safe for handling and transport. No immediate processing or freezing is required. Preserved samples remain stable for a minimum of 60 days at ambient temperature, and indefinitely when frozen.

Order Information

Product Name	Size	Catalogue No.
Fecal Preservation Solution	3 ml	115061003
	50 x 3 ml	115061003C
	50 ml	115061050

MagBeads Extraction Kit

MagBeads FastDNA Kit for Soil

High quality DNA

High concentrations of pure DNA that is free from inhibitors

Simple protocol

Easy to use, high throughput, and designed for both manual and automated magnetic processors including MPure-32™, MPure-96™ and MagFlex-96

Wide applicability

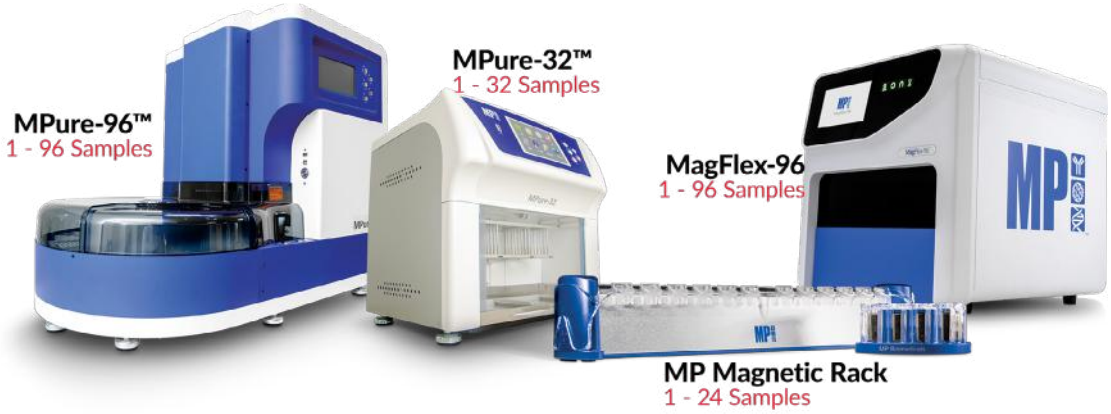
Wide range of applications, suitable for all types of soil samples

Environmentally friendly

No phenol/ chloroform or other toxic chemicals

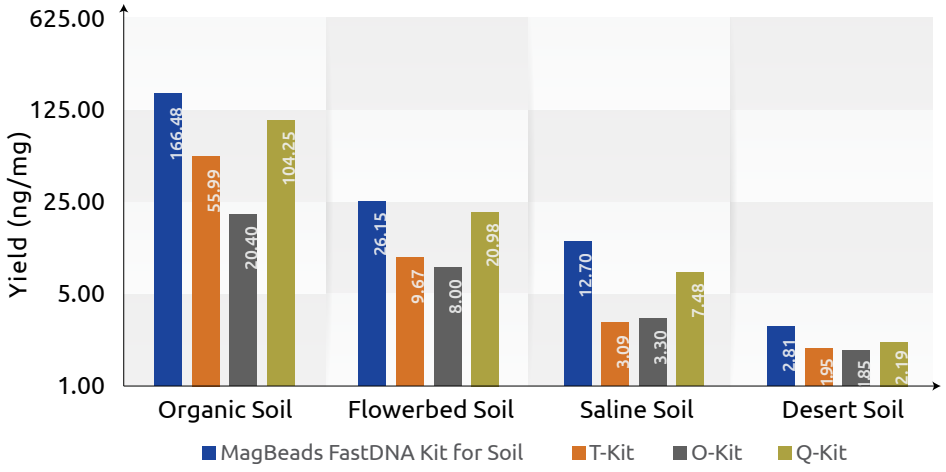
Automation Instruments

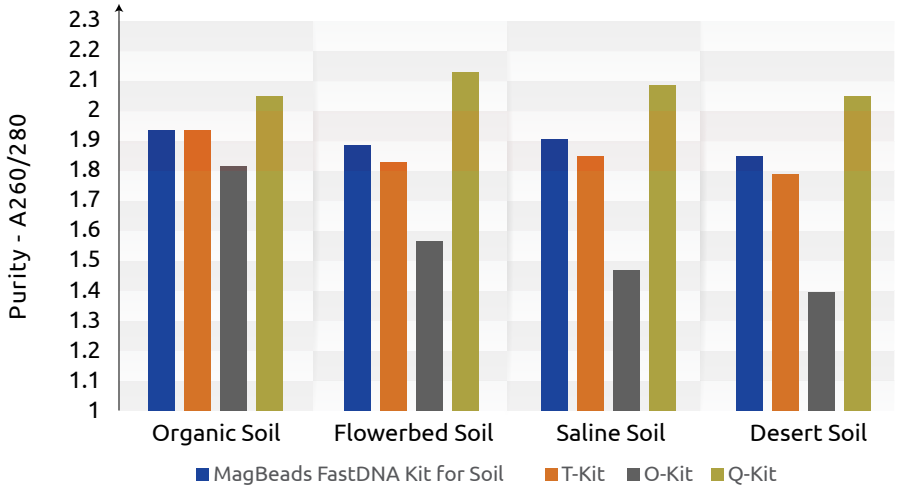
Automated Magnetic Processor



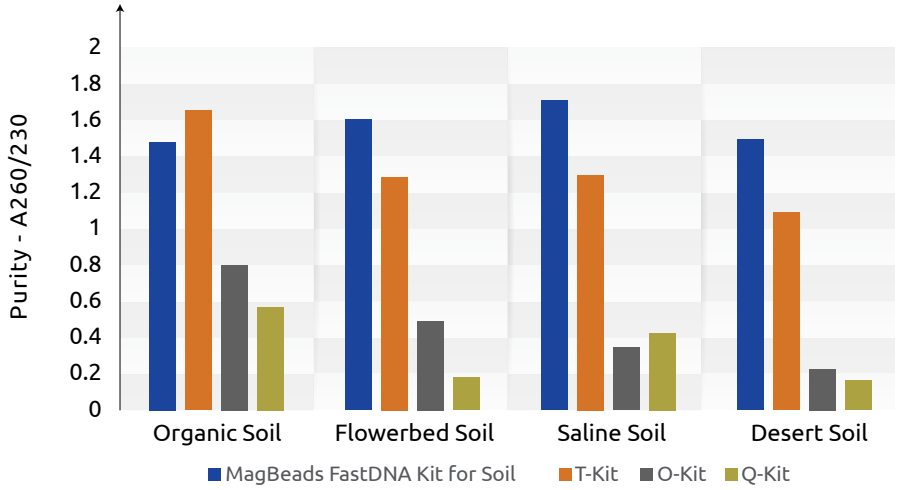
Product Comparison

MagBeads FastDNA Kit for Soil has the highest yield across different types of samples.



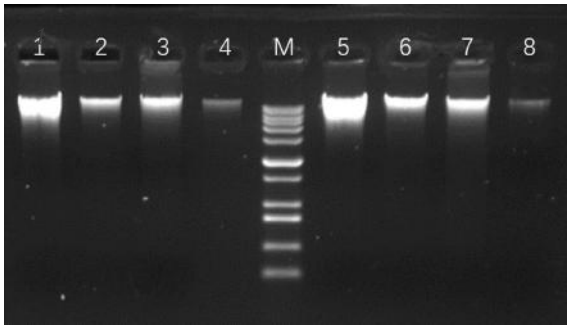


MagBeads FastDNA Kit for Soil has a consistent A260/280 reading in the desired range of 1.8 – 2.0. **Q Kit** has a A260/280 ratio that is higher than 2.0, indicating the presence of RNA contamination. **O Kit** has an inconsistency in results and A260/280 ratios falls below 1.8, indicating protein and/or other contaminations.



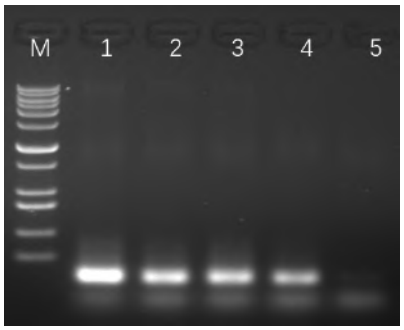
MagBeads FastDNA Kit for Soil has a consistent high level of purity based on A260/230 ratios. **Q and O Kit's** A260/230 ratios are inconsistent and lower than 1. Extracted DNA may contain organic compounds or humic acids.

Product Performance



Lane M: 1kb plus DNA ladder
Lane 1 and 5: Organic Soil
Lane 2 and 6: Flowerbed Soil
Lane 3 and 7: Saline Soil
Lane 4 and 8: Desert Soil

Genomic DNA was extracted from different soil samples using MagBeads FastDNA Kit for Soil. Agarose gel electrophoresis image showed a comparable profile between manual and automation extraction methods.



Lane M: 1kb plus DNA ladder
Lane 1: Organic Soil
Lane 2: Flowerbed Soil
Lane 3: Saline Soil
Lane 4: Desert Soil
Lane 5: Negative Control

PCR amplification products were successfully obtained from the DNA extracted from various types of soil samples using MagBeads FastDNA Kit for Soil; this demonstrates that all extracted DNA samples were free of PCR inhibitor.

Order Information

Product Name	Size	Catalogue No.
MP Magnetic Rack 8	1 each	116570426
MP Magnetic Rack 24	1 each	116570413
MagBeads FastDNA Kit for Soil	50 preps	116561050
MagBeads FastDNA Kit for Soil (Ready-to-Use for MPure-32)	96 preps	117033100
MagBeads FastDNA Kit for Soil (Ready-to-Use for MPure-96)	96 preps	117034100
MagBeads FastDNA Kit for Soil (Ready-to-Use for MagFlex-96)	96 preps	119607096

MagBeads FastRNA Kit for Soil

Optimized for soil samples

Standardized for 500 mg soil samples, ideal for low-biomass environments

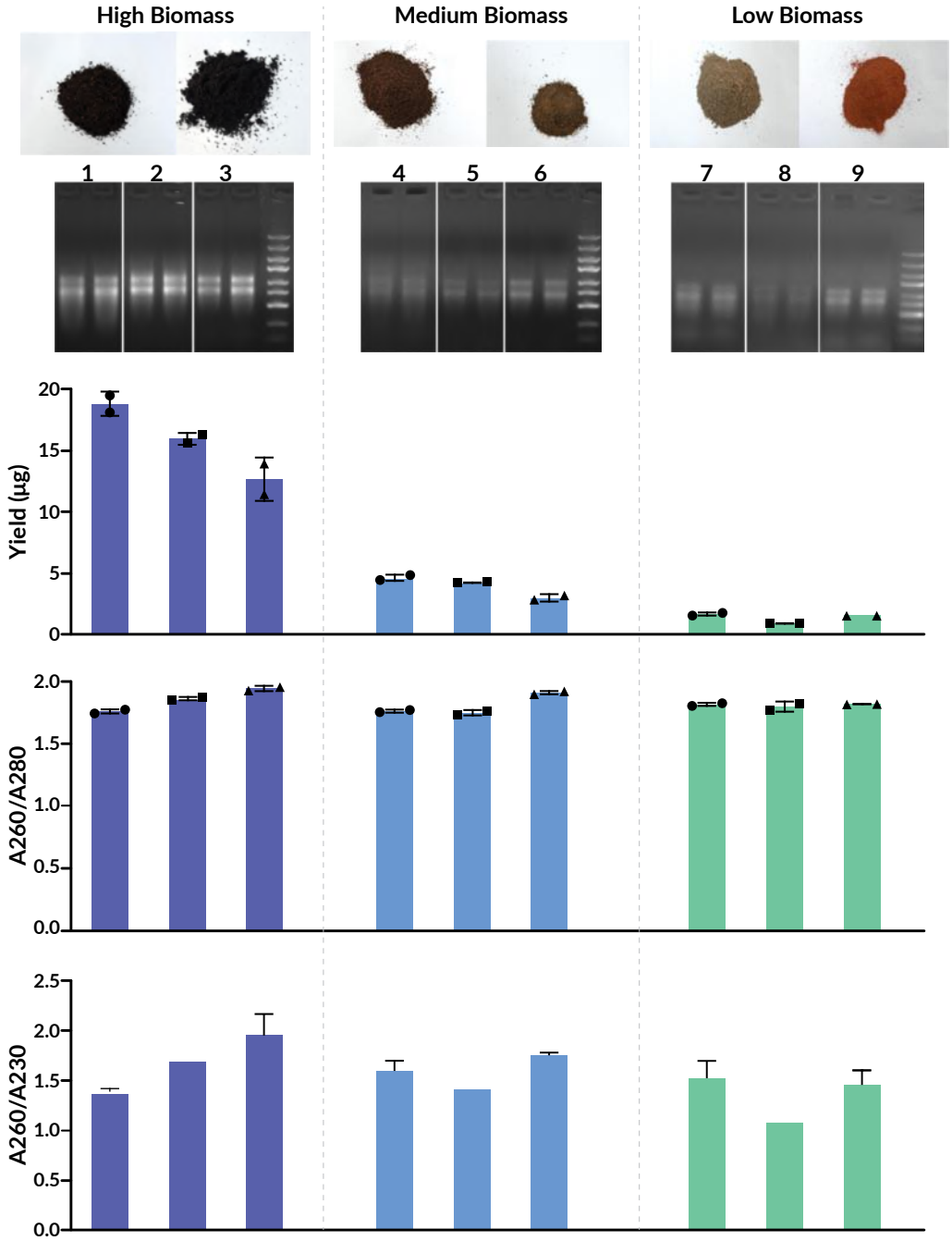
High-purity RNA

Delivers high-purity RNA yields of up to 20 µg per preparation

Fast protocol

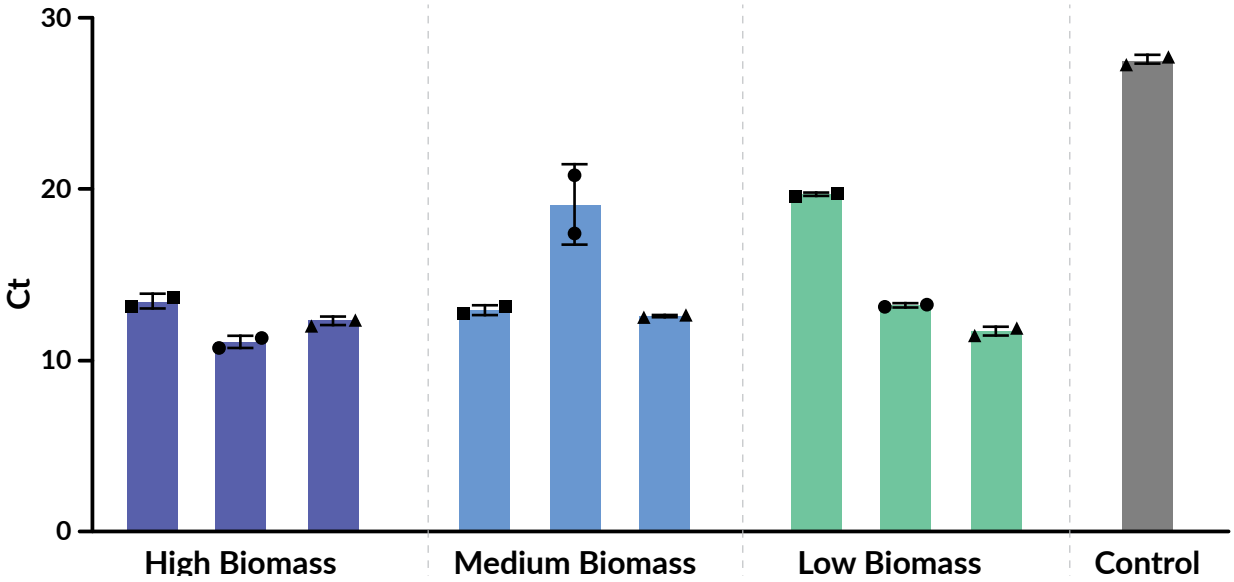
Complete extraction process from raw soil to purified RNA in 60 minutes

Product Comparison



The MagBeads FastRNA Kit for Soil delivers consistent RNA extraction performance across high-, medium-, and low-biomass soil samples. Representative gel results show clear RNA recovery with minimal genomic DNA contamination, while yield and purity measurements confirm strong performance across varying sample conditions.

Inhibitor-Free RNA Ready for RT-qPCR



RNA isolated using the MagBeads FastRNA Kit for Soil demonstrates strong amplifiability across diverse soil sample types. Consistent Ct values and clear amplification curves indicate effective removal of soil-derived inhibitors and reliable compatibility with sensitive downstream workflows.

Order Information

Product Name	Size	Catalogue No.
MagBeads FastRNA Kit for Soil	50 preps	116667050
MagBeads FastRNA Kit for Soil (Ready-to-Use for MPure-32)	96 preps	117040900
MagBeads FastRNA Kit for Soil (Ready-to-Use for MPure-96)	96 preps	117041100
MagBeads FastRNA Kit for Soil (Ready-to-Use for MagFlex-96)	96 preps	119619096

MagBeads FastDNA Kit for Feces

High quality DNA

High yield of pure DNA that is free from inhibitors

Simple protocol

Easy to use, high throughput and compatible with many automated instruments especially on MPure-32™, MPure-96™ and MagFlex-96

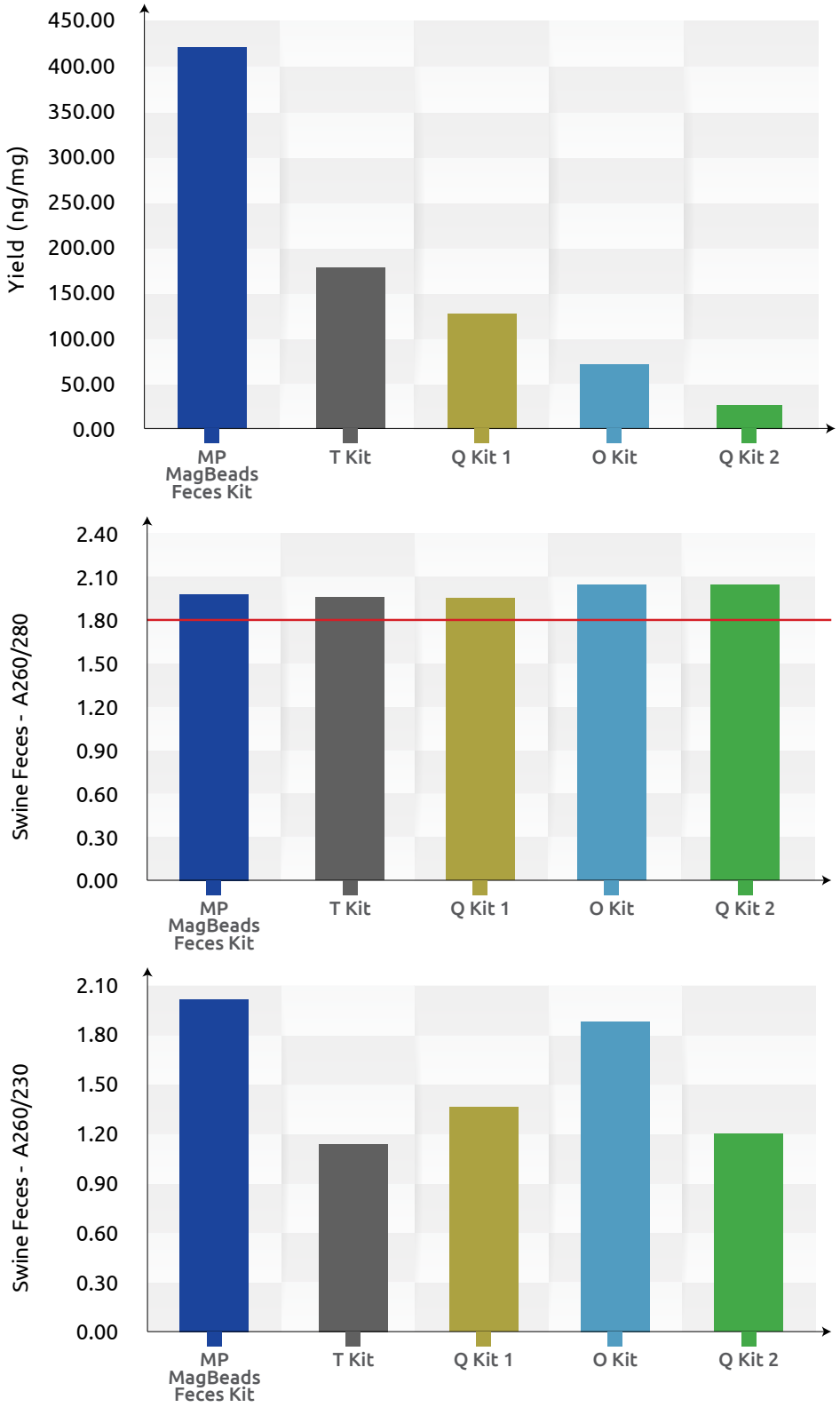
Wide applicability

Wide range of applications, suitable for all types of feces, intestinal content

Environmentally friendly

No phenol/ chloroform or other toxic chemicals

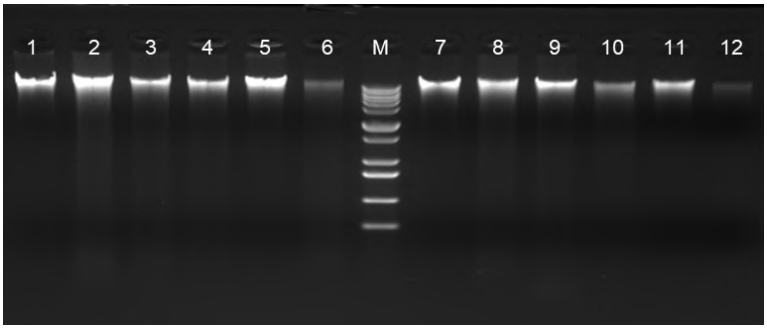
Product Comparison



Figures demonstrating DNA yields and absorbance ratios result extracted from feces sample using MagBeads FastDNA kit for Feces and other competitor kits following manufacturer's recommended protocols.

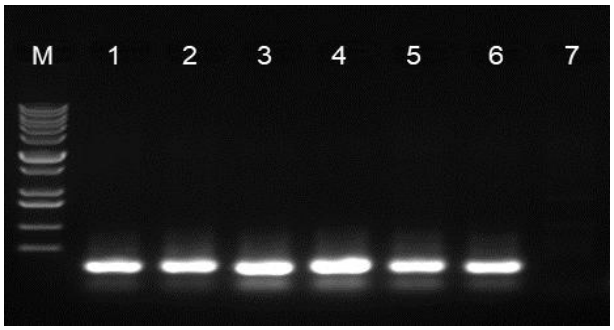
*Other tested sample: Chicken, bovine, human, dog, mouse, elephant, goat (not shown)

Performance



M: 1 kb plus DNA ladder
Lane 1 and 7: 30 mg swine feces
Lane 2 and 8: 15 mg mouse feces
Lane 3 and 9: 30 mg human feces
Lane 4 and 10: 150 mg chicken feces
Lane 5 and 11: 150 mg bovine feces
Lane 6 and 12: 150 mg elephant feces

Genomic DNA was extracted from different feces samples using MagBeads FastDNA Kit for Feces. Agarose gel electrophoresis image showed a comparable profile between manual and automation extraction methods.



M: 1kb plus DNA ladder
Lane 1: swine feces
Lane 2: mouse feces
Lane 3: human feces
Lane 4: chicken feces
Lane 5: bovine feces
Lane 6: elephant feces
Lane 7: negative control

PCR amplification products were successfully obtained from the DNA extracted from various types of feces samples using MagBeads FastDNA Kit for Feces; this result demonstrated that all extracted DNA samples were free of PCR inhibitor.

Order Information

Product Name	Size	Catalogue No.
MP Magnetic Rack 8	1 each	116570426
MP Magnetic Rack 24	1 each	116570413
MagBeads FastDNA Kit for Feces	50 preps	116570400
MagBeads FastDNA Kit for Feces (Ready-to-Use for MPure-32)	96 preps	117033200
MagBeads FastDNA Kit for Feces (Ready-to-Use for MPure-96)	96 preps	117034200
MagBeads FastDNA Kit for Feces (Ready-to-Use for MagFlex-96)	96 preps	119608096

MagBeads FastDNA MaxPure Kit for Feces

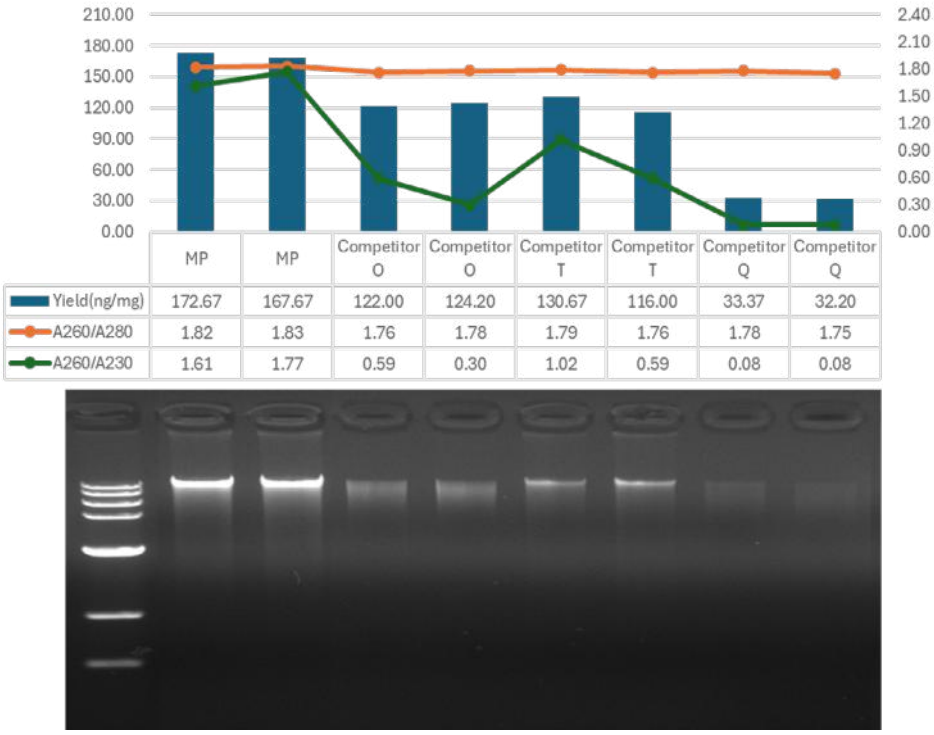
Advance Inhibitor removal capability

A specially formulated reagent system effectively eliminates common PCR inhibitors found in feces, including polysaccharides, heme, bile acids, humic acids, and phenolics.

High DNA Yield

Delivers yields of up to approximately 170 ng/mg from mouse feces, with strong purity ratios (A260/A280 ~1.8), ensuring DNA quality suitable for demanding downstream applications.

Performance



	MP	MP	Competitor O	Competitor O	Competitor T	Competitor T	Competitor Q	Competitor Q
Yield(ng/mg)	172.67	167.67	122.00	124.20	130.67	116.00	33.37	32.20
A260/A280	1.82	1.83	1.76	1.78	1.79	1.76	1.78	1.75
A260/A230	1.61	1.77	0.59	0.30	1.02	0.59	0.08	0.08

Figure 1: gDNA extracted from mouse feces* using MagBeads FastDNA MaxPure Kit for Feces and competitor kits.

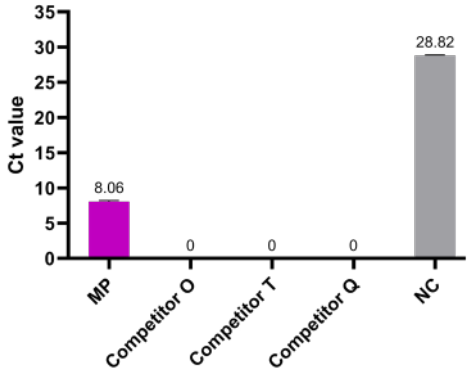


Figure 2: qPCR of 100 ng gDNA extracted from mouse feces* using MagBeads FastDNA MaxPure Kit for Feces and competitor kits.

Order Information

Product Name	Size	Catalogue No.
MagBeads FastDNA MaxPure Kit for Feces	50 Preps	116598050
	384 Preps	116598384
MagBeads FastDNA MaxPure Kit for Feces (Ready-to-Use for MPure-32)	96 Preps	117040700
MagBeads FastDNA MaxPure Kit for Feces (Ready-to-Use for MPure-96)	96 Preps	117040800
MagBeads FastDNA MaxPure Kit for Feces (Ready-to-Use for MagFlex-96)	96 Preps	119618096

MagBeads FastRNA Kit for Feces

Advanced magnetic bead-based technology with proprietary inhibitor removal

for scalable, automatable RNA purification, eliminating fibers, undigested particles, bilirubin, polysaccharides, and lipids from diverse fecal samples

State-of-the-art bead-beating and lysis chemistry with selective RNA binding

ensuring efficient homogenization and complete DNA removal via FastDNase I treatment for high-purity RNA compatible with RT-qPCR

Fast and streamlined protocol

extracting up to 250 µg of total RNA from 200 mg of fecal samples with minimal handling steps

Versatile ready-to-use formats

available for MPure-32™ (Cat. No. 117040300) and MPure-96™ (Cat. No. 117040400) aNAP Systems

The **MagBeads FastRNA Kit for Feces** is a scalable, automatable magnetic bead-based technology for efficient RNA isolation from fecal samples, with ready-to-use versions (Cat. No. 117040300 & 117040400). It addresses challenges posed by dietary components like fibers, undigested particles, and lipids— which hinder RNA extraction— using advanced bead-beating technology, compatible lysis chemistry, and proprietary inhibitor removal. The kit features selective RNA binding and FastDNase I treatment to fully eliminate DNA, ensuring high RNA yield and purity. This streamlined process is compatible with RT-qPCR without additional purification steps.

Performance

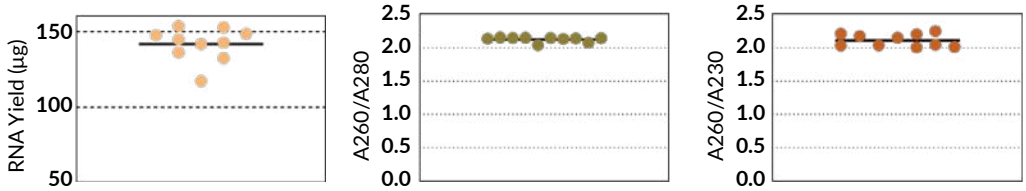


Figure 1. RNA Yield and Purity from Fecal Samples Extracted with MagBeads FastRNA Kit for Feces. RNA yield and purity (A260/A280 and A260/A230 ratios) obtained from three human fecal sources. Each dot represents an individual sample processed with the MagBeads FastRNA Kit for Feces.

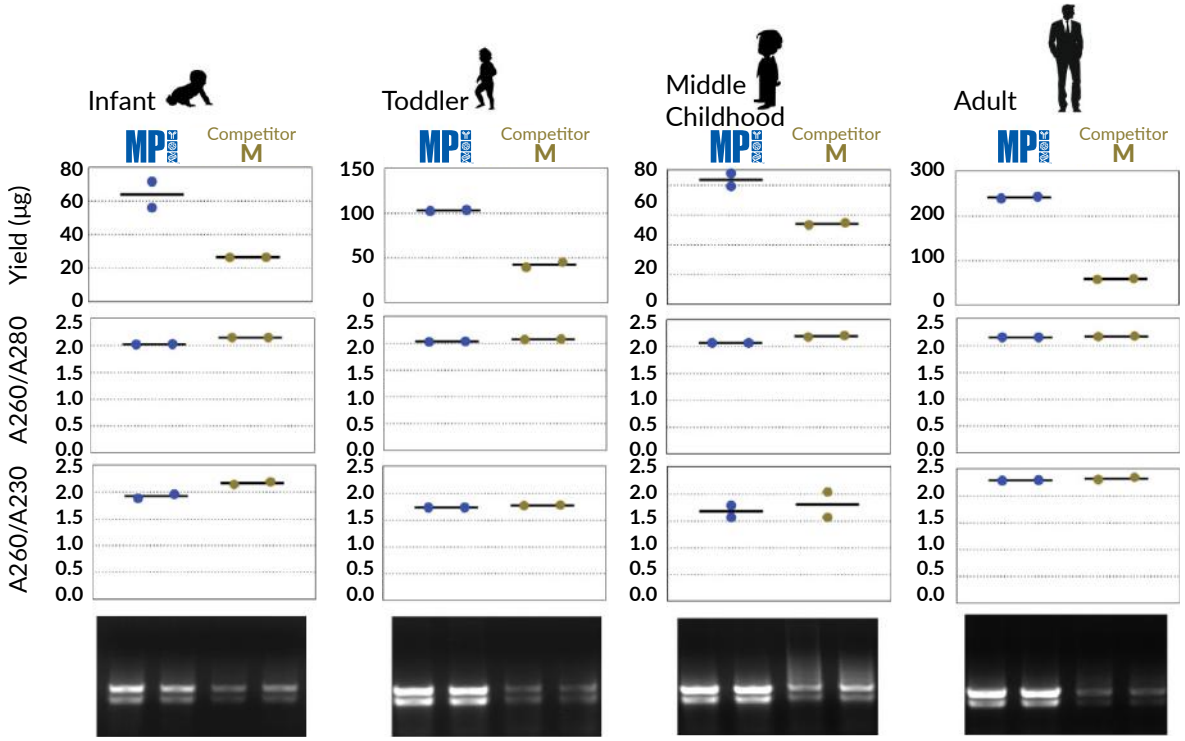


Figure 2. Performance evaluation of RNA extracted from human fecal samples using the MagBeads FastRNA Kit for Feces (MP) compared to Competitor M. RNA was independently extracted from human fecal samples (two extractions per sample, each dot on the plot represents one extraction). The RNA yield, purity (A260/A230 ratio) and integrity were assessed using spectrophotometry and agarose gel electrophoresis.

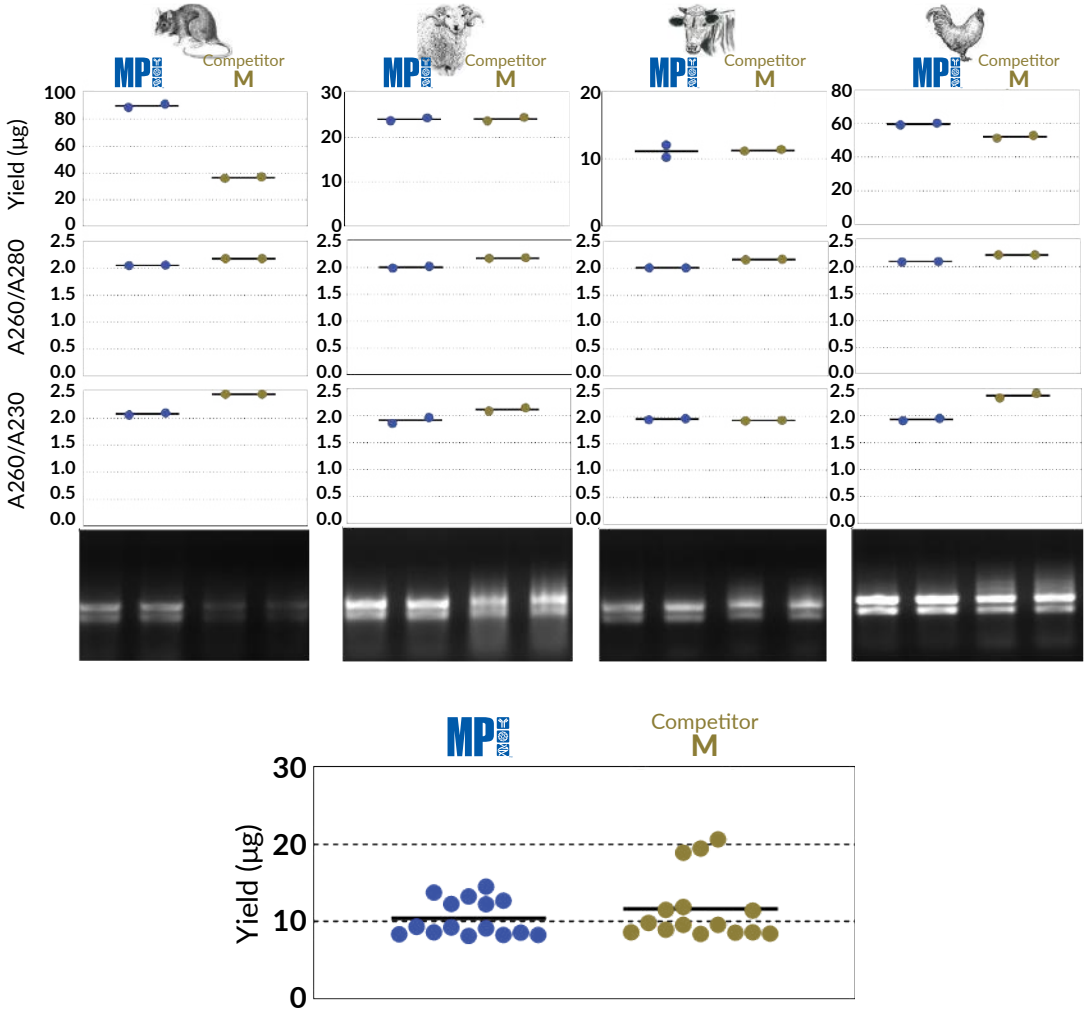


Figure 3: Performance evaluation of RNA extracted from animal fecal samples using the MagBeads FastRNA Kit for Feces (MP) compared to Competitor M. RNA was independently extracted from animal fecal samples (two extractions per sample, each dot on the plot represents one extraction). The RNA yield, purity (A260/A230 ratio) and integrity were assessed using spectrophotometry and agarose gel electrophoresis. In addition, the extracted RNA was also assessed for its amplifiability using qPCR and the Ct values given by MP are earlier than Competitor M. The horizontal bars indicate the median value.

Order Information

Product Name	Size	Catalogue No.
MagBeads FastRNA Kit for Feces	50 Preps	116588050
MagBeads FastRNA Kit for Feces (Ready-to-Use for MPure-32)	96 Preps	117040300
MagBeads FastRNA Kit for Feces (Ready-to-Use for MPure-96)	96 Preps	117040400

MagBeads DSS-Removal FastRNA Kit For Feces

Specialized DSS-Removal Technology

Specifically designed for RNA isolation from DSS-contaminated fecal samples, effectively removing residual DSS

Integrated DNase I Treatment

Efficiently removes genomic DNA contamination during the extraction workflow, improving RNA purity and enhancing downstream assay performance.

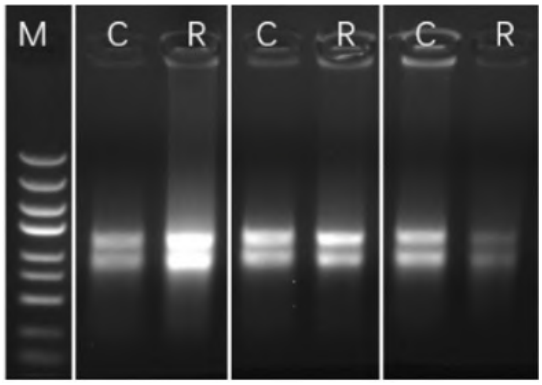
MagBeads-Based Purification Technology

Effectively processes diverse fecal samples while reducing hands-on time and workflow complexity.

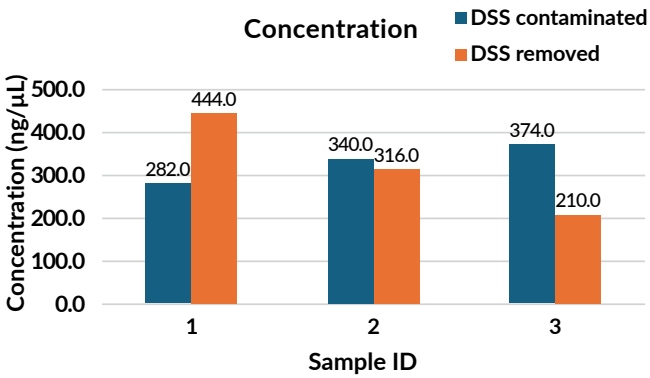
High-Quality RNA for Downstream Applications

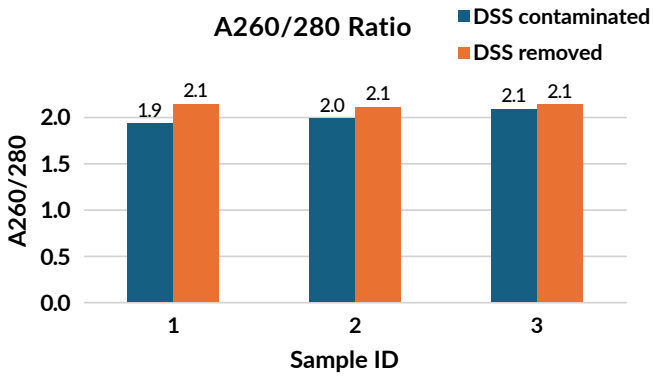
Produces RNA that can be directly applied to various downstream experiments, including RT-qPCR amplification and other molecular detection applications.

Performance



C: DSS contaminated; R: DSS removed





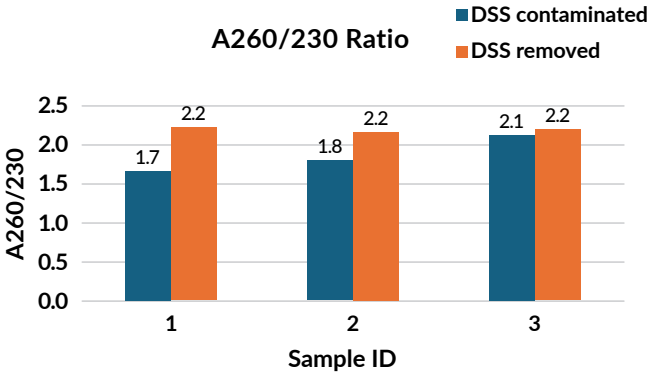


Figure 1: RNA yield and purity (A260/A280 and A260/A230 ratios) obtained from mouse feces (sample 1&2) and mouse intestinal contents (sample 3) using the MagBeads DSS-Removal FastRNA Kit for Feces. The impact of DSS removal on RNA yield and purity may vary depending on the sample type, but remains consistently positive.

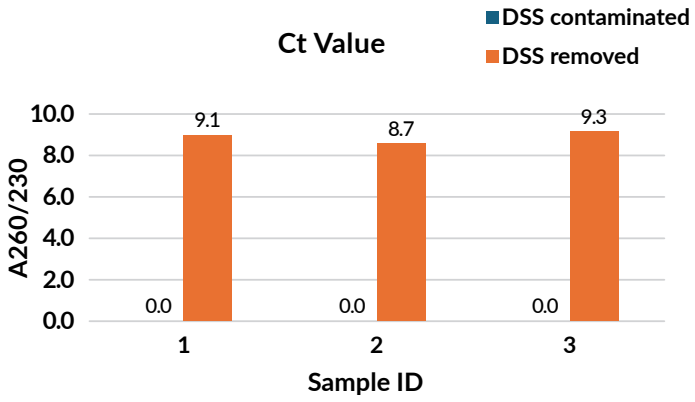


Figure 2: When the purified RNA was used as a template for RT-qPCR, samples processed with the MagBeads DSS-Removal FastRNA Kit for Feces showed robust amplification, whereas those without DSS removal exhibited severe inhibition.

Order Information

Product Name	Size	Catalogue No.
MagBeads DSS-Removal FastRNA Kit for Feces	50 Preps	116588050M
MagBeads DSS-Removal FastRNA Kit for Feces (Ready-To-Use for MPure-32™)	96 Preps	117040300M
MagBeads DSS-Removal FastRNA Kit for Feces (Ready-To-Use for MPure-96™)	96 Preps	117040400M

SPINeasy® Extraction Kit

SPINeasy® DNA Pro Kit for Soil

Effective isolation
of high quality genomic DNA from high biomass and low biomass sample

Unbiased
alpha diversity results

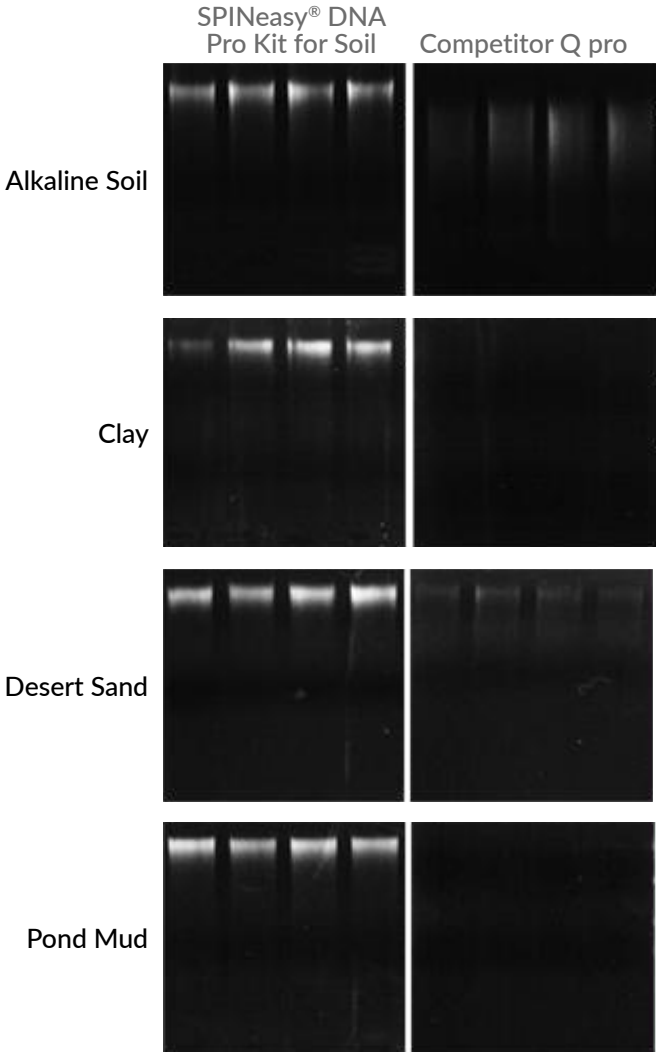
Higher purity
and shorter processing time

Vacuum manifold
compatible

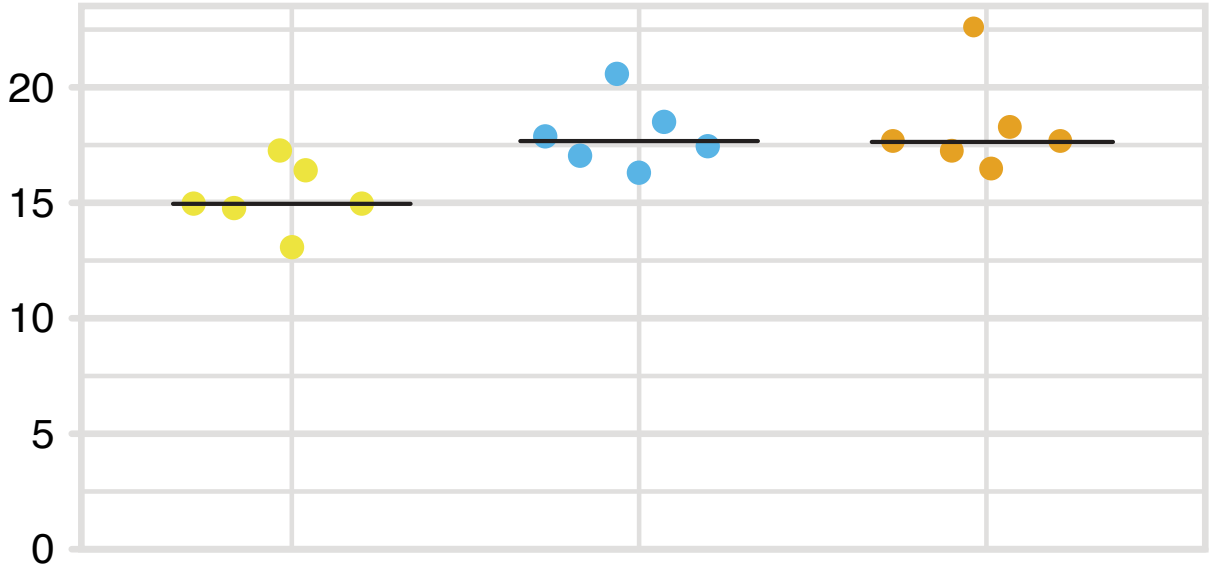
Soil samples are complex environments characterized by the presence of inhibitory compounds, such as humic acid, heavy metals, and other aromatic components which may prove to be challenging for downstream analyses. The **SPINeasy® DNA Pro Kit for Soil** has been carefully designed for the isolation of pure microbiome genomic DNA from challenging soil types including those with low biomass or those highly contaminated.

The **SPINeasy® DNA Pro Kit for Soil** effectively lyses various microbiome population, including bacteria, fungi, viruses, and protists. The kit provides similar yields to that of our highly cited FastDNA SPIN Kit, but with improved purity and reduced processing time. Isolated DNA products showed no inhibition in PCR and were immediately ready to be used in downstream applications, including long fragment PCR, qPCR, and next generation sequencing (16S and whole genome) without the need of further inhibitor removal step.

Product Performance



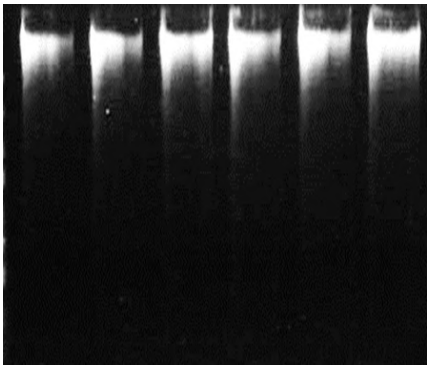
DNA extraction was performed on 250 mg of low biomass soil samples using **SPINeasy® DNA Pro Kit for Soil** and competitor Q Pro kit following manufacturer instruction.



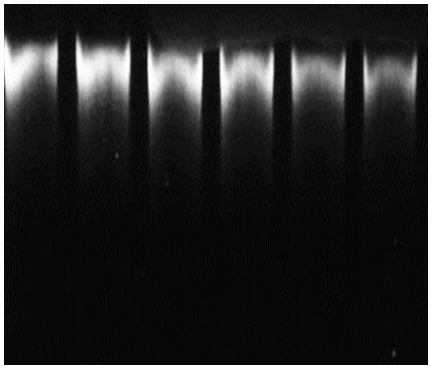
High biomass soil sample was processed using **SPINeasy® DNA Pro Kit** and other extraction kits. The extraction performance was evaluated using a spectrophotometer and summarized with a dot plot with each dot representing a single extraction, or agarose gel to assess the DNA integrity.

Integrity

SPINeasy® DNA Pro Kit for Soil



Competitor Q Pro



The **SPINeasy® DNA Pro Kit for Soil** gave superior yield, purity and integrity as compared to other extraction kits.

Order Information

Product Name	Size	Catalogue No.
SPINeasy® DNA Pro Kit for Soil	50 preps	116546050
	5 preps	116546000

SPINeasy® DNA Maxi Kit for Soil

BigPrep Lysing Matrix YB
allows for mass sample processing

Process
up to 20 g of soil samples

Flexibility
to use either Centrifugation or Vacuum Manifold protocol for faster processing

Optimized
for both high- and low-biomass samples

Soil analysis can be a challenging task due to the complex environment of soil samples, which often contain high microbial load and inhibitory compounds such as humic acid, heavy metals, and aromatic components. However, with the **SPINeasy® DNA Maxi Kit for Soil**, DNA extraction from soil samples is now faster and more convenient than ever before.

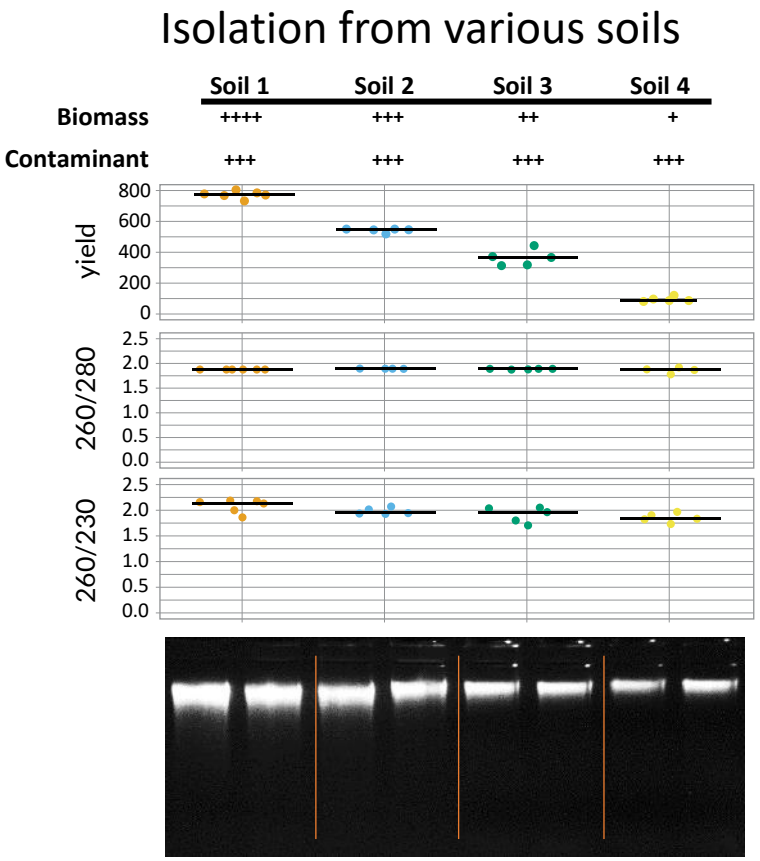
SPINeasy® DNA Maxi Kit for Soil has been optimized to efficiently extract pure microbial DNA from large amounts of soil, making it compatible with all types of soil samples. Whether you are working with compost (up to 10 g) or sand (up to 20 g), our kit is designed to effectively lyse a variety of microbiome populations including bacteria, fungi, viruses, and protists, resulting in higher purity and reduced processing time.

With the **SPINeasy® DNA Maxi Kit for Soil**, there is no need for further inhibitor removal steps. The isolated DNA is fully compatible with downstream PCR and NGS applications, including 16S and whole genome sequencing.

Try **SPINeasy® DNA Maxi Kit for Soil** today and experience fast, convenient, and efficient DNA extraction from soil samples. This kit provides the perfect solution for researchers studying soil microbial communities and environmental DNA.

Product Performance

The performance of SPINeasy® DNA Maxi Kit for Soil has been extensively validated across a diverse range of soil types and starting sample amounts. This kit consistently produces high-quality DNA with optimal A260/280 and A260/230 ratios, ensuring accurate downstream analysis. Furthermore, the exceptional reproducibility is evidenced by similar yields obtained when using the same amount of starting sample in repeat experiments.



The SPINeasy® DNA Maxi Kit for Soil extracts genomic DNA from a wide range of soils irrespective of its microbial load or contamination level. It delivers up to 800µg of DNA from 10g of soil with an optimal purity.

Order Information

Product Name	Size	Catalogue No.
SPINeasy® DNA Maxi Kit for Soil	10 preps	116549010

SPINeasy® 96-Well DNA Pro Kit for Soil

96-well spin plate format

allowing for high throughput and rapid sample processing

Efficient lysis

of microbial population present in complex soil samples, including bacteria, fungi, viruses, and protists; ensuring comprehensive genomic DNA extraction

Compatible

with various challenging soil types, including those with low biomass or high contamination levels

Streamlined workflow

reduces processing time, enabling faster and convenient isolation of pure microbial genomic DNA in 90 minutes

The **SPINeasy 96-Well DNA Pro Kit for Soil** is a simple high-throughput kit which enables rapid and convenient isolation of pure microbial genomic DNA from challenging soil types including those with low biomass or those that are highly contaminated. The **SPINeasy 96-Well DNA Pro Kit for Soil** effectively lyses various microbiome population, including bacteria, fungi, viruses, and protists. The kit provides comparable yields to that of our highly cited FastDNA™ SPIN Kit, but with improved purity and reduced processing time. Isolated DNA products show no inhibition in PCR and are immediately ready to be used for downstream applications, including long fragment PCR, qPCR, and next-generation sequencing (16S and whole genome) without the need of further inhibitor removal step.

Product Performance

Nucleic acid quality extracted from high, medium, and low biomass soil samples.

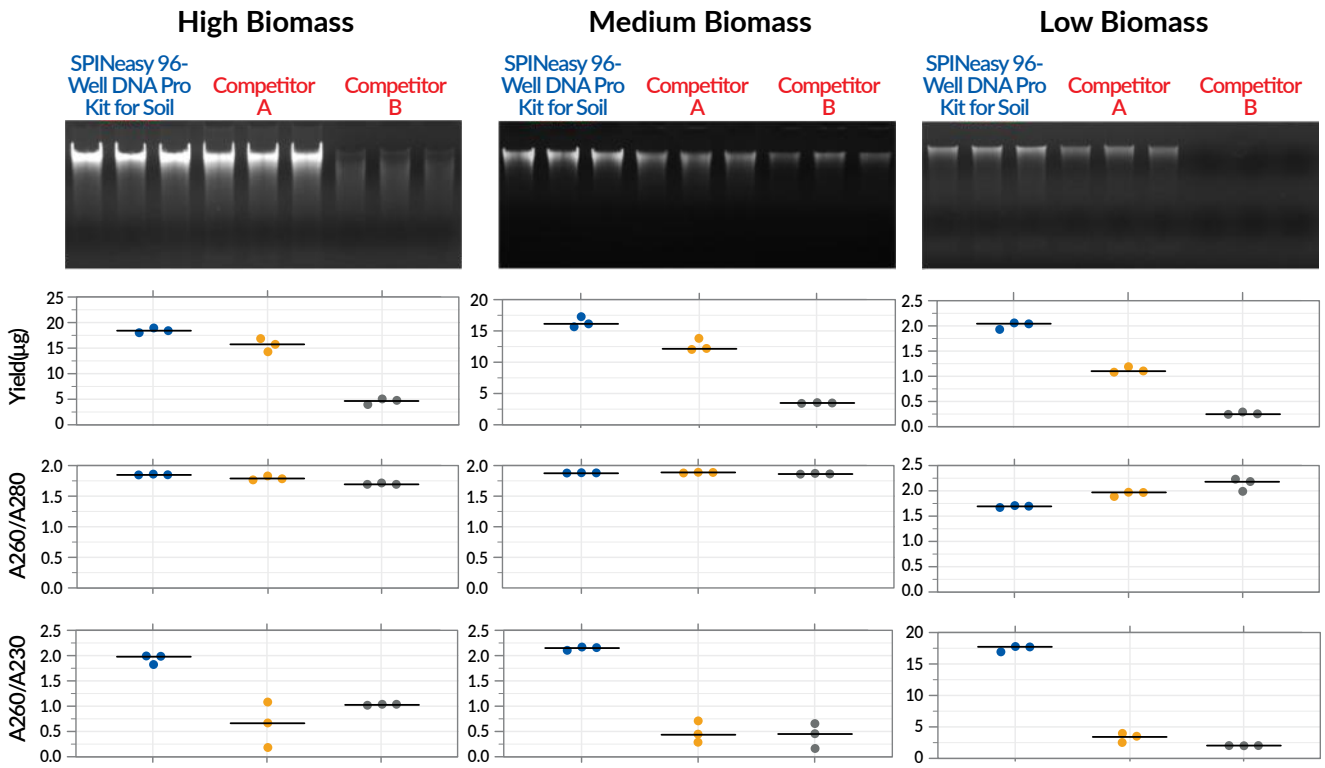


Figure 1a. Agarose gel electrophoresis of gDNA extracted using SPINeasy 96-Well DNA Pro Kit for Soil and competitor kits and the respective DNA yield and purity ratios (A260/A280 and A260/A230) assessed using spectrophotometer. Each dot of the plot represents a single extraction. The horizontal bars indicate the median value.

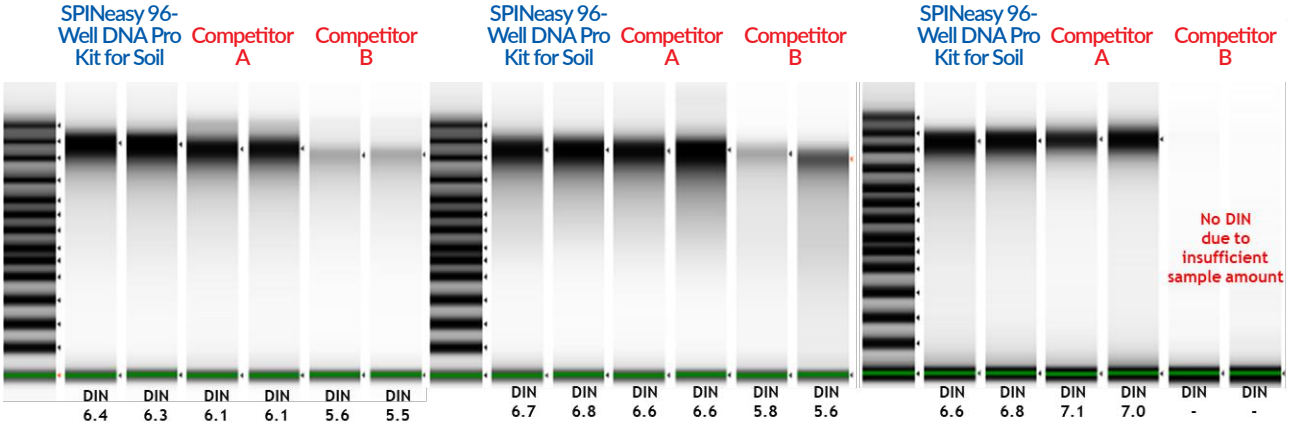


Figure 1b. Virtual gels obtained using the Agilent 4150 TapeStation analyses were shown along with the DNA integrity (DIN) values. Soil samples with various biomass content (250 mg each) were processed using SPINeasy 96-Well DNA Pro Kit for Soil and competitor A and competitor B.

Amplifiability of the extracted DNA compared with Competitors A and B

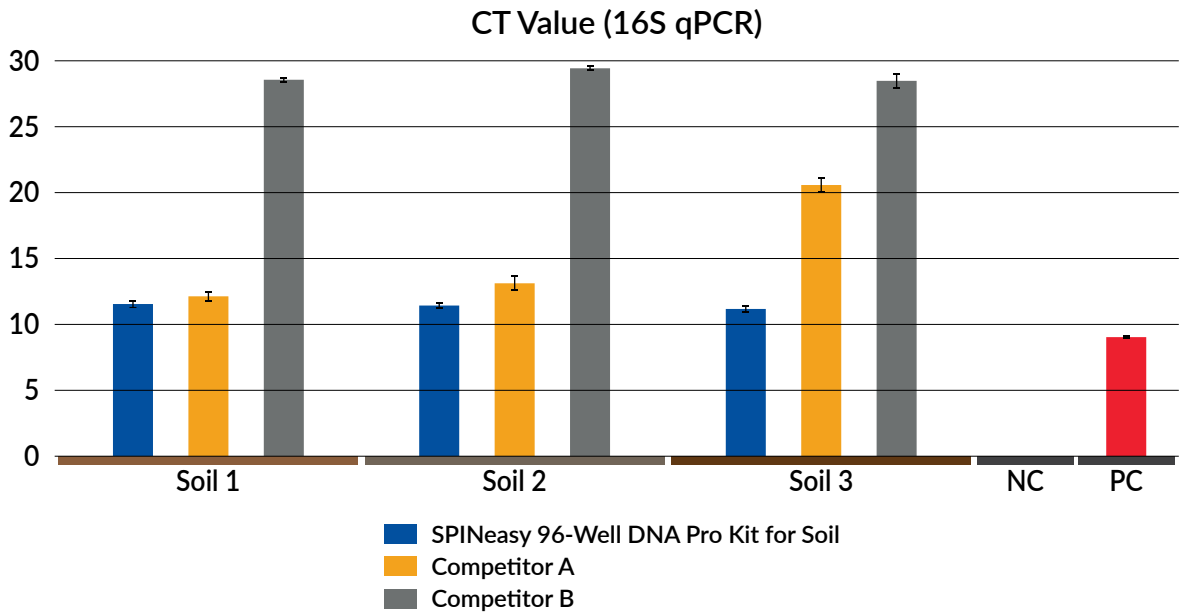


Figure 2. Amplifiability. qPCR amplification data of gDNA extracted from three soil samples using SPINeasy 96-Well DNA Pro Kit for Soil and competitor kits. DNA template amount: 50 ng. Primers: 16S rRNA (197 bp).

The absence of inhibitor was assessed using inhibitor-sensitive quantitative PCR and undiluted samples. The bacterial 16S rRNA gene was amplified using gDNA extracted from high biomass soil using the 3 extraction kits described in Figure 2. The gDNA extracted with SPINeasy 96-Well DNA Pro Kit for Soil was successfully used in downstream applications (such as qPCR), suggesting the effectiveness of the kit in removing the inhibitors

Order Information

Product Name	Size	Catalogue No.
SPINeasy® 96-Well DNA Pro Kit for Soil	1 x 96 Preps	116546096
	4 x 96 Preps	116546496

SPINeasy® RNA Kit for Soil

Specially designed spin columns
to achieve consistent RNA yields of up to 25 µg from soil samples

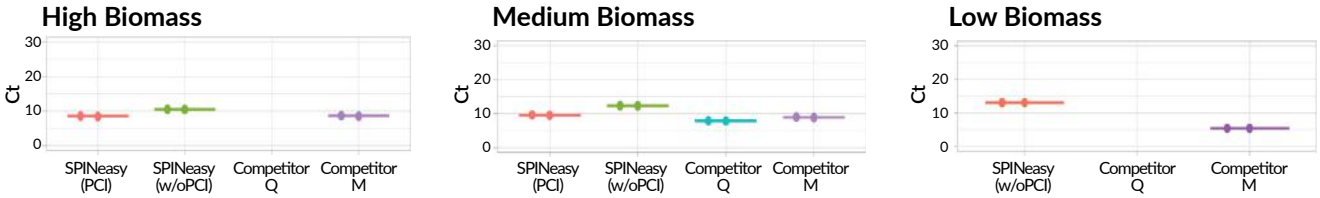
Simple and streamlined protocol
to minimize hands-on time

Suitable
for diverse soil types like compost, clay, sand, and low-biomass samples

Efficient inhibitor removal
to ensure high-quality RNA free from contaminants

The **SPINeasy® RNA Kit for Soil** is a high-performance RNA extraction kit utilizing silica-membrane spin-column technology. This kit allows for the efficient isolation of RNA from various soil types, including those with high humic acid content, heavy contaminants, compost, gardening soil, and low-biomass soils. The extraction process can be completed in under an hour with minimal RNA degradation, and the use of hazardous chemicals like phenol or chloroform is unnecessary. Our specially formulated inhibitor removal technology effectively handles soil samples containing humic acids, heavy metals, and other aromatic compounds, ensuring accurate PCR results. RNA extracted with this kit demonstrates high integrity and purity, suitable for downstream applications such as reverse transcription, real-time PCR, and sequencing.

Product Performance

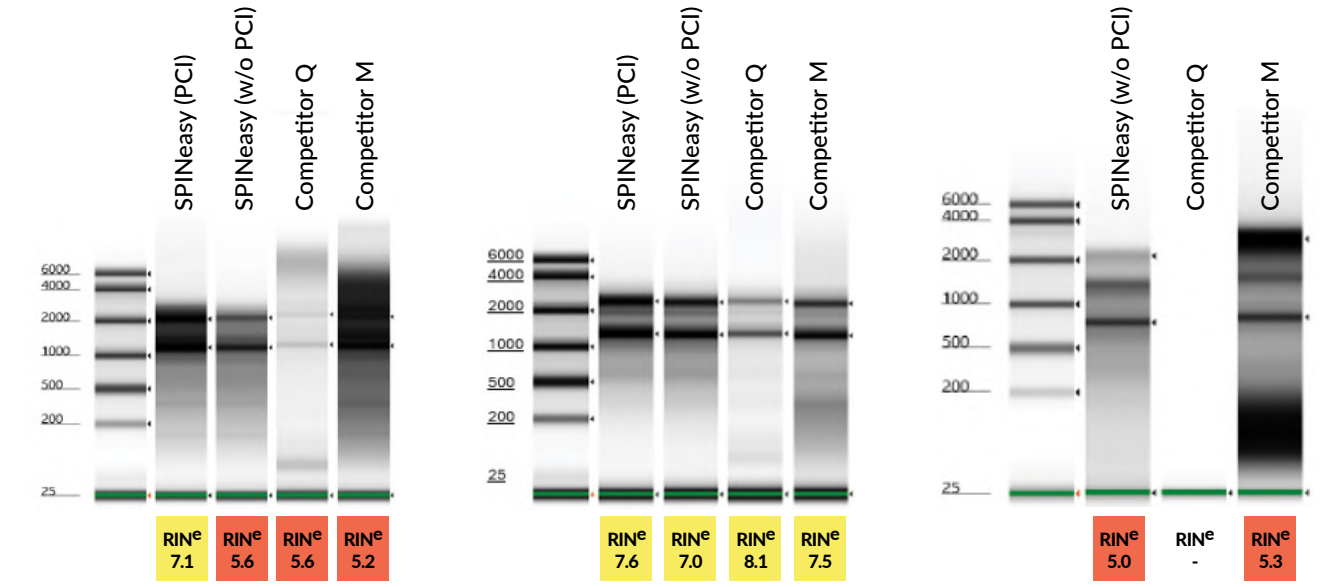


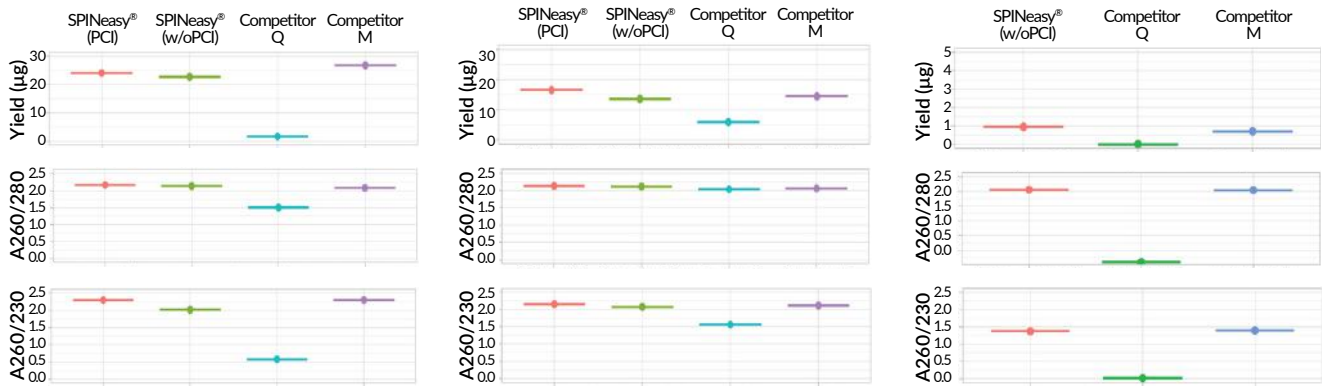
Comparison of Ct values from RT-qPCR using RNA extracted with the SPINeasy® RNA Kit for Soil versus competitors Q and M. Testing was conducted on high-biomass (50 ng), medium-biomass (50 ng), and low-biomass (30 ng) soil samples, with amplification performed using SYBR Green technology.

Organic Compost Soil from
Location A (High Biomass Soil)

Organic Compost Soil from
Location B (Medium Biomass Soil)

Garden Soil
(Low Biomass Soil)





RNA was extracted from High (200 mg), Medium (250 mg), and Low (500 mg) Biomass Soils using the SPINeasy® RNA Kit for Soil and competitors Q and M. Yield was measured with the QuantiFluor® RNA System (Promega). Purity (A260/280 and A260/230 ratios) was checked with a spectrophotometer. RNA quality (virtual gel image and RIN, shown in yellow or red) was assessed using the Agilent Tapestation 4150.

Order Information

Product Name	Size	Catalogue No.
SPINeasy® RNA Kit for Soil	50 preps	116585050
	5 preps	116585000

SPINeasy® DNA/RNA Kit for Soil

Proprietary inhibitor removal technology

to eliminate humic acids, heavy metals, and aromatic compounds for pure DNA and RNA

Selective binding innovation

to enable simultaneous isolation of genomic DNA and RNA from challenging soils

Suitable

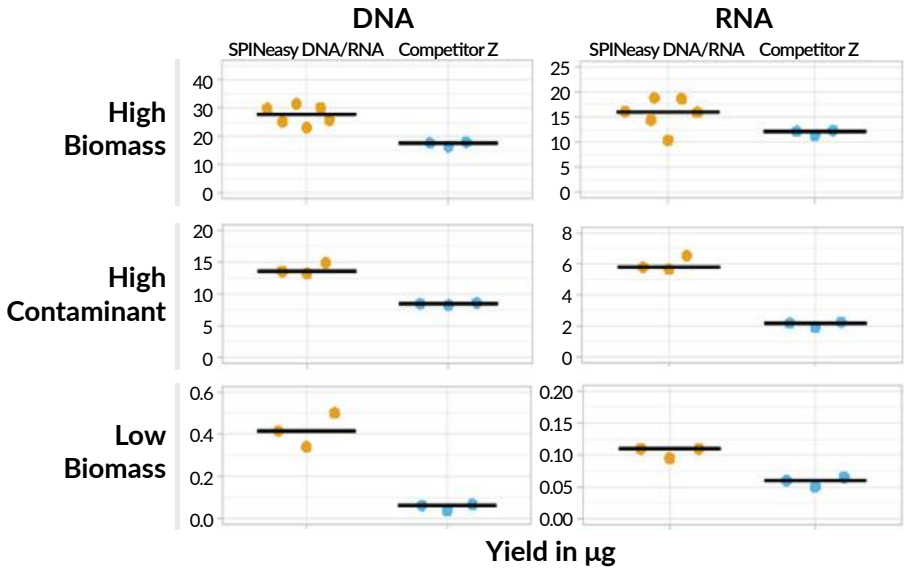
for diverse soil types, including low-biomass and highly contaminated samples

Fast and efficient protocol

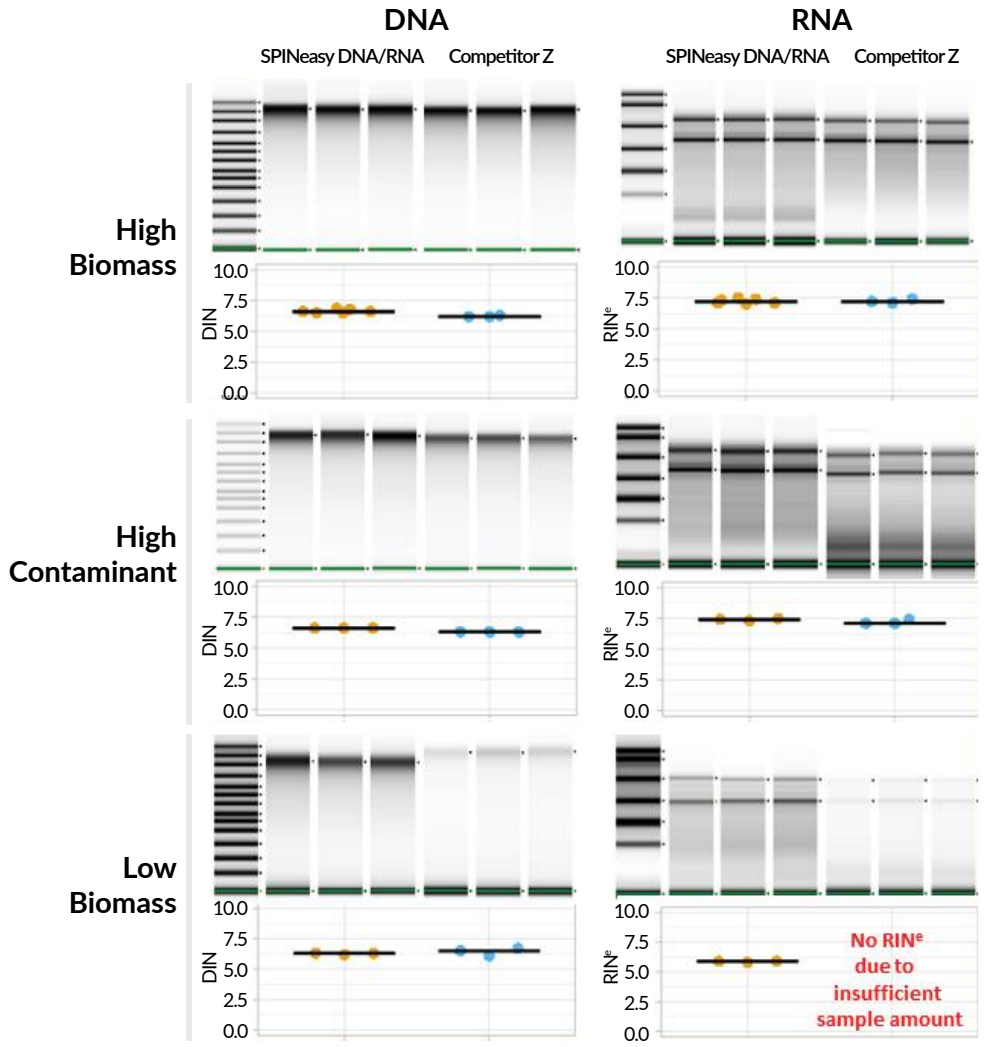
to complete extraction of up to 50µg DNA and 30µg RNA

Humic acids, heavy metals, and other aromatic components are among the most notorious PCR inhibitors found in the soil, leading to false negative or underestimated results. Non-optimized nucleic acid extraction protocol often co-purify inhibitors. The **SPINeasy® DNA/RNA Kit for Soil** integrates our proprietary inhibitor removal expertise and our new technology for selective binding of DNA and RNA. The **SPINeasy® DNA/RNA Kit for Soil** allows simultaneous isolation of pure microbiome genomic DNA and RNA from challenging soil types, including those with low biomass or those that are highly contaminated. The isolated nucleic acid products showed no contaminants and were immediately ready for use in downstream applications, including qPCR and RT-qPCR without the need of further inhibitor removal step.

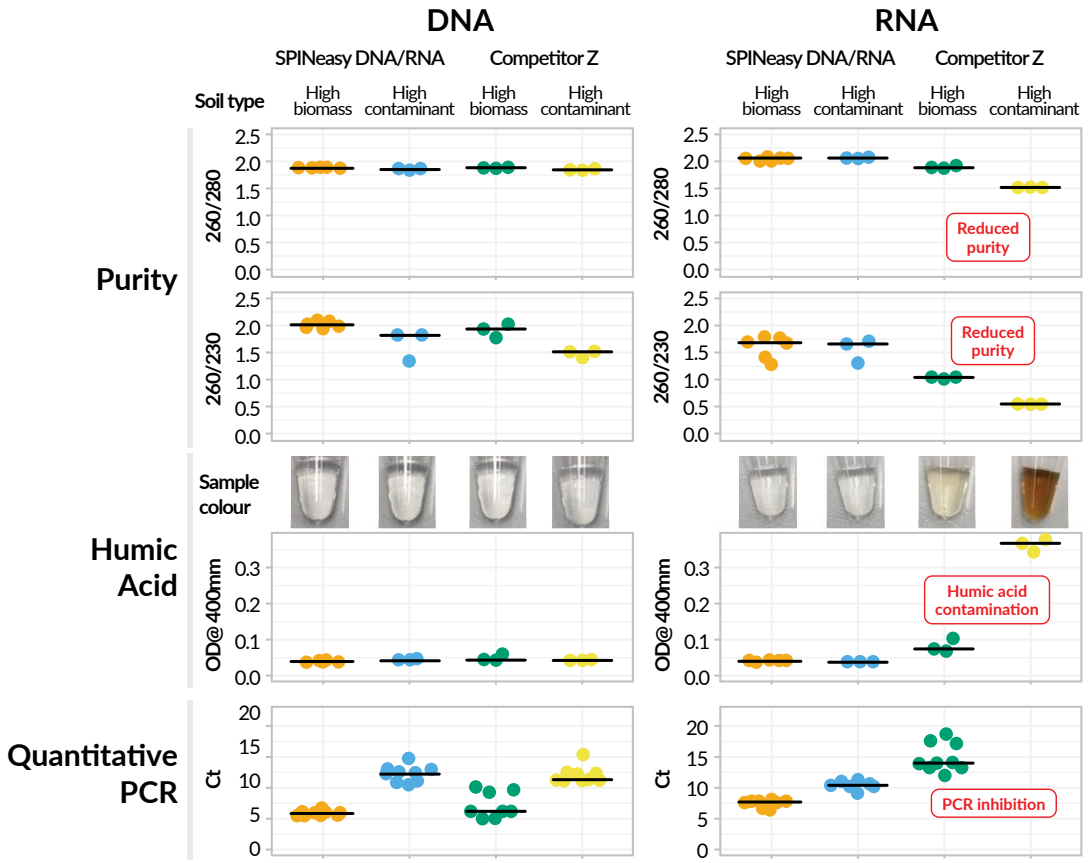
Product Performance



The SPINeasy® DNA/RNA Kit for Soil outperforms Competitor Z in nucleic acid yield. DNA and RNA were extracted from three soil types (250 mg each). Yields were measured by fluorometry, with each dot showing one extraction.



The SPINeasy® DNA/RNA Kit for Soil extracts high-quality DNA and RNA from tough soil types, including high-biomass, high-contaminant, and low-biomass samples. Virtual gels from Agilent 4150 TapeStation show DNA integrity (DIN) and RNA integrity (RIN) values. Each dot represents one sample.



Top Panel: Purity shown by A260/A280 and A260/A230 ratios.

Middle Panel: Images of DNA and RNA outputs; brownish color indicates humic acid, confirmed by spectrophotometer at 400 nm.

Bottom Panel: No inhibitors detected, proven by qPCR and RT-qPCR amplifying 1 µL undiluted sample with bacterial 16S primers.

Order Information

Product Name	Size	Catalogue No.
SPINeasy® DNA/RNA Kit for Soil	50 preps	116554050
	5 preps	116554000

SPINeasy® DNA Pro Kit for Feces

Newly formulated buffers
to achieve better yield and purity of fecal DNA

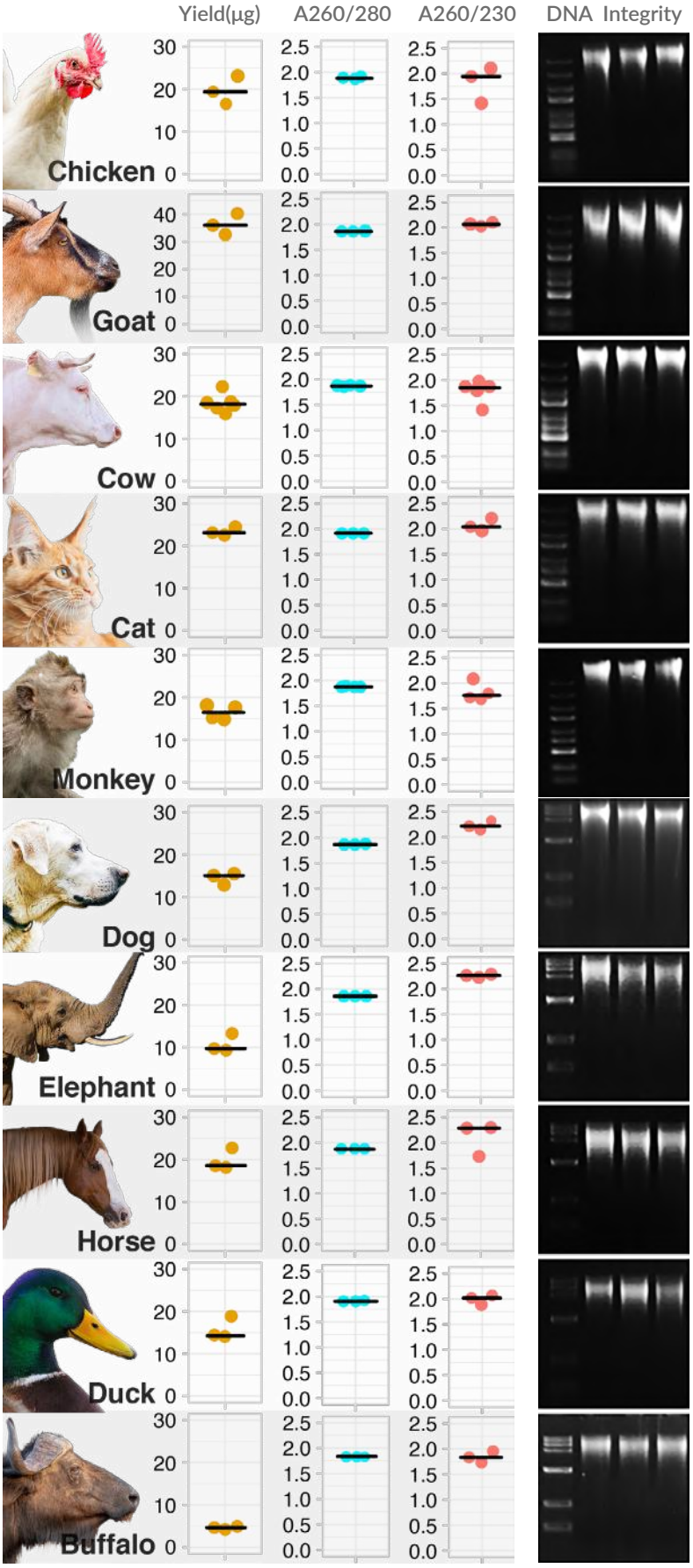
Easy to handle
and minimize any risk of contamination

Suitable
for various types of feces samples

User friendly
suitable for any scale of experimental throughput

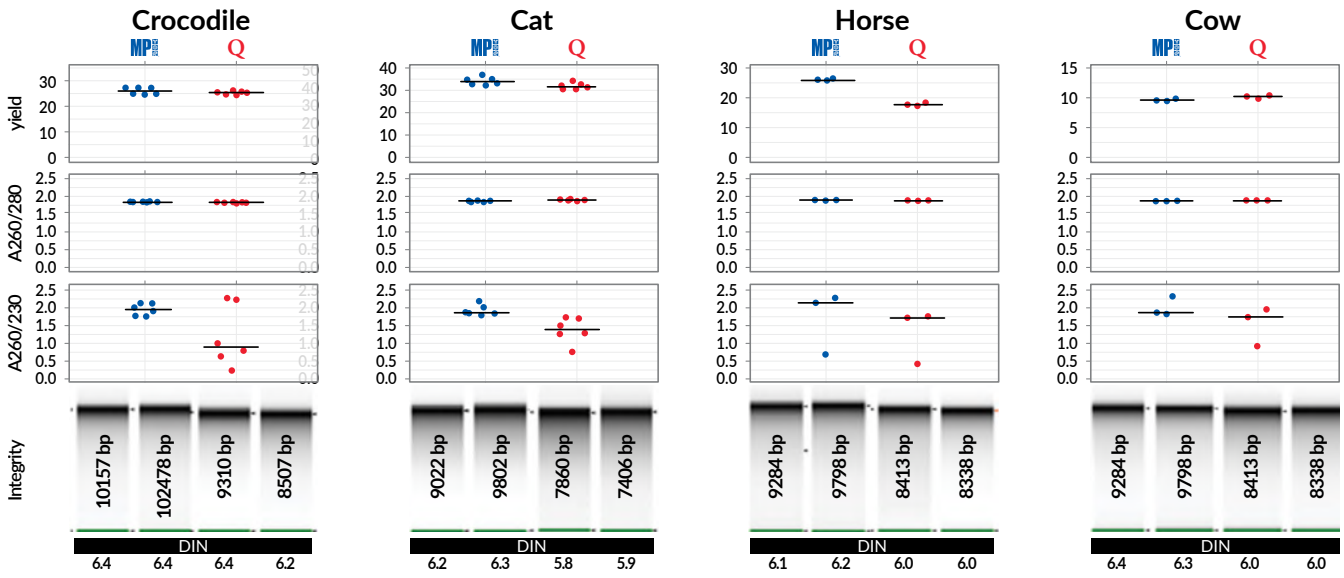
DNA extracted from fecal samples has just been made easier with our newly updated SPINeasy® DNA Pro Kit for Feces. Challenges that we may face from fecal samples are simply eliminated through the kit by bead beating with the new Lysing Matrix YB and lysis Buffer SF1. Subsequent treatment with Buffer SF2 effectively removes humic acid and other contaminants. The chemistry included in Buffer SF3 enables the specific binding of DNA without co-purification of RNA, eliminating the need for RNase A treatment. DNA obtained from fecal samples showed no inhibition in PCR and was immediately ready-to-be used for downstream applications, including long fragment PCR, qPCR, and next-generation sequencing (16S and whole genome) without the need for a further inhibitor removal step.

Extraction Results for Feces



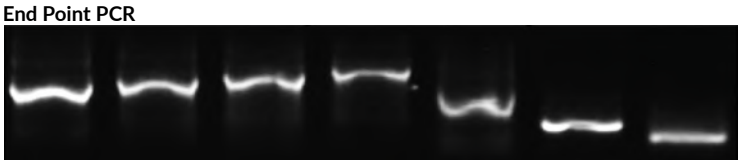
The SPINeasy® DNA Pro Kit for Feces provides high-quality DNA from various fecal samples.

Comparison versus competitor Q



The DNA extracted using SPINeasy® DNA Pro Kit for Feces or competitor Q kits were compared in terms of yield, purity (A260/280 and A260/230 ratios), and integrity. Representative virtual gels obtained from Agilent 4150 TapeStation analyses showed the DNA integrity value (DIN) and the size of the genomic DNA band in bp.

Amplifiability



The absence of inhibitor in fecal samples obtained using **SPINeasy® DNA Pro Kit for Feces** was assessed using inhibitor-sensitive PCR and undiluted sample as well as quantitative PCR.

Order Information

Product Name	Size	Catalogue No.
SPINeasy® DNA Pro Kit for Feces	50 preps	116547050
	5 preps	116547000

SPINeasy® RNA Kit for Feces

High volume sample capacity

accommodating up to 250 mg providing the maximum yield and purity

Processing time

as fast as 20 minutes

Optimal performance

with RNA column and DNA removal ensuring no possible contamination

Sources available

from carnivores, herbivores, to omnivores

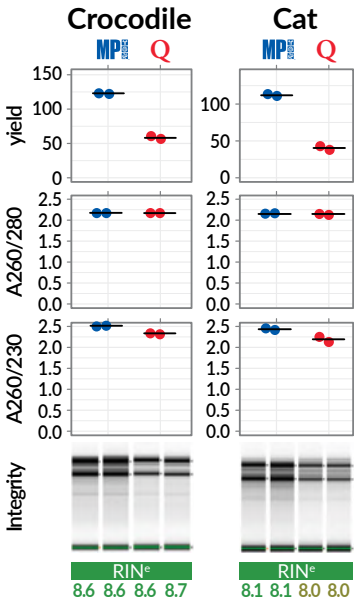
Microbiome research, particularly concerning dietary and nutritional monitoring, is an emerging field of interest today. However, managing stool/feces samples is intricate due to their inherent physical attributes, potential contamination, and the consideration of RNA degradation. To address these challenges effectively, the development of an innovative RNA extraction technique is imperative. The **SPINeasy® RNA Kit for Feces** integrates our 1) state of art bead beating technology, 2) a lysis chemistry compatible with the widest range of samples and 3) our proprietary inhibitor removal expertise. A new technology of selective binding of RNA along with our FastDNAse I treatment allows the complete removal of DNA within 1-2 minutes, further reducing the processing time.

The **SPINeasy® RNA Kit for Feces** delivers high yields of pure RNA without detectable DNA contamination in less than 20 min, making it particularly suitable for downstream applications, such as qPCR and RT-qPCR without the need of further inhibitor/DNA removal steps.

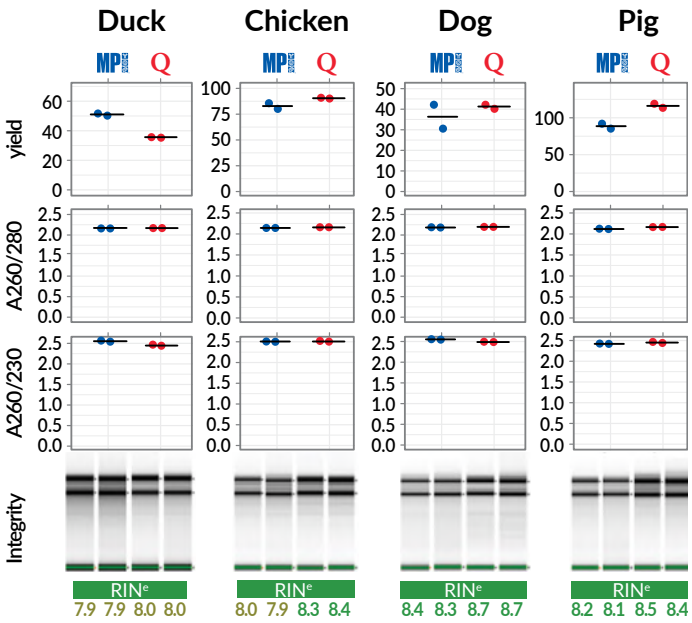
Product Performance

No DNA contamination in the RNA samples extracted with the **S**PINeasy® DNA/RNA Kit for Feces.

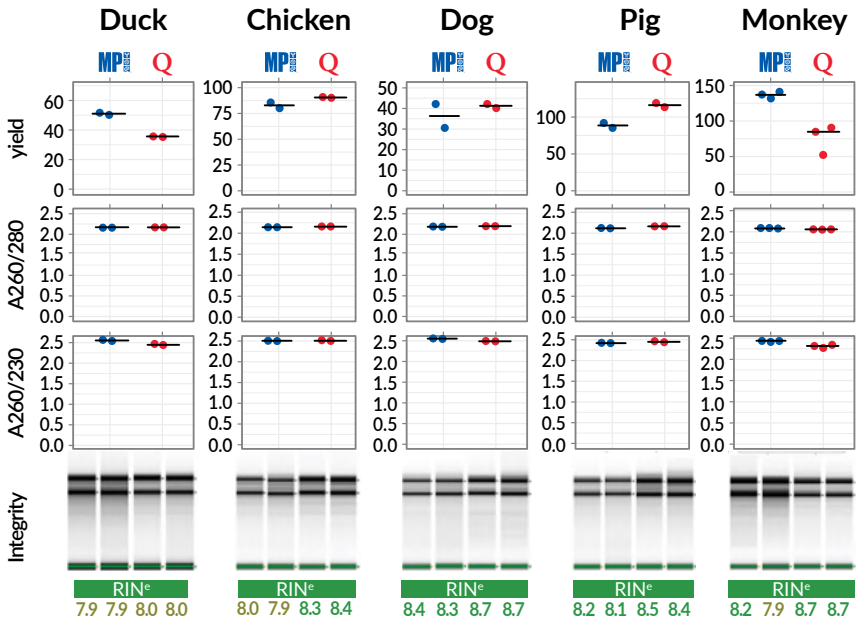
Carnivores



Herbivores

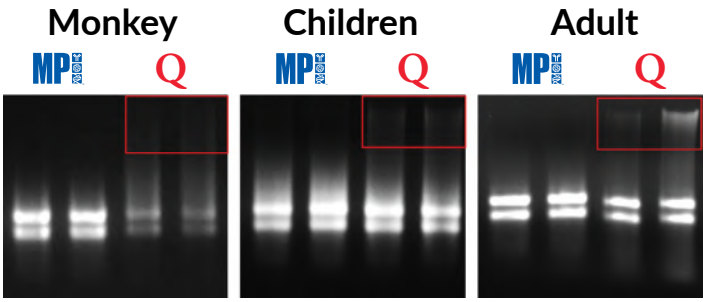


Omnivores



Eleven fecal sample types, grouped based on the animal diet, were processed using SPINeasy® RNA Kit for Feces and competitor Q kit. Yields and purity ratios (A260/280 and A260/230) were measured by spectrophotometer. Each dot on the plot represents a single extraction. Representative virtual gels obtained using Agilent 4150 TapeStation analyses were presented together with the DNA integrity (DIN) and RNA integrity (RIN) values.

No DNA contamination in the RNA samples extracted with the SPINeasy® RNA Kit for Feces.



RNA samples extracted from monkey and human samples were visualized on agarose gel. Unlike competitor Q, no smeared nucleic acid corresponding to DNA contamination could be observed in RNA samples extracted with MP Biomedicals' kit.

Order Information

Product Name	Size	Catalogue No.
SPINeasy® RNA Kit for Feces	50 preps	116556050
	5 preps	116556000

SPINeasy® DNA/RNA Kit for Feces

Innovative lysing matrix

enabling the kit to be used on various types of feces samples

Uninterrupted workflow

allowing simultaneous isolation of DNA and RNA from the same sample

High volume sample capacity

up to 250 mg, hence providing maximum yield and purity

Fast processing time

less than 45 minutes, or even faster with vacuum manifold

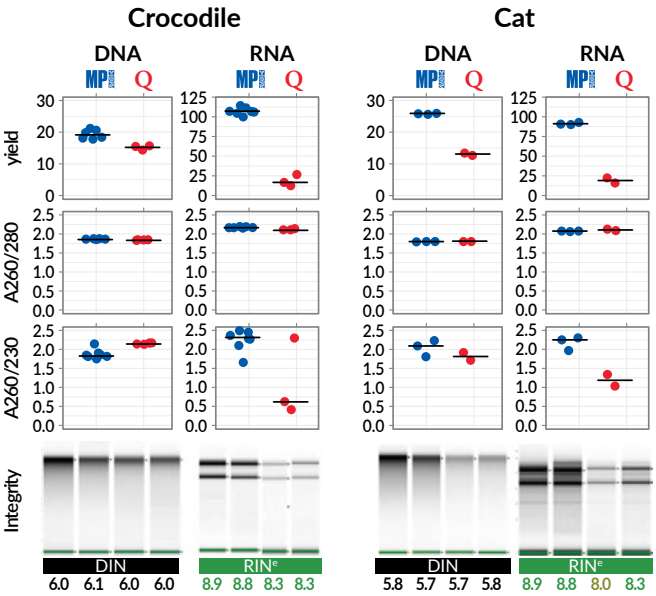
Simultaneous extraction of nucleic acids for feces at the highest quality has been stepped up to another level at MP Biomedicals. It is now easier than ever to perform a simultaneous isolation of pure microbiome genomic DNA and RNA from challenging feces types irrespective of their composition. Isolated DNA and RNA showed no contaminants and were immediately ready for use in downstream applications, including qPCR and RT-qPCR without the need of further inhibitor removal step.

The composition of fecal samples is largely dependent on diet which includes fibers, undigested particles, bilirubin, complex polysaccharides, and lipids. Those compounds impair the sample homogenization, decrease both the quantity and quality of the extracted DNA. The **SPINeasy® DNA/RNA Kit for Feces** integrates our proprietary inhibitor removal expertise and our new technology for selective binding of DNA and RNA. This kit is especially suitable when the sample is limited or when both genomic and transcriptomic manipulations are needed. This thereby avoids any potential variation in microbial community composition from processing bias.

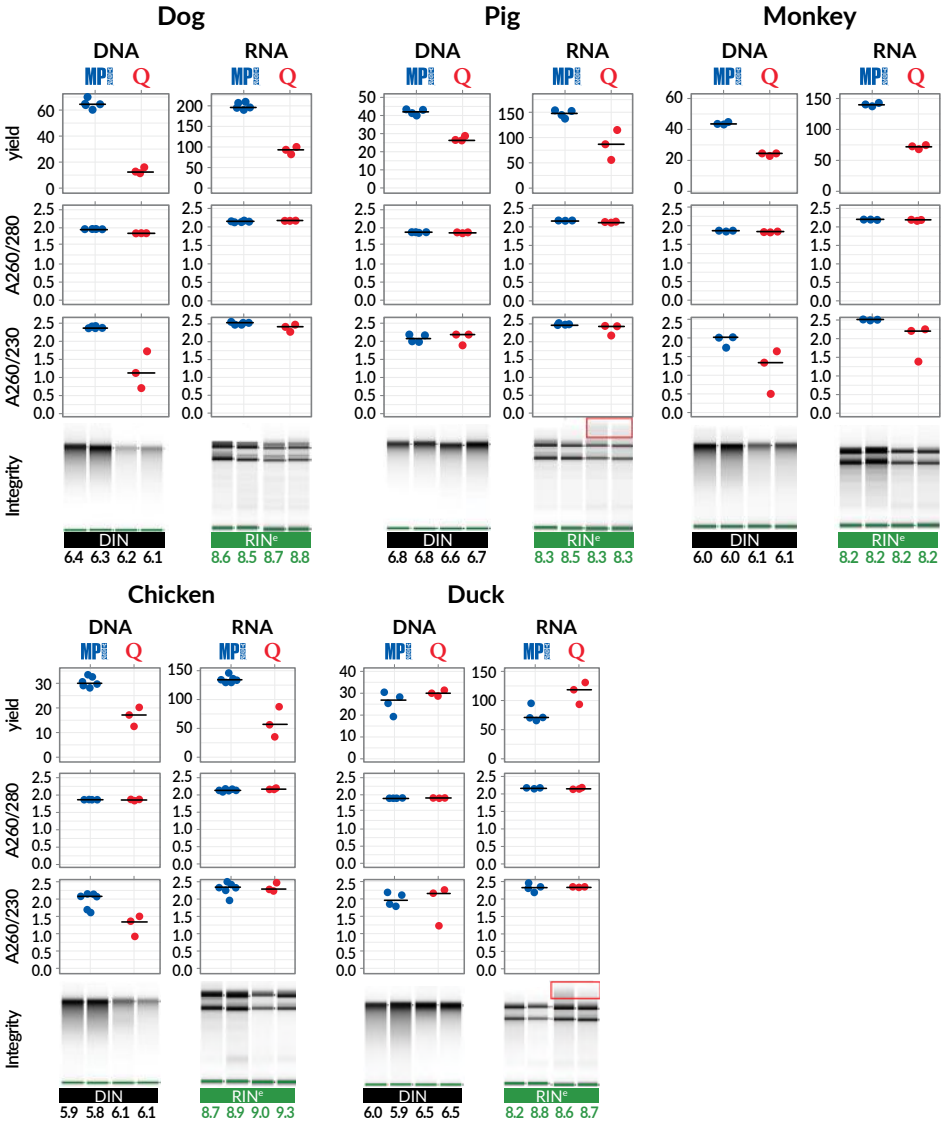
Product Performance

The SPINeasy® DNA/RNA Kit for Feces extracted DNA and RNA from various fecal samples with high yield and purity

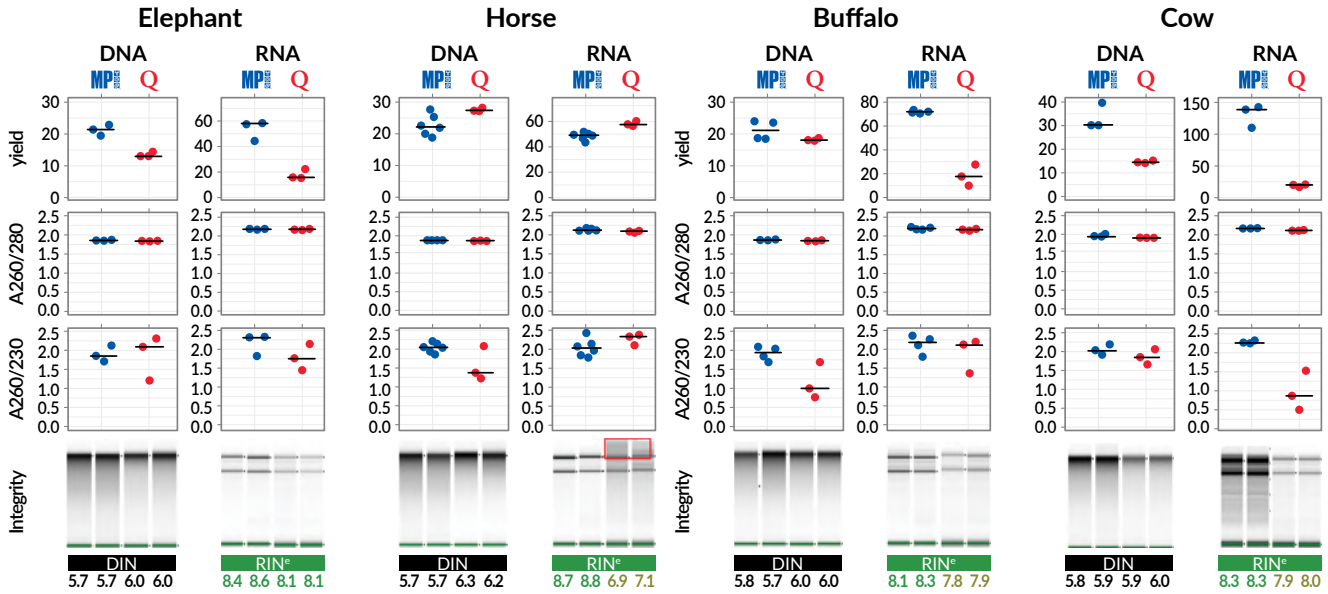
Carnivores



Omnivores



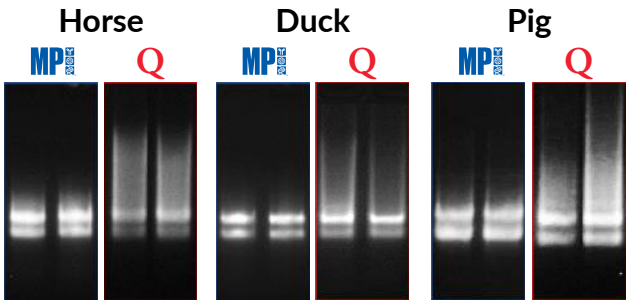
Herbivores



Eleven fecal sample types were processed using SPINeasy® DNA/RNA Kit for Feces and competitor Q kit. Yield and purity ratios (A260/280 and A260/230) were measured by fluorometric quantification. Each dot on the plot represents a single extraction. Representative virtual gels (obtained using Agilent 4150 TapeStation analyses) were presented together with the DNA integrity (DIN) and RNA integrity (RIN) values. The red rectangle indicated the contamination of RNA samples with some high molecular weight DNA

Extraction Results

No DNA contamination in the RNA samples extracted with the SPINeasy® DNA/RNA Kit for Feces.



RNA samples extracted from horse, duck and pig fecal samples were visualized on agarose gel. Unlike competitor Q, no smeared nucleic acid corresponding to DNA contamination could be observed in RNA samples extracted with MP Biomedicals' kit.

Order Information

Product Name	Size	Catalogue No.
SPINeasy® DNA/RNA Kit for Feces	50 preps	116555050
	5 preps	116555000

SPINeasy® DSS-Removal DNA Kit for Feces

Specialized DSS-Removal Technology

Specifically designed for DNA isolation from DSS-contaminated fecal samples, effectively removing residual DSS

Integrated Inhibitor Removal System

Removes PCR inhibitors commonly found in fecal samples, enhancing DNA purity and downstream assay performance.

Spin Column–Based Purification Technology

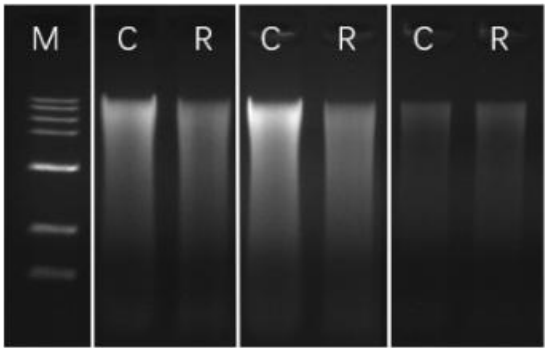
Utilizes silica membrane spin-column technology to efficiently purify DNA from diverse fecal sample types while reducing workflow complexity.

High-Quality DNA for Downstream Applications

Produces DNA that can be directly applied to various downstream experiments, including RT-qPCR amplification and other molecular detection applications.

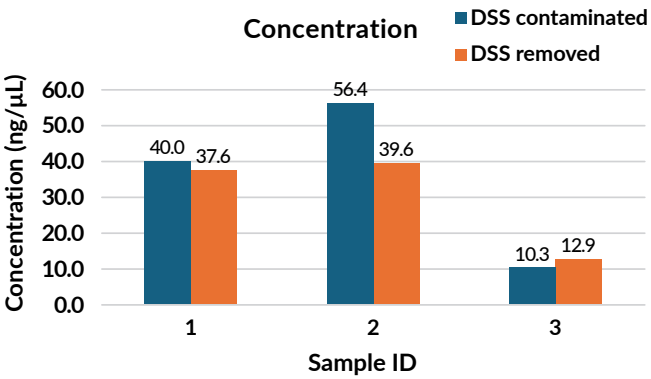
Dextran sodium sulfate (DSS) is routinely used in animal studies to induce stable and reproducible colitis models, which closely simulate the clinical and histological manifestations of human inflammatory bowel disease (IBD), especially ulcerative colitis. Nevertheless, residual DSS in fecal samples from DSS-treated animals can inhibit real-time quantitative PCR (RT-qPCR) reactions, which is a major cause of experimental errors in downstream molecular analysis. This kit effectively addresses the technical difficulties in processing diverse fecal samples and greatly simplifies the fecal DNA purification procedure, delivering a user-friendly and time-saving experimental workflow. The built-in DSS removal procedure efficiently eliminate residual DSS contaminants from samples, ensuring high yield and high purity of extracted DNA.

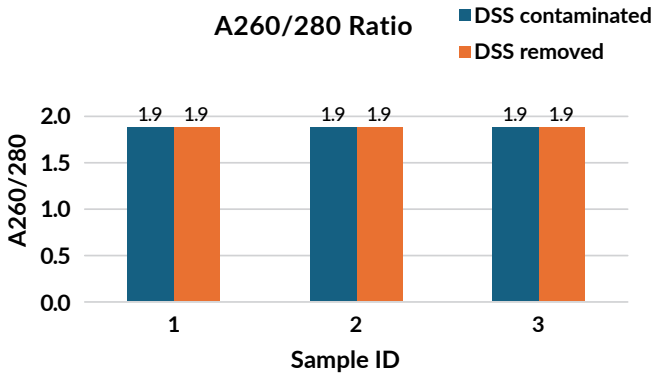
Product Performance



Sample ID: 1 2 3

C: DSS contaminated; R: DSS removed





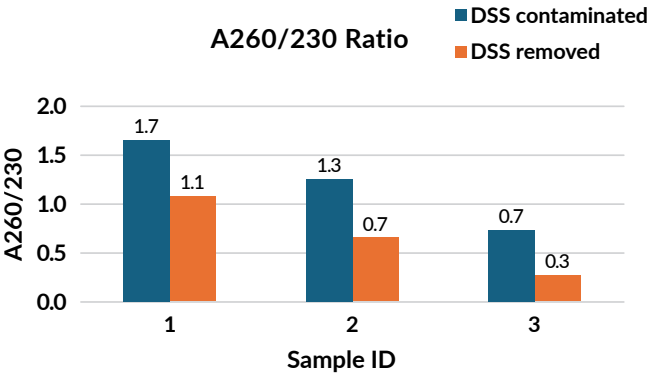


Figure 1: DNA yield and purity (A260/A280 and A260/A230 ratios) obtained from mouse feces (sample 1&2) and mouse intestinal contents (sample 3) using the SPINeasy DSS-Removal DNA Kit for Feces. The impact of DSS removal on DNA yield and purity may vary depending on the sample type, but remains consistently positive.

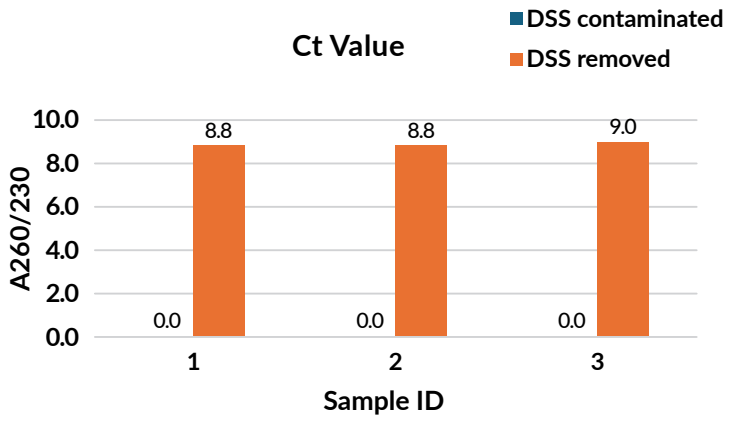


Figure 2: When the purified DNA was used as a template for qPCR, samples processed with the SPINeasy DSS-Removal DNA Kit for Feces showed robust amplification, whereas those without DSS removal exhibited severe inhibition.

Order Information

Product Name	Size	Catalogue No.
SPINeasy DSS-Removal DNA Kit for Feces	50 preps	116547050M
	5 preps	116547000M

SPINeasy® DSS-Removal RNA Kit for Feces

Specialized DSS-Removal Technology

Specifically designed for RNA isolation from DSS-contaminated fecal samples, effectively removing residual DSS

Integrated DNase I Treatment

Efficiently removes genomic DNA contamination during the extraction workflow, improving RNA purity and enhancing downstream assay performance.

Spin Column–Based Purification Technology

Utilizes silica membrane spin-column technology to efficiently purify RNA from diverse fecal sample types while reducing workflow complexity.

High-Quality RNA for Downstream Applications

Produces RNA that can be directly applied to various downstream experiments, including RT-qPCR amplification and other molecular detection applications.

Dextran sodium sulfate (DSS) is routinely used in animal studies to induce stable and reproducible colitis models, which closely simulate the clinical and histological manifestations of human inflammatory bowel disease (IBD), especially ulcerative colitis. Nevertheless, residual DSS in fecal samples from DSS-treated animals can inhibit real-time quantitative PCR (RT-qPCR) reactions, which is a major cause of experimental errors in downstream molecular analysis. This kit effectively addresses the technical difficulties in processing diverse fecal samples and greatly simplifies the fecal RNA purification procedure, delivering a user-friendly and time-saving experimental workflow. The built-in DSS removal procedure and DNase I treatment efficiently eliminate residual DSS contaminants and genomic DNA contamination from samples, ensuring high yield and high purity of extracted total RNA.

Product Performance

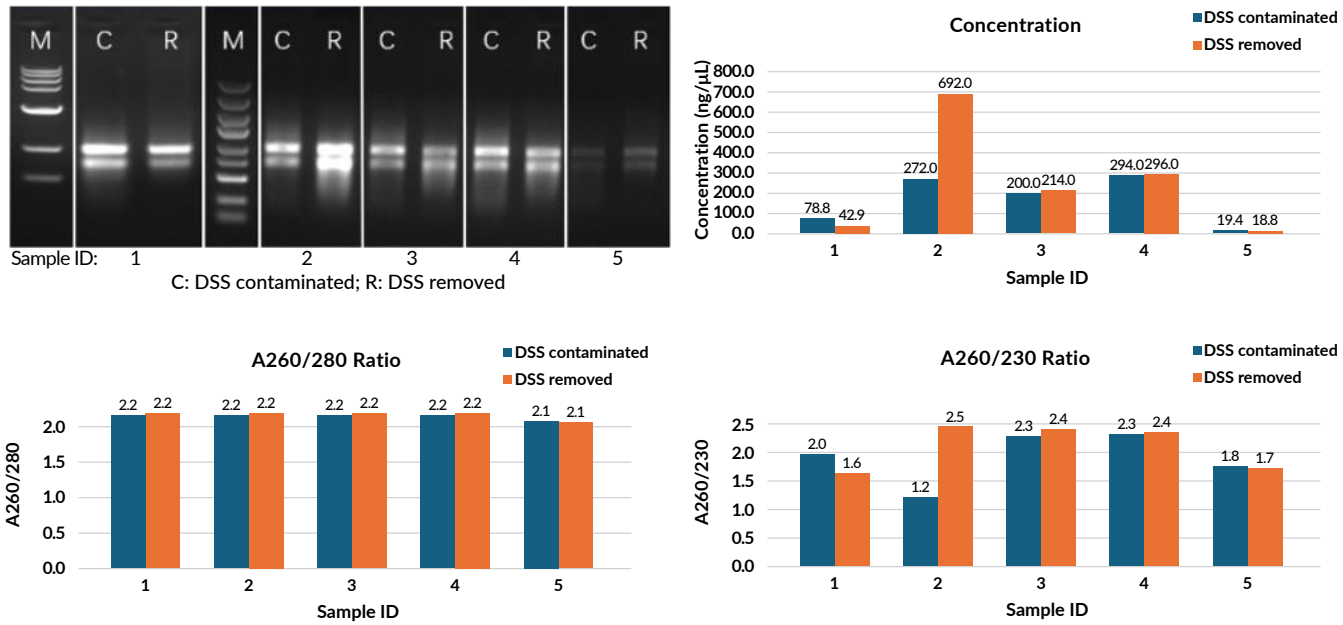


Figure 1: RNA yield and purity (A260/A280 and A260/A230 ratios) obtained from mouse feces (sample 1-2-4) and mouse intestinal contents (sample 5) using the SPINeasy DSS-Removal RNA Kit for Feces. The impact of DSS removal on RNA yield and purity may vary depending on the sample type, but remains consistently positive.

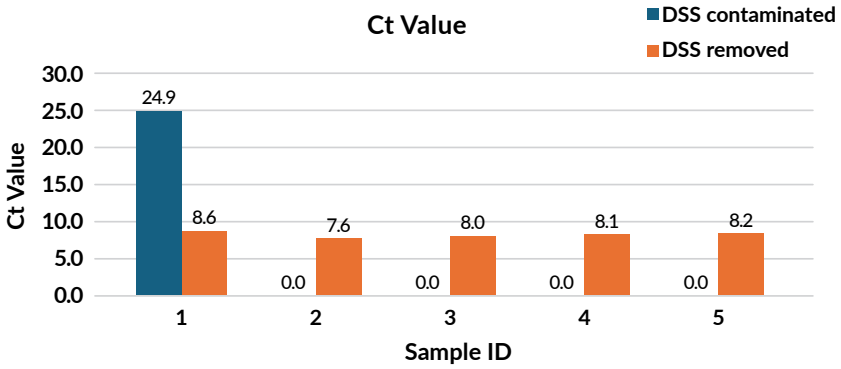


Figure 2: When the purified RNA was used as a template for RT-qPCR, samples processed with the SPINeasy DSS-Removal RNA Kit for Feces showed robust amplification, whereas those without DSS removal exhibited severe inhibition.

Order Information

Product Name	Size	Catalogue No.
SPINeasy DSS-Removal RNA Kit for Feces	50 preps	116556050M
	5 preps	116556000M

SPINeasy® DSS-Removal DNA/RNA Kit for Feces

Specialized DSS-Removal Technology

Specifically designed for DNA and RNA isolation from the same DSS-contaminated fecal sample, effectively removing residual DSS

Integrated Inhibitor Removal System

Removes PCR inhibitors commonly found in fecal samples, enhancing DNA/RNA purity and downstream assay performance.

Simultaneous DNA & RNA Purification

Enables recovery of both DNA and RNA from the same fecal sample using silica membrane technology.

High-Quality DNA/RNA for Downstream Applications

Produces DNA/RNA that can be directly applied to various downstream experiments, including qPCR and RT-qPCR amplification and other molecular detection applications.

Dextran sodium sulfate (DSS) is routinely used in animal studies to induce stable and reproducible colitis models, which closely simulate the clinical and histological manifestations of human inflammatory bowel disease (IBD), especially ulcerative colitis. Nevertheless, residual DSS in fecal samples from DSS-treated animals can inhibit real-time quantitative PCR (RT-qPCR) reactions, which is a major cause of experimental errors in downstream molecular analysis. This kit effectively addresses the technical difficulties in processing diverse fecal samples and greatly simplifies the fecal DNA/RNA purification procedure, delivering a user-friendly and time-saving experimental workflow. The built-in DSS removal procedure efficiently eliminates residual DSS contaminants from samples, ensuring high yield and high purity of extracted DNA/RNA.

Product Performance

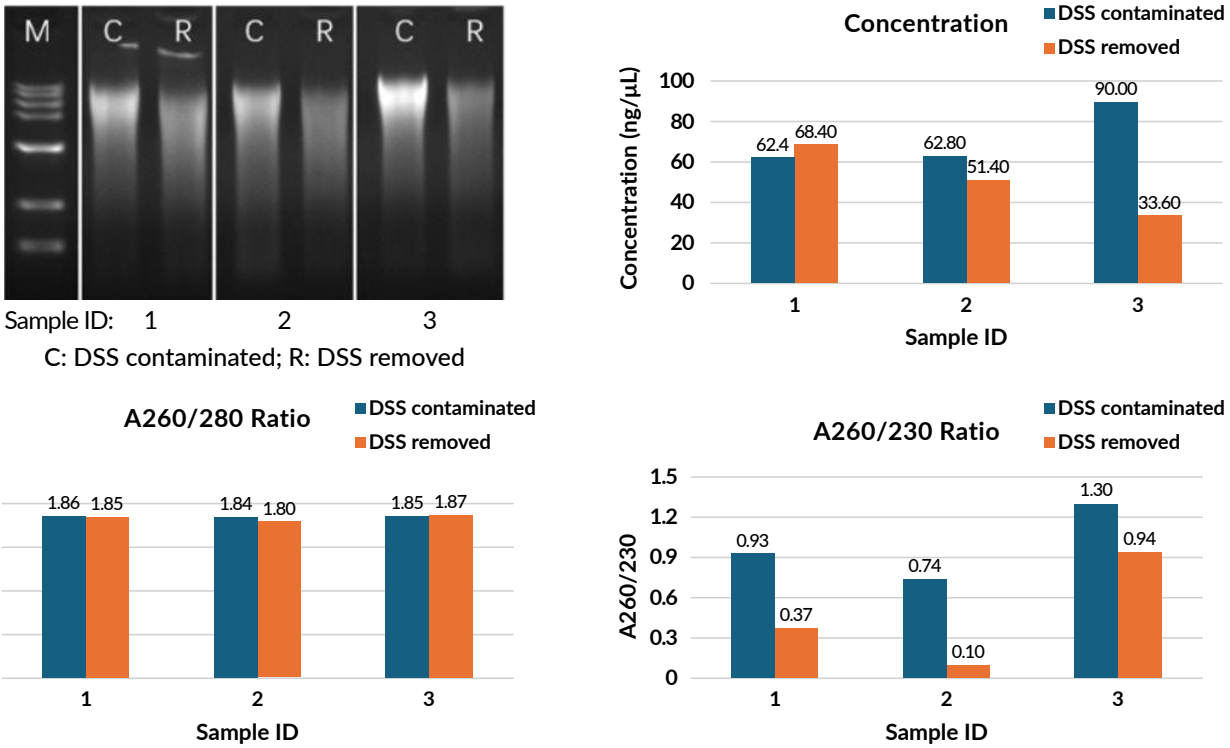


Figure 1: DNA yield and purity (A260/A280 and A260/A230 ratios) obtained from mouse feces (sample 1&2) and mouse intestinal contents (sample 3) using the SPINeasy DSS-Removal DNA/RNA Kit for Feces. The impact of DSS removal on DNA yield and purity may vary depending on the sample type, but remains consistently positive.

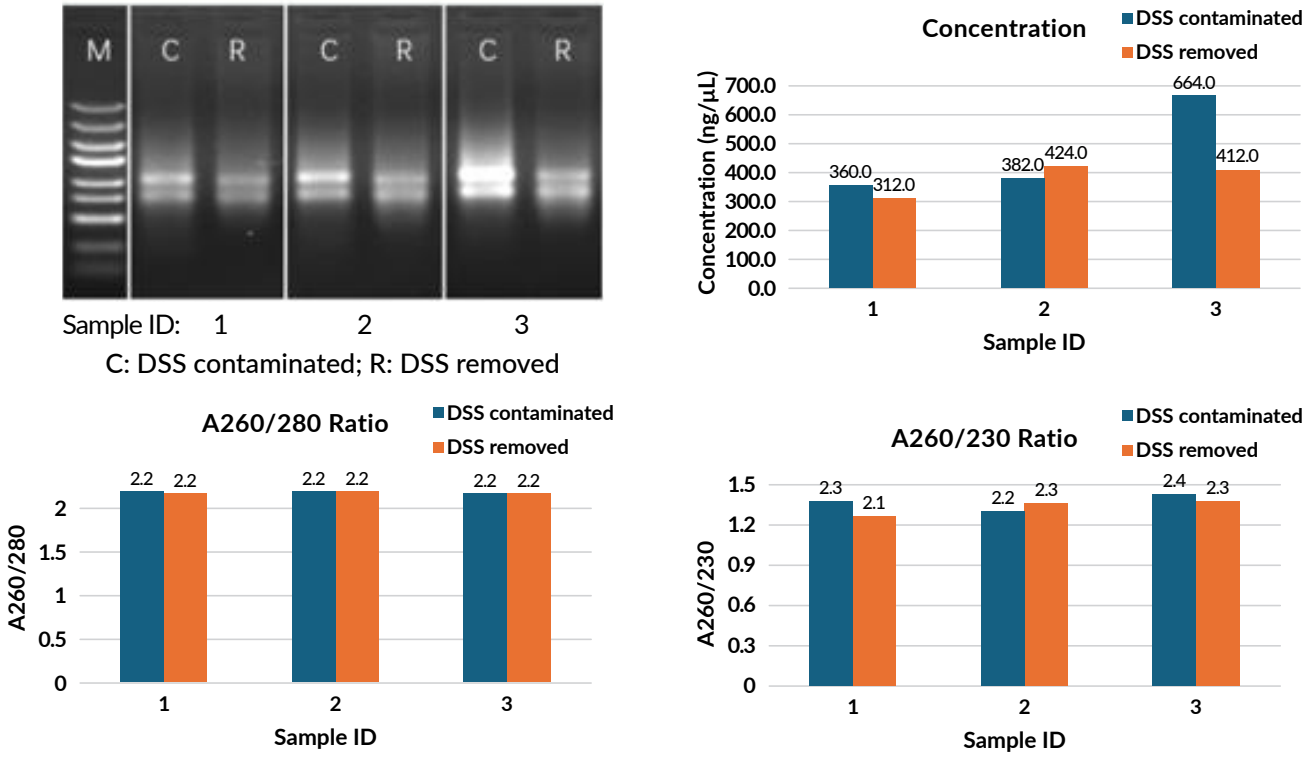


Figure 2: RNA yield and purity (A260/A280 and A260/A230 ratios) obtained from mouse feces (sample 1&2) and mouse intestinal contents (sample 3) using the SPINeasy DSS-Removal DNA/RNA Kit for Feces. The impact of DSS removal on RNA yield and purity may vary depending on the sample type, but remains consistently positive.

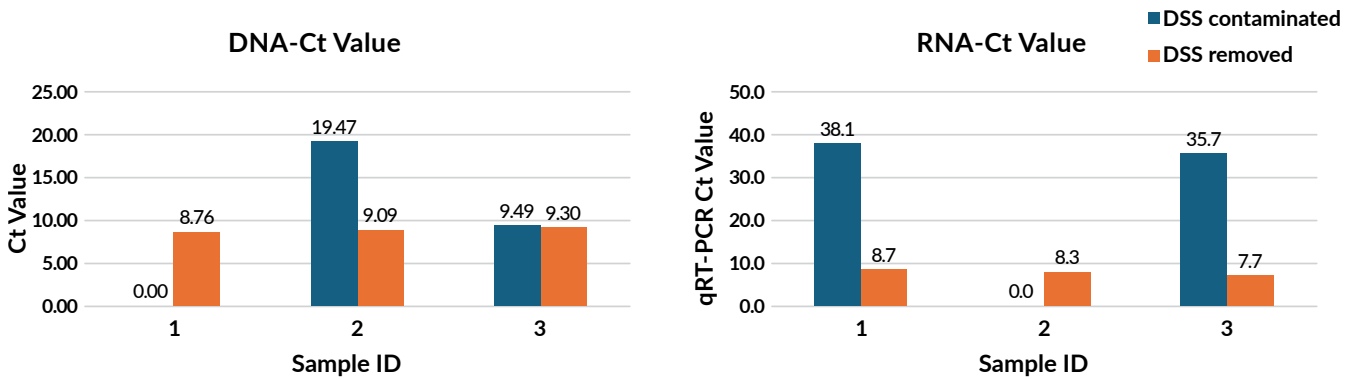


Figure 3: When the purified DNA/RNA was used as a template for qPCR/RT-qPCR, samples processed with the SPINeasy DSS-Removal DNA/RNA Kit for Feces showed robust amplification, whereas those without DSS removal exhibited severe inhibition.

Order Information

Product Name	Size	Catalogue No.
SPINeasy DSS-Removal DNA/RNA Kit for Feces	50 preps	116555050M
	5 preps	116555000M

SPINeasy® DNA Kit for Water

Significantly improve the purity
of extracted DNA

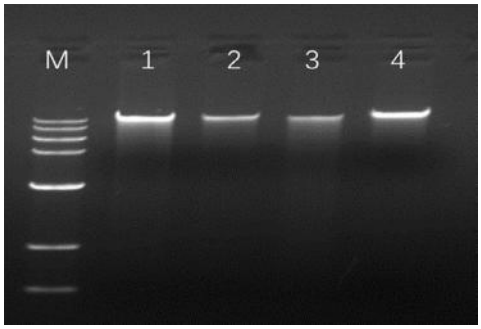
Rapid lysis
of microorganisms yields high concentrations of pure DNA

Suitable
for various types of water samples

Safe extraction process
does not require phenol, chloroform or other toxic reagents

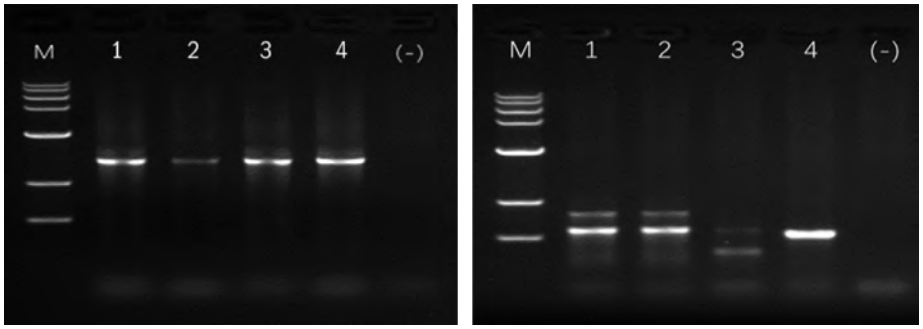
SPINeasy® DNA Kit for Water is specially designed to achieve quick isolation of genomic DNA from various types of water. This kit employs silica-membrane spin-column technology to effectively bind DNA. The resulting high-quality DNA can be used for downstream analyses. The kit is supplied with 5 mL lysing matrix and a sterile 0.22 µm filter membrane.

Product Performance



Lane M: DNA ladder
Lane 1: 100 mL river water
Lane 2: 165 mL pond water
Lane 3: 1000 mL sea water
Lane 4: 15 mL sewage

gDNA extracted from different types of water samples using SPINeasy® DNA Kit for Water, analyzed using 1 % agarose gel, and electrophoresed at 70 V for 30 min



Lane M: DNA ladder
Lane 1: River Water
Lane 2: Pond Water
Lane 3: Sea Water
Lane 4: Sewage
Lane (-): Negative Control

16S- PCR (left) & ITS-PCR (right) amplification of gene from different types of water samples using SPINeasy® DNA Kit for Water

Samples	Sample Volume$_{(mL)}$	Yield$_{(ng/\mu L\ sample)}$	A$_{(260/280)}$	A$_{(260/230)}$
River Water	100	46.22	1.88	1.90
Pond Water	165	19.85	1.86	2.32
Sea Water	1000	28.39	1.92	2.00
Sewage	15	120.32	1.83	1.65

Order Information

Product Name	Size	Catalogue No.
SPINeasy® DNA Kit for Water	50 preps	116536050
	5 preps	116536000

Optimize your environmental research workflow with MP Biomedicals sample preparation solution.

MP BIOMEDICALS

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