ZYMO RESEARCH

The Beauty of Science is to Make Things Simple

INSTRUCTION MANUAL

Quick-DNA™ Plant/Seed Miniprep Kit

Catalog No. **D6020**

Highlights

- Simple method for the isolation of inhibitor-free, PCR-quality DNA (up to 25 µg/prep) from a variety of plant and seed samples in as little as 20 minutes.
- The eluted DNA is ideal for downstream molecular-based applications including PCR, arrays, endonuclease digestion, etc.
- State-of-the-art, ultra-high density ***BashingBeads™*** are fracture resistant and chemically inert.

Contents

Product Contents & Specifications 1
Product Description..... 2-3
Protocol.....4
Supplementary MicroPrep Protocol.....5
Ordering Information 6

ZYMO RESEARCH CORP.

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Satisfaction of all Zymo Research products is guaranteed. If you should be dissatisfied with this product, please call 1-888-882-9682.

Product Contents

***Quick*-DNA™ Plant/Seed Miniprep Kit** (Kit Size)	**D6020** (50 preps.)	**Storage Temperature**
ZR BashingBead™ Lysis Tubes (2.0 mm)	50	Room Temp.
BashingBead™ Buffer	40 ml	Room Temp.
Genomic Lysis Buffer[1]	100 ml	Room Temp.
DNA Pre-Wash Buffer[2]	15 ml	Room Temp.
g-DNA Wash Buffer	50 ml	Room Temp.
DNA Elution Buffer	10 ml	Room Temp.
Prep Solution	30 ml	Room Temp.
Zymo-Spin™ III-F Filters	50	Room Temp.
Zymo-Spin™ III-HRC Filters	50	Room Temp.
Zymo-Spin™ IICR Columns	50	Room Temp.
Collection Tubes	200	Room Temp.
Instruction Manual	1	-

Note - Integrity of kit components is guaranteed for up to one year from date of purchase. Reagents are routinely tested on a lot-to-lot basis to ensure they provide maximal performance and reliability.

[1] For optimal performance, add beta-mercaptoethanol to 0.5%(v/v) i.e., 500 µl per 100 ml.

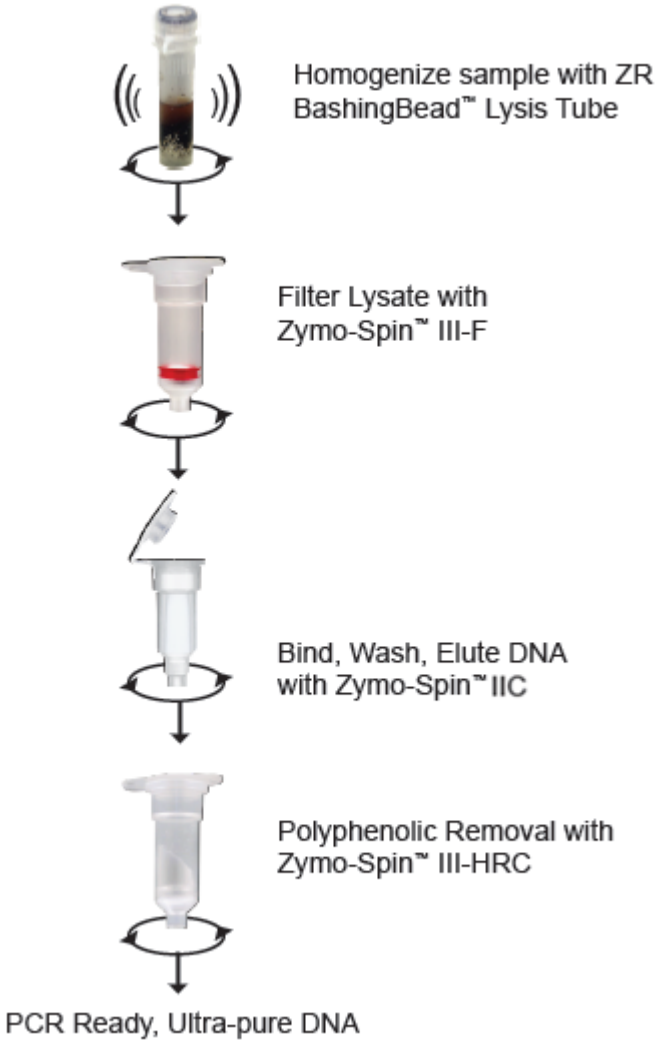
[2] A precipitate may have formed in the DNA Pre-Wash Buffer during shipping. To completely resuspend the buffer, incubate the bottle at 30 – 37 ºC for 30 minutes and mix by inversion. DO NOT MICROWAVE.

Specifications

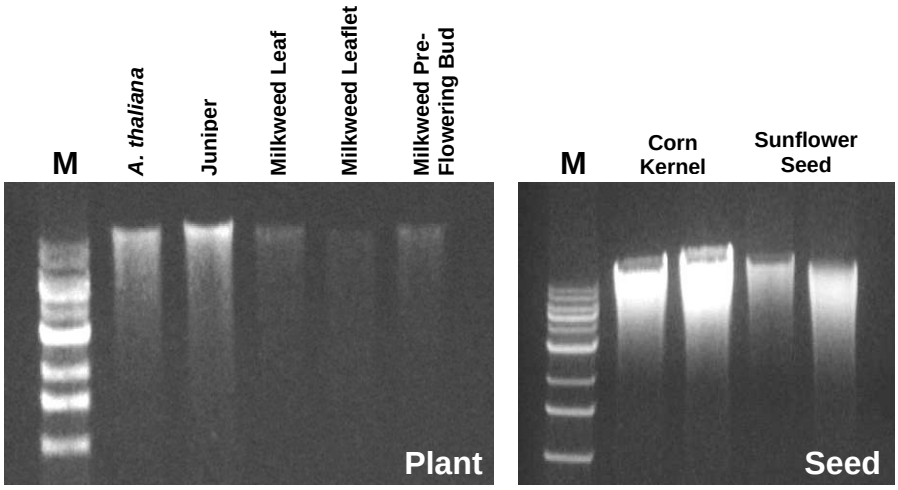
- **Format** – Bead Beating, Spin Column.
- **Sample Sources** – Up to 150 mg that include leaves, stems, buds, flowers, fruit, seeds, etc.
- **DNA Yield** – Typically 20-80 ng DNA/mg plant material.
- **DNA Purity** – High quality, inhibitor-free DNA is eluted with **DNA Elution Buffer** and is suitable for PCR amplification (A_{260}/A_{280} > 1.8).
- **DNA Size Limits** – Capable of recovering genomic DNA up to and above 40 kb. In most instances, mitochondrial DNA and viral DNA (if present) will also be recovered.
- **DNA Recovery** – Typically, up to 25 µg total DNA is eluted into 100 µl (50 µl minimum) **DNA Elution Buffer** per sample.
- **Equipment** – Microcentrifuge, vortex, cell disrupter/pulverizer (recommended).

Product Description

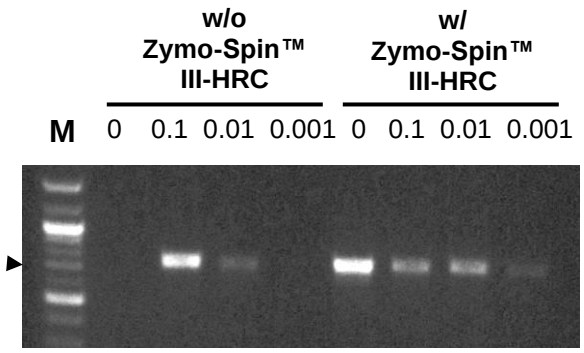
The ***Quick*-DNA™ Plant/Seed Miniprep Kit** is designed for the simple, rapid isolation of inhibitor-free, PCR-quality DNA from a variety of plant sample sources including leaves, stems, buds, flowers, fruit, seeds, etc. The procedure is easy and can be completed in as little as 15 minutes: plant samples (≤150 mg each) are added directly to a **ZR BashingBead™ Lysis Tube (2.0 mm)** and rapidly and efficiently lysed by bead beating without the use of organic denaturants or proteinases. Polysaccharides and polyphenols/tannins are removed from the DNA using our Zymo-Spin™ Technology, which includes the Zymo-Spin™ III-HRC filter, a PCR inhibitor removal column. The eluted DNA is ideal for downstream molecular-based applications including PCR, arrays, etc. A schematic of the ***Quick*-DNA™ Plant/Seed Miniprep Kit** procedure is shown below.



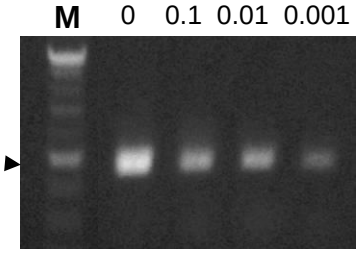
For **Technical Assistance**, please contact those at **Zymo Research's Technical Department** at 1-888-882-9682 or E-mail to tech@zymoresearch.com.



Comparison of DNA yields from various plant and seed samples using the ***Quick*-DNA™ Plant/Seed Kit.** Equivalent amounts of plant materials were processed with equal volumes of eluted DNA analyzed in a 0.8% (w/v) agarose/ethidium bromide gel. **M** is a 1 kb DNA size marker (Zymo Research).



PCR of diluted DNA (0 to 0.001) isolated with the ***Quick*-DNA™ Plant/Seed Kit** from *Arabidopsis thaliana* leaf samples demonstrates the effectiveness of the **Zymo-Spin™ III-HRC Column** at removing PCR inhibitors from the DNA. The arrow shows the relative migration of a ~700 bp amplicon from Chromosome 1 in a 0.8% (w/v) agarose/ethidium bromide gel. **M** is a 100 bp DNA size marker (Zymo Research Corp.)



PCR of diluted DNA (0 to 0.001) isolated with the ***Quick*-DNA™ Plant/Seed Kit** from corn kernels. The arrow shows the relative migration of a ~450 bp amplicon from mitochondrial DNA in a 0.8% (w/v) agarose/ethidium bromide gel. **M** is a 100 bp DNA size marker (Zymo Research Corp.)

Protocol

For optimal performance, add beta-mercaptoethanol (user supplied) to the **Genomic Lysis Buffer** to a final dilution of 0.5%(v/v) i.e., 250 µl per 50 ml *or* 500 µl per 100 ml.

1. Add up to 150 mg of finely cut plant or seed sample[1] to a **ZR BashingBead™ Lysis Tube (2.0 mm)**. Add 750 µl **BashingBead™ Buffer** to the tube and cap tightly.
2. Secure in a bead beater fitted with a 2 ml tube holder assembly and process at maximum speed for ≥ 5 minutes.

   Note: *Processing time will vary based on sample input and bead beater. Times may be as little as 5 minutes when using high-speed cell disrupters (FastPrep® -24) or as long as 20 minutes when using lower speeds (e.g., Disruptor Genie®).*
3. Centrifuge the ZR BashingBead™ Lysis Tube (2.0 mm) in a microcentrifuge at ≥10,000 x *g* for 1 minute.
4. Transfer up to 400 µl supernatant to a **Zymo-Spin™ III-F Filter** in a **Collection Tube** and centrifuge at 8,000 x *g* for 1 minute. Discard the Zymo-Spin™ III-F Filter.
5. Add 1,200 µl of **Genomic Lysis Buffer** to the filtrate in the Collection Tube from Step 4. Mix well.
6. Transfer 800 µl of the mixture from Step 5 to a **Zymo-Spin™ IICR Column[2]** in a Collection Tube and centrifuge at 10,000 x *g* for 1 minute.
7. Discard the flow through from the Collection Tube and repeat Step 6.
8. Add 200 µl **DNA Pre-Wash Buffer** to the Zymo-Spin™ IICR Column in a new Collection Tube and centrifuge at 10,000 x *g* for 1 minute.
9. Add 500 µl **g-DNA Wash Buffer** to the Zymo-Spin™ IICR Column and centrifuge at 10,000 x *g* for 1 minute.
10. Transfer the Zymo-Spin™ IICR Column to a clean 1.5 ml microcentrifuge tube and add 100 µl (50 µl minimum) **DNA Elution Buffer** directly to the column matrix. Centrifuge at 10,000 x *g* for 30 seconds to elute the DNA.
11. Place a **Zymo-Spin™ III-HRC Filter** in a clean Collection Tube and add 600 µl **Prep Solution.** Centrifuge at 8,000 x *g* for 3 minutes.
12. Transfer the eluted DNA to a prepared Zymo-Spin™ III-HRC Spin Filter in a clean 1.5 ml microcentrifuge tube and centrifuge at exactly 16,000 x *g* for 3 minutes.

    The filtered DNA is now suitable for PCR and other downstream applications.

[1] Dried samples may be hydrated in water prior to processing to improve DNA extraction efficiency.

[2] The Zymo-Spin™ IICR Column has a maximum capacity of 800 µl.

Ordering Information

Product Description	Catalog No.	Kit Size
***Quick*-DNA™ Plant/Seed DNA Kit**	D6020	50 preps.
***Quick*-DNA™ Plant/Seed DNA Kit**	D6021	2x96 preps.

For Individual Sale	Catalog No.	Amount
ZR BashingBead™ Lysis Tubes	S6003-50	50
BashingBead™ Buffer	D6001-3-40	40 ml
Genomic Lysis Buffer	D3004-1-100	100 ml
DNA Pre-Wash Buffer	D3004-5-15	15 ml
g-DNA Wash Buffer	D3004-2-50	50 ml
DNA Elution Buffer	D3004-4-10	10 ml
Prep Solution	D6035-1-30	30 ml
Zymo-Spin™ III-F Filters	C1057-50	50
Zymo-Spin™ IICR Columns	C1078-50	50
OneStep™ PCR Inhibitor Removal Kit	D6030	50
Collection Tubes	C1001-50 C1001-500 C1001-1000	50 500 1,000

Lysis Instruments

Description	Cat. No.	Amount
Disruptor Genie™, 120V w/ 2 ml tube holder assembly.	S6001-2-120	1 unit
Disruptor Genie™, 240V w/ 2 ml tube holder assembly.	S6001-2-240	1 unit
TurboMix Attachment, 2 ml Permanently mounts to most existing Vortex Genie™ mixers converting them to a Disruptor Genie™.	S6004-2	1 unit

The **Disruptor Genie™** with 2 ml tube holder assembly from Scientific Industries, Inc. (Cat. No. S6001-2-120 from Zymo Research Corp.)