



ZYMO RESEARCH

The Beauty of Science is to Make Things Simple

INSTRUCTION MANUAL

ZR Plant/Seed DNA MiniPrep™

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 15 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.
- Can be used with any bead mill, disrupter, or vortex that can accommodate standard 2 ml tubes.

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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

| ZR Plant/Seed DNA MiniPrep™ (Kit Size) | D6020 (50 preps.) | Storage Temperature |
|---|----------------------|------------------------|
| ZR BashingBead™ Lysis Tubes | 50 | Room Temp. |
| Lysis Solution | 40 ml | Room Temp. |
| Plant/Seed DNA Binding Buffer* | 100 ml | Room Temp. |
| DNA Pre-Wash Buffer** | 15 ml | Room Temp. |
| Plant/Seed DNA Wash Buffer | 50 ml | Room Temp. |
| DNA Elution Buffer | 10 ml | Room Temp. |
| Zymo-Spin™ IV Spin Filters (Orange Tops) | 50 | Room Temp. |
| Zymo-Spin™ IV-HRC Spin Filters (Green Tops) | 50 | Room Temp. |
| Zymo-Spin™ IIC 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.

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

** A precipitate may have formed in the DNA Pre-Wash Buffer during shipping. To completely resuspend the buffer, incubate the bottle at 30 – 37 °C 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** that 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 50-100 µl (25 µl minimum) **DNA Elution Buffer** per sample.
- **Equipment** – Microcentrifuge, vortex, cell disrupter/pulverizer (recommended)

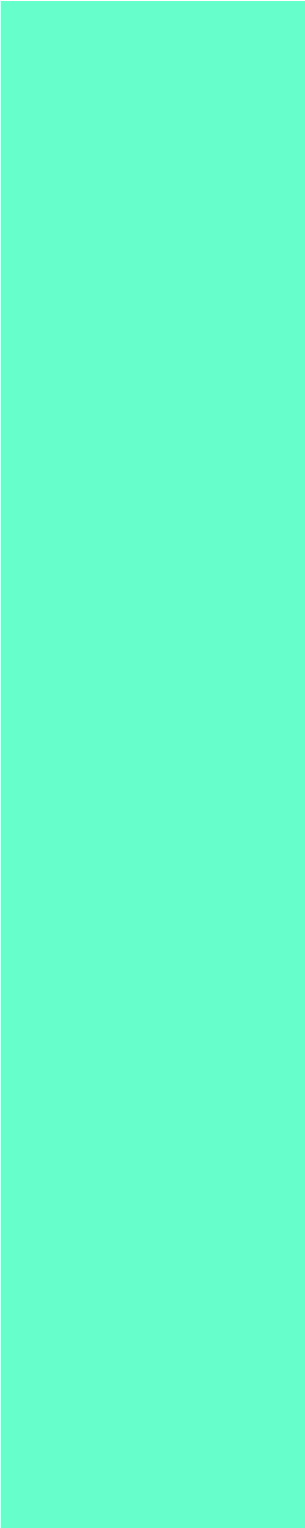
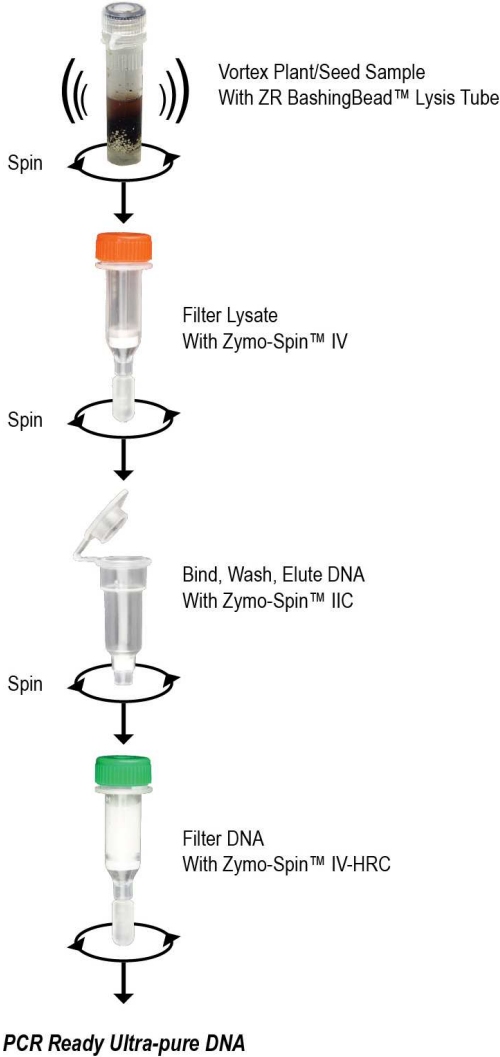
Note - ™ Trademarks of Zymo Research Corporation. This product is for research use only and should only be used by trained professionals. It is not intended for use in diagnostic procedures. Some reagents included with this kit are irritants. Wear protective gloves and eye protection. Follow the safety guidelines and rules enacted by your research institution or facility. Disruptor Genie™ is a trademark of Scientific Industries, Inc. and FastPrep® is a registered trademark of Qbiogene, Inc.

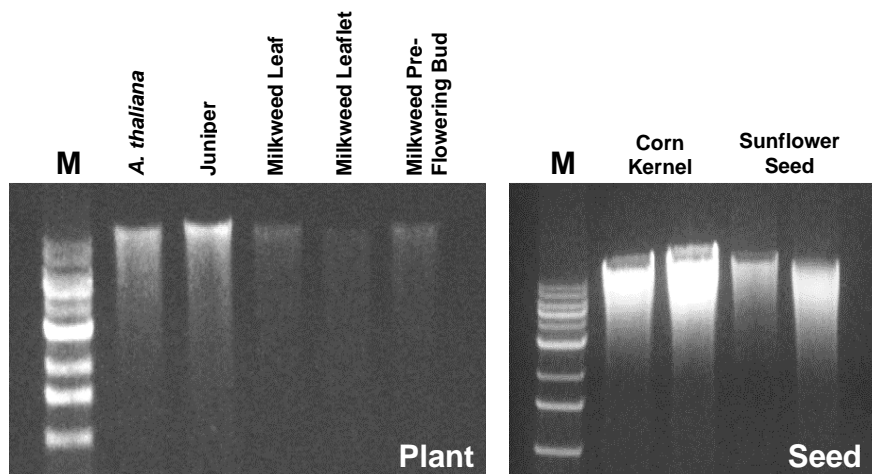
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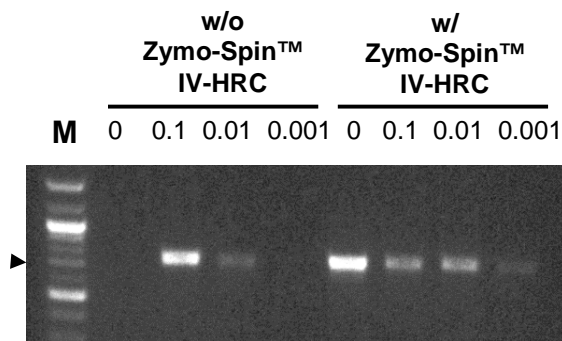
Product Description

The **ZR Plant/Seed DNA MiniPrep™** 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** and rapidly and efficiently lysed by bead beating (e.g., *Xpedition™* Sample Processor, page 6) without the use of organic denaturants or proteinases. Polysaccharides and polyphenols/tannins are removed from the DNA using our *Fast-Spin* column and **Zymo-Spin™ IV-HRC Column** technologies, respectively. The eluted DNA is ideal for downstream molecular-based applications including PCR, arrays, etc. A schematic of the **ZR Plant/Seed DNA MiniPrep™** procedure is shown below.

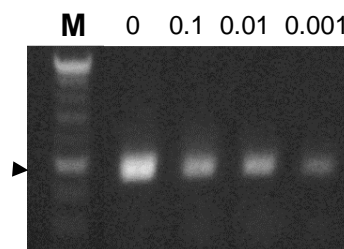




Comparison of DNA yields from various plant and seed samples using the **ZR Plant/Seed DNA MiniPrep™**. Equivalent amounts of plant materials were processed with equal volumes of eluted DNA analyzed in a 0.8% (w/v) agarose/ethidium bromide gel. **M** is a 1 kb DNA size marker (Zymo Research).



PCR of diluted DNA (0 to 0.001) isolated with the **ZR Plant/Seed DNA MiniPrep™** from *Arabidopsis thaliana* leaf samples demonstrates the effectiveness of the **Zymo-Spin™ IV-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 **ZR Plant/Seed DNA MiniPrep™** 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.)

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

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Protocol

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

Before Starting: **Zymo-Spin™ IV-HRC Spin Filters** (*green tops*) need to be prepared prior to use by: 1) snapping off the base, 2), inserting into a **Collection Tube**, and 3), spinning in a microcentrifuge at exactly 8,000 x *g* for 3 minutes.

1. Add up to 150 mg of finely cut plant or seed sample to a **ZR BashingBead™ Lysis Tube**. Add 750 µl **Lysis Solution** to the tube.
2. Secure in a bead beater fitted with a 2 ml tube holder assembly (e.g., Disruptor Genie™) and process at maximum speed for 10 minutes.

Processing times may be as little as 40 seconds when using high-speed cell disrupters (e.g., the portable **Xpedition™ Sample Processor**, page 6, FastPrep®-24, or similar). See manufacturer's literature for operating information.
3. Centrifuge the **ZR BashingBead™ Lysis Tube** in a microcentrifuge at ≥10,000 x *g* for 1 minute.
4. Transfer up to 400 µl supernatant to a **Zymo-Spin™ IV Spin Filter** (orange top) in a **Collection Tube** and centrifuge at 7,000 rpm (~7,000 x *g*) for 1 minute.
5. Add 1,200 µl of **Plant/Seed DNA Binding Buffer** to the filtrate in the **Collection Tube** from Step 4 and mix.
6. Transfer 800 µl of the mixture from Step 5 to a **Zymo-Spin™ IIC Column** 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™ IIC Column** in a new **Collection Tube** and centrifuge at 10,000 x *g* for 1 minute.
9. Add 500 µl **Plant/Seed DNA Wash Buffer** to the **Zymo-Spin™ IIC Column** and centrifuge at 10,000 x *g* for 1 minute.
10. Transfer the **Zymo-Spin™ IIC Column** to a clean 1.5 ml microcentrifuge tube and add 50-100 µl (25 µl minimum) **DNA Elution Buffer** directly to the column matrix. Centrifuge at 10,000 x *g* for 30 seconds to elute the DNA.
11. Transfer the eluted DNA from Step 10 to a prepared **Zymo-Spin™ IV-HRC Spin Filter** (green top) (see above) in a clean 1.5 ml microcentrifuge tube and centrifuge at exactly 8,000 x *g* for 1 minute. The filtered DNA is now suitable for PCR and other downstream applications.

If the HRC matrix is **dry**, add 400-600 µl water prior to prepping the filter.

Cap tube tightly to prevent leakage.

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

Alternatively, a standard bench top vortex can be used although the overall yield of DNA may be lower.

Snap off the base of the **Zymo-Spin™ IV Spin Filter** prior to use.

The **Zymo-Spin™ IIC Column** has a maximum capacity of 800 µl.

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Ordering Information

| Product Description | Catalog No. | Kit Size |
|------------------------------|-------------|-------------|
| ZR Plant/Seed DNA MicroPrep™ | D6022 | 50 preps. |
| ZR Plant/Seed DNA MiniPrep™ | D6020 | 50 preps. |
| ZR Plant/Seed DNA MidiPrep™ | D6120 | 25 preps. |
| ZR-96 Plant/Seed DNA Kit™ | D6021 | 2x96 preps. |

| For Individual Sale | Catalog No. | Amount |
|---|-------------|--------|
| ZR BashingBead™ Lysis Tubes | S6003-50 | 50 |
| Lysis Solution | D6001-3-40 | 40 ml |
| Plant/Seed DNA Binding Buffer | D6020-1-100 | 100 ml |
| DNA Pre-Wash Buffer | D3004-5-15 | 15 ml |
| Plant/Seed DNA Wash Buffer | D6020-2-50 | 50 ml |
| DNA Elution Buffer | D3004-4-10 | 10 ml |
| Zymo-Spin™ IV Spin Filters (Orange Tops) | C1007-50 | 50 |
| Zymo-Spin™ IV-HRC Spin Filters (Green Tops) | C1010-50 | 50 |
| Zymo-Spin™ IIC Columns | C1011-50 | 50 |
| Collection Tubes | C1001-50 | 50 |
| | C1001-500 | 500 |
| | C1001-1000 | 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 |

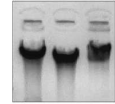
The **Disruptor Genie™** with 2 ml tube holder assembly from Scientific Industries, Inc. (Cat. No. S6001-2 from Zymo Research Corp.)

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Xpedition™ Sample Prep & Preservation Technologies: The Complete Solution to “TAKE THE LAB TO THE FIELD”

Workflow (e.g., DNA Purification)



Lyse/stabilize samples during your expedition using Xpedition™ Sample Processor & Lysis/Stabilization Solution

Store/transport lysates without refrigeration

Process *later* using Xpedition™ DNA Prep Kits

Intact, inhibitor-free DNA ready for analysis!

For Portable Sample Lysis...



| | | |
|------------|--|-----------|
| S6020 | Xpedition™ Sample Processor | 1 unit |
| D6202 | Xpedition™ Soil/Fecal DNA MiniPrep | 50 preps. |
| D6206 | Xpedition™ Fungal/Bacterial DNA MiniPrep | 50 preps. |
| D6216 | Xpedition™ Tissue & Insect DNA MiniPrep | 50 preps. |
| D6221 | Xpedition™ Plant/Seed DNA MiniPrep | 50 preps. |
| D6202-1-40 | Xpedition™ Lysis/Stabilization Solution | 40 ml |

All Xpedition™ DNA MiniPrep Kits feature a unique lysis/stabilization solution. This allows high quality DNA to be isolated immediately or when convenient for the researcher following storage/transport of sample lysates.

Other Popular Environmental DNA/RNA Purification Products

ENVIRONMENTAL DNA

| | | | |
|--|-------|------------------------------------|---------------|
| | D6003 | ZR Soil Microbe DNA MicroPrep™ | 50 preps. |
| | D6001 | ZR Soil Microbe DNA MiniPrep™ | 50 preps. |
| | D6101 | ZR Soil Microbe DNA MidiPrep™ | 25 preps. |
| | D6002 | ZR-96 Soil Microbe DNA Kit™ | 2 x 96 preps. |
| | D6007 | ZR Fungal/Bacterial DNA MicroPrep™ | 50 preps. |
| | D6005 | ZR Fungal/Bacterial DNA MiniPrep™ | 50 preps. |
| | D6105 | ZR Fungal/Bacterial DNA MidiPrep™ | 25 preps. |
| | D6006 | ZR-96 Fungal/Bacterial DNA Kit™ | 2 x 96 preps. |
| | D6012 | ZR Fecal DNA MicroPrep™ | 50 preps. |
| | D6010 | ZR Fecal DNA MiniPrep™ | 50 preps. |
| | D6110 | ZR Fecal DNA MidiPrep™ | 25 preps. |
| | D6011 | ZR-96 Fecal DNA Kit™ | 2 x 96 preps. |
| | D6015 | ZR Tissue & Insect DNA MicroPrep™ | 50 preps. |
| | D6016 | ZR Tissue & Insect DNA MiniPrep™ | 50 preps. |
| | D6115 | ZR Tissue & Insect DNA MidiPrep™ | 25 preps. |
| | D6017 | ZR-96 Tissue & Insect DNA Kit™ | 2 x 96 preps. |
| | D6022 | ZR Plant/Seed DNA MicroPrep™ | 50 preps. |
| | D6020 | ZR Plant/Seed DNA MiniPrep™ | 50 preps. |
| | D6120 | ZR Plant/Seed DNA MidiPrep™ | 25 preps. |
| | D6021 | ZR-96 Plant/Seed DNA Kit™ | 2 x 96 preps. |

ENVIRONMENTAL RNA

| | | | |
|--|-------|------------------------------------|-----------|
| | R2040 | ZR Soil/Fecal RNA MicroPrep™ | 50 preps. |
| | | | |
| | R2010 | ZR Fungal/Bacterial RNA MicroPrep™ | 50 preps. |
| | R2014 | ZR Fungal/Bacterial RNA MiniPrep™ | 50 preps. |
| | R2030 | ZR Tissue & Insect RNA MicroPrep™ | 50 preps. |
| | | | |
| | R2024 | ZR Plant RNA MiniPrep™ | 50 preps. |

ALSO AVAILABLE

| | | |
|------------|--|---------------|
| D6030 | OneStep™ PCR Inhibitor Removal Kit | 50 preps. |
| D6035 | OneStep-96™ PCR Inhibitor Removal Kit | 2 x 96 preps. |
| S6002-50 | ZR BashingBead™ Lysis Tubes (0.5 mm) | 50 tubes |
| S6003-50 | ZR BashingBead™ Lysis Tubes (2.0 mm) | 50 tubes |
| S6002-96-1 | ZR-96 BashingBead™ Lysis Rack (0.5 mm) | 1 rack |
| S6002-96-2 | ZR-96 BashingBead™ Lysis Rack (2.0 mm) | 1 rack |



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See the Xpedition™ Sample Processor in action!

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