Innovation to support science....

ZYMO RESEARCH

The Beauty of Science is to Make Things Simple

INSTRUCTION MANUAL

Quick-DNA™ Plant/Seed 96 Kit

Catalog No. **D6021**

Highlights

- Simple, high-throughput (96-well) isolation of DNA from all types of tough-to-lyse plant specimens (stems, roots, leaves, fruits, etc.) and seeds in as little as 50 minutes.
- State-of-the-art, ultra-high density ***BashingBeads™*** are fracture resistant and chemically inert.
- Omits the use of organic denaturants as well as proteinases.

Contents

For Research Use Only

Ver. 2.1.0

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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 96 Kit** (Kit Size)	**D6021** (2x96 preps.)	**Storage Temperature**
ZR BashingBead™ Lysis Rack (2.0 mm Beads)	2	Room Temp.
BashingBead™ Buffer	(2) 40 ml	Room Temp.
Genomic Lysis Buffer[1]	150 ml	Room Temp.
DNA Pre-Wash Buffer[2]	50 ml	Room Temp.
g-DNA Wash Buffer	100 ml	Room Temp.
DNA Elution Buffer	(2) 10 ml	Room Temp.
Prep Solution	30 ml	Room Temp.
96-Well Blocks	2	Room Temp.
Silicon-A™ Plate	2	Room Temp.
Silicon-A™-HRC Plate	2	Room Temp.
Collection Plate	2	Room Temp.
Elution Plate	6	Room Temp.
Cover Foil	4	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., 750 µl per 150 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.

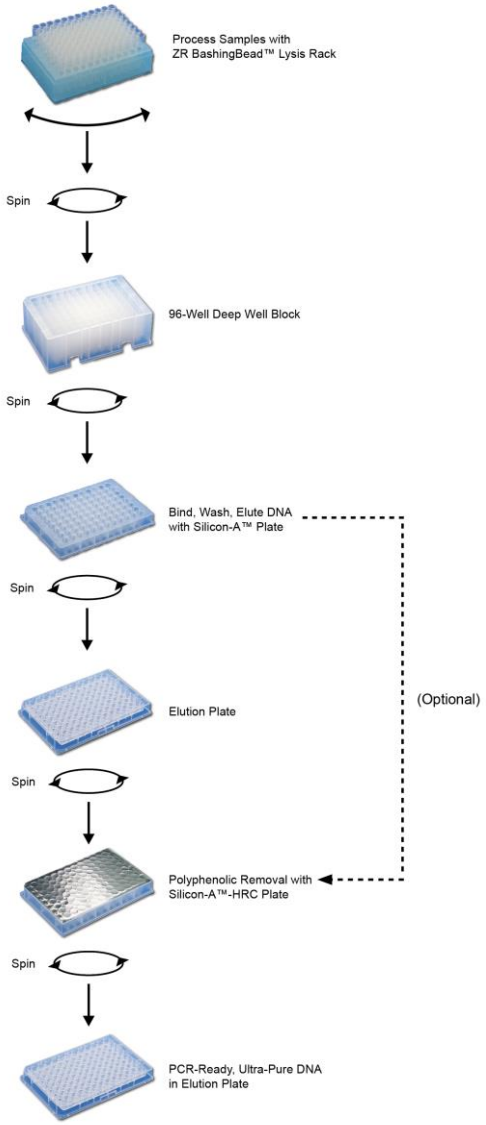
Specifications

- **Format** – Bead Beating, 96-Well Plate Purification
- **Sample Sources** – Up to 80 mg of plant sample sources which 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 sized 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 5 µg total DNA is eluted into 100 µl (50 µl minimum) **DNA Elution Buffer** per sample.
- **Equipment** – Centrifuge w/ microplate carriers, 96-well plate/block disruptor or pulverizer

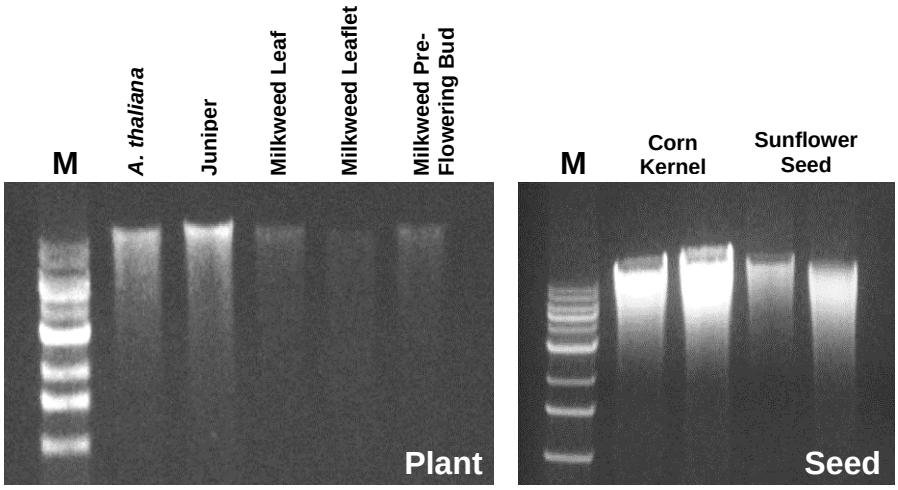
Note - ™ Trademarks of Zymo Research Corporation. This product is for research use only and should only be used by trained professionals. It is not intended for use in diagnostic procedures. Some reagents included with this kit are irritants. Wear protective gloves and eye protection. Follow the safety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

Product Description

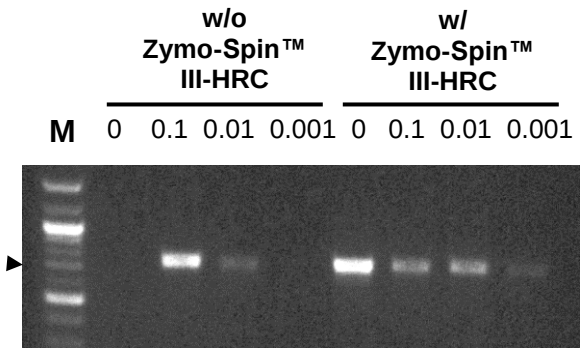
The ***Quick*-DNA™ Plant/Seed 96 Kit** is designed for the simple, rapid, and high-throughput (96-well) isolation of inhibitor-free, PCR-quality DNA from a variety of plant sample sources including leaves, stems, buds, flowers, fruit, seeds, etc. The procedure is easy and can be completed in as little as 50 minutes: plant samples (≤ 80 mg each) are added directly to the tubes of a **ZR BashingBead™ Lysis Rack (2.0 mm)** and are rapidly and efficiently lysed by bead beating (e.g., 2010 GenoGrinder® Instrument, page 5) without the use of organic denaturants or proteinases. Polysaccharides and polyphenols/tannins are removed from the DNA using our Zymo-Spin™ 96-well plate and **Silicon-A™-HRC Plate** technologies, respectively. The eluted DNA is ideal for downstream molecular-based applications including PCR, arrays, etc. A schematic of the ***Quick*-DNA™ Plant/Seed 96 Kit** procedure is shown below.



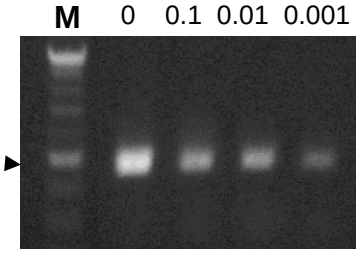
For **Technical Assistance**, please contact those at **Zymo Research's Technical Department** at 1-888-882-9682 or E-mail to tech@zymoresearch.com.



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 ***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., 750 µl per 150 ml.

Before Starting: The wells of a **Silicon A™-HRC Plate**[1] need to be prepared prior to use by: 1) Mounting the plate onto an **Elution Plate**, 2) Adding 150 µl **Prep Solution** to the wells by piercing the middle of the cover foil, and 3) Waiting for 5 minutes before centrifuging the plate at exactly 3,500 x *g* for 5 minutes.

[1] Make sure the matrices are located at the bottom of the wells of the **Silicon-A™-HRC** by firmly tapping the plate against a flat surface.

1. Add up to 80 mg of finely cut plant or seed sample to the tubes of a **ZR BashingBead™ Lysis Rack (2.0 mm)**. Add 400 µl **BashingBead™ Buffer** to each tube. Cap tubes tightly to prevent leakage.

2. Secure in a 96-well block/plate bead beater (e.g., 2010 GenoGrinder®) and process samples. Optimization of processing time/speed will be necessary for complete sample lysis.

   Note: *Processing times may be as little as one minute when using high-speed bead beaters (e.g., 2000 GenoGrinder®, page 5). See manufacturer's literature for specific operating information.*

3. Centrifuge the **ZR BashingBead™ Lysis Rack (2.0 mm)** at ≥ 3,000 x *g* (5,000 x *g* max.) for 5 minutes.

4. Transfer up to 250 µl supernatant to each well of a **96-Well Block**.

5. Add 750 µl of **Genomic Lysis Buffer** to the supernatant in the **96-Well Block** from Step 4. Cover completely with **Cover Foil** and mix thoroughly by vortexing for 2 minutes. Centrifuge the **96-Well Block** at ≥ 3,000 x *g* (5,000 x *g* max.) for 5 minutes.

6. Remove or pierce foil and transfer 500 µl of each of the supernatants from Step 5 to the wells of a **Silicon-A™ Plate** on a **Collection Plate**. Centrifuge the assembly at ≥ 3,000 x *g* (5,000 x *g* max.) for 5 minutes.

   Be careful to avoid pipetting debris that can clog the wells of the **Silicon-A™ Plate**

7. Discard the flow through from the **Collection Plate** and repeat Step 6.

8. Add 200 µl **DNA Pre-Wash Buffer** to the wells of the **Silicon-A™ Plate** on the emptied **Collection Plate** and centrifuge the assembly at ≥ 3,000 x *g* for 5 minutes.

9. Add 500 µl **g-DNA Wash Buffer** to the wells of the **Silicon-A™ Plate** on the **Collection Plate** and centrifuge the assembly at ≥ 3,000 x *g* for 5 minutes.

10. Transfer the **Silicon-A™ Plate** onto a clean **Elution Plate** and add 100 µl (50 µl minimum) **DNA Elution Buffer** directly to the matrices in the plate. Centrifuge the assembly at ≥ 3,000 x *g* for 5 minutes.

11. Transfer the eluted DNA from Step 10 to a prepared **Silicon-A™-HRC Plate** mounted onto a clean **Elution Plat**e. Centrifuge the assembly at exactly 3,500 x *g* for 3 minutes.

    Eluted, ultra-pure DNA is now ready for use in your experiments, or the **Elution Plate** can be covered with **Cover Foil** for storage of the DNA.

Ordering Information

Product Description	Format	Catalog No.	Kit Size
***Quick*-DNA™ Plant/Seed Miniprep Kit**	Spin Column	D6020	50 preps.
***Quick*-DNA™ Plant/Seed 96 Kit**	96-Well	D6021	2x96 preps.

For Individual Sale	Catalog No.	Amount
Genomic Lysis Buffer	D3004-1-150	150 ml
BashingBead™ Buffer	D6001-3-40	40 ml
DNA Pre-Wash Buffer	D3004-5-50	50 ml
g-DNA Wash Buffer	D3004-2-100	100 ml
DNA Elution Buffer	D3004-4-10	10 ml
Prep Solution	D6035-1-30	30 ml
ZR BashingBead™ Lysis Rack (2.0 mm Beads)	S6002-96-2	1 rack
Silicon-A™-HRC Plates	C2009	2 plates
96-Well Blocks	P1001-2	2 blocks
Silicon-A™ Plates	C2001	2 plates
Collection Plates	C2002	2 plates
Elution Plates	C2003	2 plates

The Ultimate Combination For High-Throughput Sample Lysis!

High-Throughput BashingBead™ Kits From Zymo Research & The 2010 GenoGrinder® Instrument From Spex SamplePrep.

High-Throughput Lysis of Tough or Frozen Samples in Minutes!

Description	Cat. No.	Amount
2010 GenoGrinder® w/ 2 x 96-well block head adapter	S6006	1 unit
Aluminum CryoBlock/48 x 2.0 ml Tube Adapter	S6006-1	1 pair

GenoGrinder and accessories for sale in USA only. Visit www.spexcsp.com for a distributor near you.