



EchoLUTION™

Plant DNA Kit

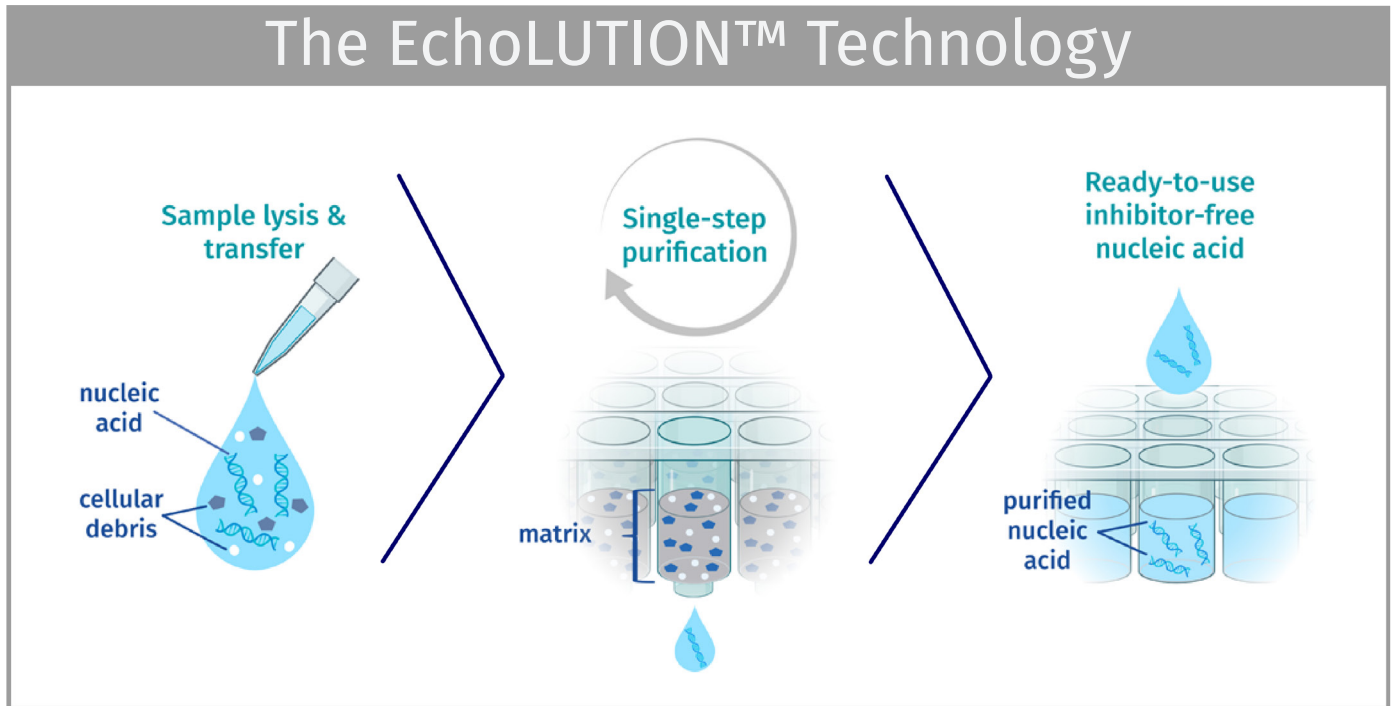


Extract high-quality plant DNA even from difficult samples

The Nucleic Acid Experts.

Extract high-quality plant DNA even from difficult samples

Plant molecular genetic analysis based on genotyping, microarrays, and next-generation sequencing (NGS) is fundamental for breeding and crop science research. To guarantee a reliable result for these applications, researchers and breeders need high-quality plant DNA. Our EchoLUTION technology allows the extraction of nucleic acids in a single step after sample lysis. The combination of this revolutionary method and a lysis step performed under physiological conditions enables the extraction of high-yield plant genomic DNA in a short time. The EchoLUTION Plant DNA Kit is compatible with different plant species and tissues such as leaves, seeds, and roots.



The EchoLUTION™ Plant DNA Kit provides:

- Convenience and speed** → Single-step purification allows complete extraction of 96 samples within one and a half hours.
- High compatibility** → Suitable for a wide range of plant species such as strawberry, parsley, tomato, potato, wheat, barley, and many others
- High sensitivity** → Highly pure genomic DNA free of contaminants and inhibitors
- Reliable results** → Lysis under aqueous conditions results in long and intact DNA fragments perfectly suited for downstream applications such as PCR and NGS.
- Sustainability** → Up to 56 % less plastic consumption compared to other extraction methods and no usage of hazardous reagents.

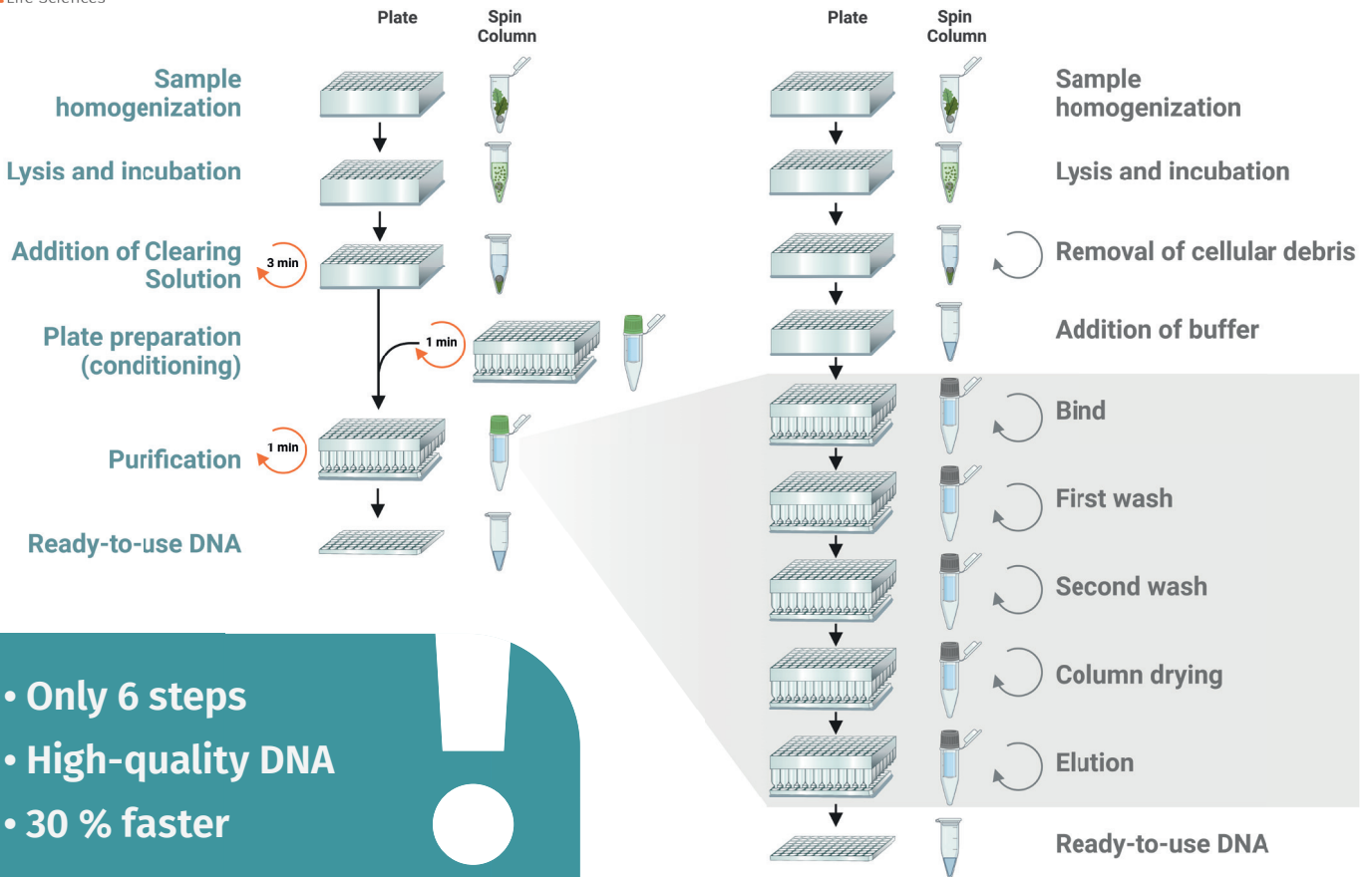
The workflow: faster and fewer steps

The single-step purification technology from BioEcho reduces the hands-on time and total number of steps, allowing the DNA extraction of 96 plant samples to be completed within one and a half hours. The EchoLUTION Plant DNA Kit is available in spin column and plate formats (96- and 384-well), giving you the flexibility to scale up your throughput.



EchoLUTION™ technology

Bind-wash-elute method



Get competitive yield with the EchoLUTION™ Plant DNA Kit

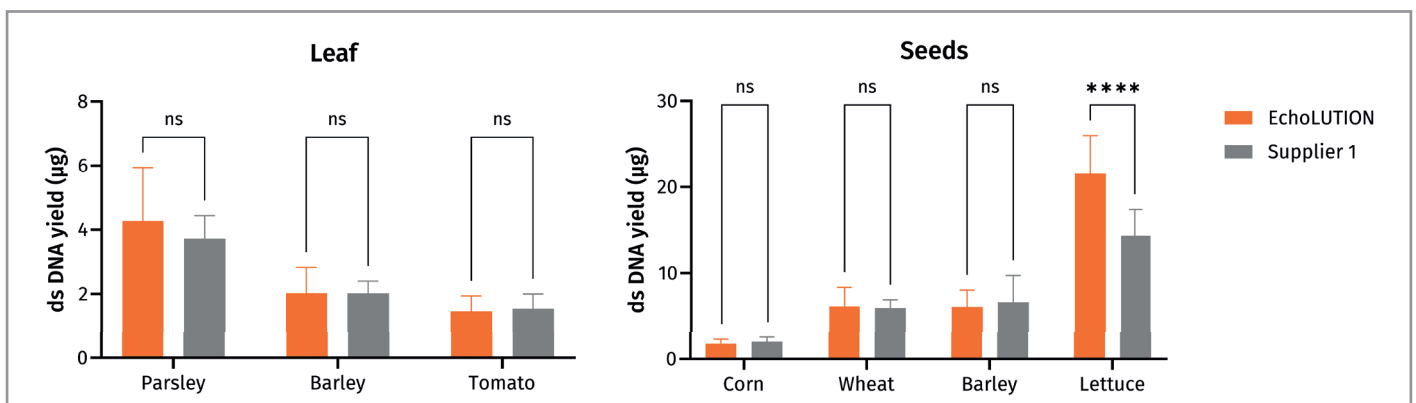


Figure 1. Competitive DNA yield with EchoLUTION Plant DNA Kit. Data show that DNA yields obtained for various plant species and sample types (leaves and seeds) with the EchoLUTION Plant DNA Kit are comparable to or higher than with a magnetic bead-based method (Supplier 1). We used 30 mg of input material and analyzed the data with Qubit™ for both extraction methods. Column height represents the means of three independent trials with four biological replicates each. Error bars represent the standard deviation. Differences between the extraction methods were determined using a Two-Way ANOVA or mixed model, where (****) represents a $p < 0.0001$.

Achieve higher purity levels with BioEcho

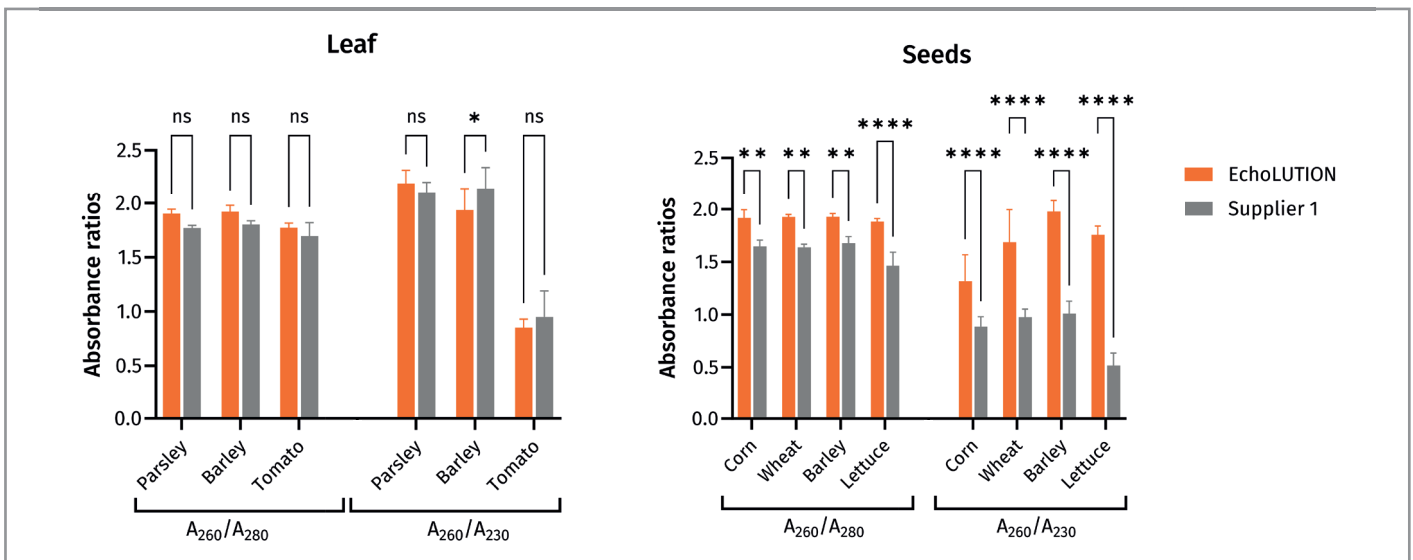


Figure 2. Increased DNA purity for leaf and seed samples obtained with the EchoLUTION Plant DNA Kit. DNA purity analyzed with NanoDrop™ showed that samples isolated with the EchoLUTION technology had comparable and, in some cases, superior absorbance ratios (A_{260}/A_{280} and A_{260}/A_{230}) than with a magnetic bead-based method (Supplier 1). Column height represents the means of three independent trials with four biological replicates each. Error bars represent the standard deviation. Differences between the extraction methods were determined using a Two-Way ANOVA or mixed model, where (*) represents a $p < 0.05$, (**) represents a $p < 0.005$, and (****) represents a $p < 0.0001$.

Suitable DNA for downstream applications—Do not compromise your results

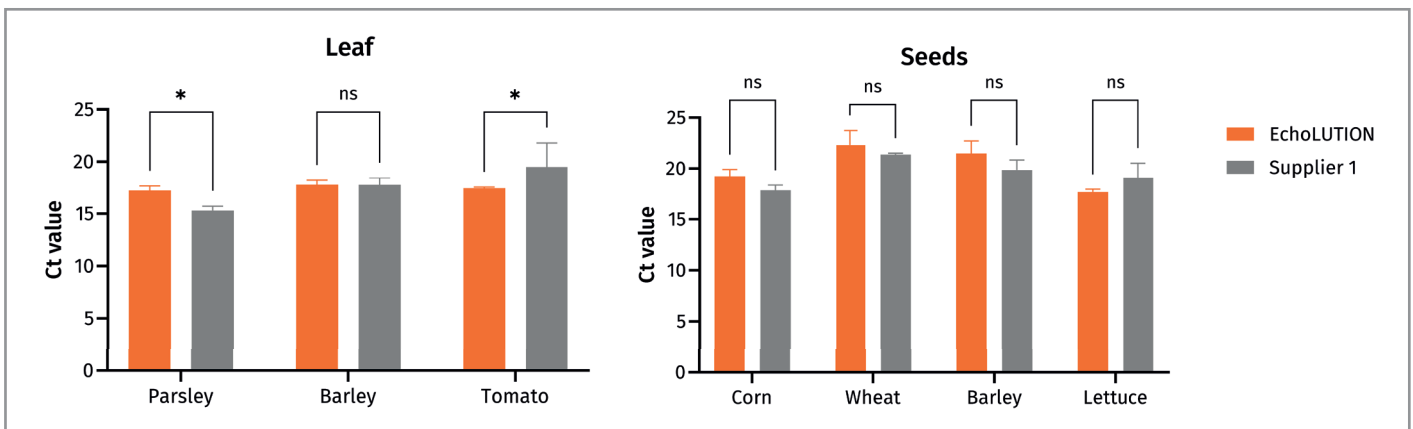


Figure 3. DNA isolated with BioEcho has comparable sensitivity with other suppliers. qPCR results show amplification and no inhibition for the samples extracted with both EchoLUTION and magnetic bead-based technologies. Column height represents the mean of two independent trials with two biological replicates each. Error bars represent the standard deviation. Differences between the extraction methods were determined using a Two-Way ANOVA, where (*) represents a $p < 0.05$.

Get to know the DNA integrity obtained with EchoLUTION™

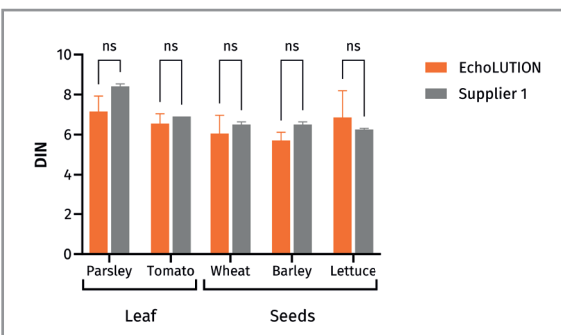


Figure 4. Similar levels of DNA integrity were obtained with BioEcho and a magnetic bead-based product. The DNA integrity (DIN) data indicate no significant difference in the integrity level for the DNA obtained with EchoLUTION and magnetic bead-based (Supplier 1) methods. DNA samples were measured on TapeStation®. Column height represents the mean of two independent trials with two biological replicates each. Error bars represent the standard deviation.



Go green with EchoLUTION™: less plastic and liquid waste

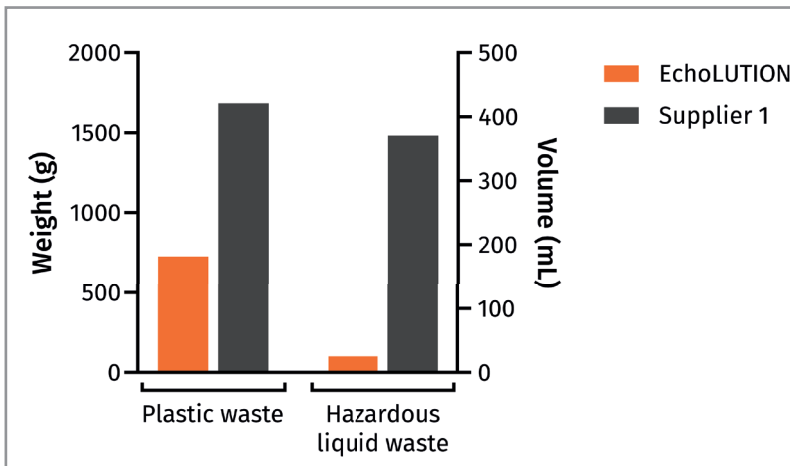


Figure 5. Plant DNA extraction with BioEcho saves up to 56% in plastic waste and generates 93 % less liquid waste. The graph depicts the amount of plastic pieces and total hazardous liquid waste generated with the EchoLUTION Plant DNA Kit and a silica-based method. We included all plastic components like reagent bottles, bags, plates, foils, and pipette tips to determine the total plastic waste. Additionally, we calculated the number of tips needed for reagent transfers using an 8-channel pipette. Column height represents the total waste generated for the DNA extraction of 192 (2 x 96) samples. Further, with EchoLUTION, hazardous reagents are reduced to a minimum, thus minimizing the environmental impact.

Specifications at a glance



Sample type: Plant leaves and seeds (fresh, frozen, dried, or freeze-dried)



Processing: Manual through centrifugation/(semi)automated with liquid handler



Sample input: 2–30 mg of plant material depending on sample type



Output volume: ~100 μL (spin column and 96-well plates) or ~25 μL (384-well plates)

The innovative EchoLUTION Plant DNA Kit takes the hassle out of extracting DNA from various plant species, making the process easier, faster, and more sustainable than ever before. We believe in the potential of EchoLUTION technology, because of their reliable results and efficient downstream applications.

Josh Clevenger, PhD

HudsonAlpha Institute for Biotechnology
Huntsville, USA

We use the EchoLUTION Plant DNA Kit to isolate high-quality DNA from large input samples of difficult tissues. Our previous protocol was challenging and time-consuming and with their innovative and flexible EchoLUTION technology, BioEcho enabled us to streamline and significantly shorten this process.

Kai Ament, PhD

Bejo Zaden B.V.
Warmenhuizen, Netherlands



Ordering information

Product	Reactions	Product no.
EchoLUTION Plant DNA Kit (10)	10	010-003-010
EchoLUTION Plant DNA Kit (50)	50	010-003-050
EchoLUTION Plant DNA Kit (250)	250	010-003-250
EchoLUTION Plant DNA Kit (2 x 96)	2 x 96	010-103-002
EchoLUTION Plant DNA Kit (8 x 96)	8 x 96	010-103-008
EchoLUTION Plant DNA Kit (2 x 384)	2 x 384	010-303-002
EchoLUTION Plant DNA Kit (8 x 384)	8 x 384	010-303-008
Steel Beads, 4 mm (2,000 beads)*	2,000 beads	050-006-002
Steel Beads, 4 mm (10,000 beads)*	10,000 beads	050-006-010
Tube & Cap Strips (8 racks of 96)*	8 racks of 96	060-002-008
Lysis Plate 96, Type 1 (8 plates)*	8 plates	060-003-008
Conditioning Plate 96 (2 plates)**	2 plates	060-001-002
Conditioning Plate 96 (8 plates)**	8 plates	060-001-008
Conditioning Plate 384 (2 plates)**	2 plates	060-006-002
Conditioning Plate 384 (8 plates)**	8 plates	060-006-008


* Steel Beads, Tube & Cap Strips, and Lysis Plate 96, Type 1 are not included in the kit.

These components are used for sample homogenization and can be purchased separately.

**For sustainability reasons, Conditioning Plates are not included in our kits.

These plates are reusable and can be purchased separately.




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