Promega

Product Application

Isolating DNA from Arabidopsis Leaf Tissue Using the ReliaPrep™ gDNA Tissue Miniprep System

Isolate high quality, amplifiable DNA from Arabidopsis plant leaves using the ReliaPrep™ gDNA Tissue Miniprep System.

Kit: ReliaPrep™ gDNA Tissue Miniprep System (Cat. #A2051)

Sample Type(s): Arabidopsis leaf tissue

Input: Up to 25mg

This protocol was developed by Promega Applications Scientists and is intended for research use only.

Users are responsible for determining suitability of the protocol for their application.

Further information can be found in Technical Manual #TM345, available at: www.promega.com/protocols

OR For further information, please contact **techserv@promega.com**

Materials Required:

- ReliaPrep™ gDNA Tissue Miniprep System (A2051)
- Liquid nitrogen
- Mortar and pestle
- Microtubes
- 2.0mL screw-top tubes
- Homogenization steel bead
- Bead-beating device (e.g., MP Biomedicals FastPrep®-24 Instrument)
- Microcentrifuge

Protocol:

1. For bead beaten samples, using a 5mm punch, place desired number of punches (up to 25mg) into a 2ml screw-top tube.
    a. To each sample add:
        - 100µl of Tail Lysis Buffer (TLA)
        - 300µl of Cell Lysis Buffer (CLD)
        - 20µl of RNase A Solution
        - 20µl of Proteinase K
    b. Using the bead-beating device, homogenize samples for desired time (e.g., FastPrep®-24 Instrument at 4M/S, 20seconds x 4 times with 20 second delay between each time).
    c. Centrifuge samples in a microcentrifuge at max speed for 1 minute.
2. For liquid nitrogen ground samples, add up to 25mg of tissue into a 2ml screw-top tube.
    a. To each sample add:
        - 100µl of Tail Lysis Buffer (TLA)
        - 300µl of Cell Lysis Buffer (CLD)
        - 20µl of RNase A Solution
        - 20µl of Proteinase K
    b. Vortex for 10 seconds.
3. Incubate at room temperature for 10 minutes.
4. Add 250µl of Binding Buffer (BBA) to each sample and vortex for 10 seconds.

5. Centrifuge samples at max speed for 2 minutes and transfer liquid supernatant to a ReliaPrep™ Binding Column inside a collection tube.
6. Centrifuge samples at max speed for 1 minute. Transfer column to a new collection tube, discard the flow through and used collection tube.
7. Add 500µl of Column Wash Solution (CWD) to the sample and centrifuge at max speed for 2 minutes. Repeat this wash step for a total of 3 times, discarding liquid and collection tubes after every wash.
8. Once washed, transfer the column to a clean 1.5ml tube. Add 50µl of Nuclease-Free Water to each sample and centrifuge at max speed for 1 minute. Discard the column.
9. Eluates are ready for use in downstream applications.

Results:

Preprocessing	NanoDrop		QuantiFluor® ONE	
	A_{260}/A_{280}	A_{260}/A_{230}	ng/µl	Yield (µg)
Beat Beating	2.05	1.14	4.84	0.22
Liquid Nitrogen Ground	2.14	1.11	3.05	0.14

Table 1. Plant leaf DNA concentrations, yields, and purity based on quantitation using the QuantiFluor® ONE dsDNA System (Cat. #E4871) and the NanoDrop-1000. DNA of high purity was recovered with purity ratios for samples >1.80. N=3.

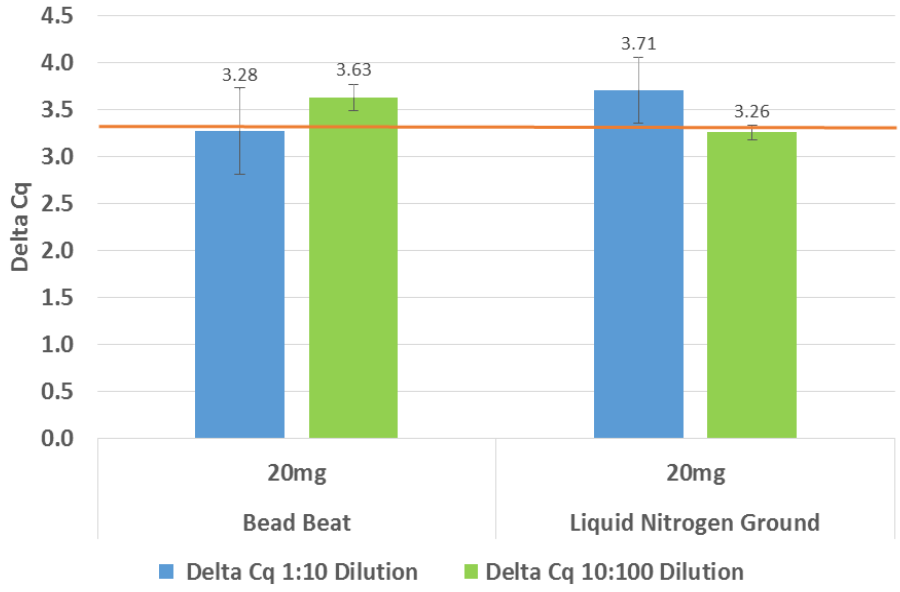

Figure 1. Inhibition analysis of purified Arabidopsis plant leaf DNA. DNA samples were serial diluted 1:10 and 10:100. For a sample diluted 10-fold, ΔCq values are expected to be 3.3. ΔCq values significantly less than 3.3 may indicate the presence of inhibitors. ΔCq values of plant tissue samples indicate little to no inhibition of the serial diluted eluates. N=3.

