Clean Quick Plant

Instructions for Use

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For Research Use Only

REF **CQP-D0050, CQP-D0500**

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Contents

Intended Use

The purpose of the reagent is to extract genomic DNA from plant seeds or leaves in a sufficient purity to be used in downstream detection procedures based on the principle of Polymerase Chain Reaction (PCR).

Intended User

The intended users are professional laboratory employees trained in molecular biology techniques.

Introduction and Principle

The Clean Quick Plant is a fast and efficient solution for DNA isolation from plant samples, including leaves and seeds. Utilizing magnetic bead-based technology, this single-component reagent streamlines DNA extraction while ensuring high purity and yield. Designed for flexibility, Clean Quick Plant is suitable for manual processing as well as automated workflows on platforms such as our CleanXtract 96 or Thermo Fisher's KingFisher™ Flex.

This reagent does not include a lysis buffer, allowing users to select or optimise lysis conditions based on their specific plant material and application needs. With its automation compatibility, reliability, and scalability, Clean Quick Plant is an ideal choice for high-throughput plant DNA extraction in molecular biology workflows.

Schematic Overview

Disrupted plant samples are first lysed with a lysis buffer of choice (not included). Clean Quick Plant is then added to the lysed plant material and the DNA binds to the surface of the magnetic particles. The CleanNA magnetic particles are separated from the lysate by a magnetic separation device. Following a few ethanol (not included) wash steps to remove trace contaminants, the purified DNA is eluted from the CleanNA particles using an elution buffer or molecular biology grade water. The eluted DNA is directly suitable for downstream applications.

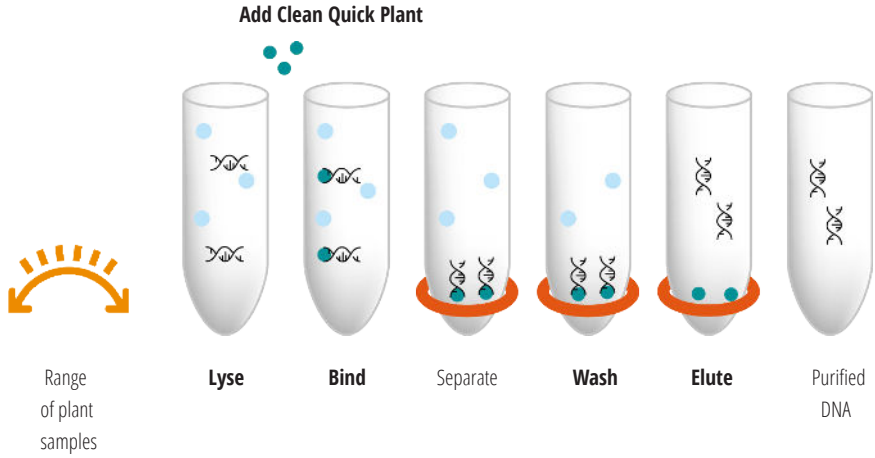

Figure 1: Schematic overview of the Clean Quick Plant extraction procedure (lysis buffer not included).

Materials Provided

Kit Contents:

Product Number	Description	Number of Reactions
CQP-D0050	Clean Quick Plant - 50 mL	1000 (leaf material) 500 (seed material)*
CQP-D0500	Clean Quick Plant - 500 mL	10000 (leaf material) 5000 (seed material) **

*Based on 100 µl lysate input material with 50 µl Clean Quick Plant per reaction for leaf material.

**Based on 300 µl lysate input material with 100 µl Clean Quick Plant per reaction for seed material.

Reagent Shipping, Storage and Handling

Shipping of Clean Quick Plant should be done at room temperature (15-25 °C).

Do not freeze Clean Quick Plant. After the Clean Quick Plant has been frozen, it is no longer suitable for use.

Component	Storage Temperature
Clean Quick Plant	2-8 °C

Do not use Clean Quick Plant after the expiration date on the label.

Warnings

Read the instructions carefully before using the kit.

Do not mix several kit LOT numbers.

Make sure that the kit bottle is not damaged and that no liquid leaked from it. Do not use a kit that has been damaged.

Precautions

When working with chemicals, always follow your facility's procedures and universal precautions by using disposable gloves, safety glasses, a labcoat etc.

For all safety information, please consult the safety data sheet (SDS). Request your SDS via www.cleanna.com/sds-request.

Clean Quick Plant	
No hazard pictogram	No precautionary statement(s) Prevention or Response

Note: For safe disposal, please consult your local waste regulations.

Quality Control

CleanNA produces each lot of Clean Quick Plant according to predetermined and validated protocols in the Quality Management System (QMS). Additionally, a quality check after production of each lot is performed to secure consistent product quality. CleanNA's QMS is EN-ISO 13485 certified.

Limitations

The performance of Clean Quick Plant has been established in combination with the input materials and lysis buffer type below.

Input materials:

- Leaf material
- Seed material

Lysis buffer type:

- CTAB Lysis buffer

Depending on the plant or sample type used, some protocol modifications may be necessary. We recommend the use of an internal extraction control to aid optimisation of the Clean Quick Plant extraction process.

Materials and Equipment to be Supplied by User

Materials and reagents to be supplied by user for Clean Quick Plant protocols:

- Supernatant of lysed plant leaf or seed material
- 96-well microplate (for leaf protocol)
- 1.5 mL micro centrifuge tube(s) (for seed protocol)
- Magnetic separation device, Clean Magnet Plate 96-Well RN50 recommended for 96- well microplate (Part# CMAG-96-RN50)
- (Multichannel) pipettes and tips
- Multichannel disposable reservoirs
- 96-well microplate for elution
- 80% ethanol (freshly prepared from non-denatured alcohol)
- Molecular biology grade water (RNase free) or Elution Buffer (10mM Tris-HCl pH 8.0)

Protocol for DNA isolation from Plant Leaf Material

Before Starting:

• Make sure the Clean Quick Plant is at room temperature before starting.

Protocol:

1. Transfer 100 µl of supernatant in a new 96 wells microplate.
2. Add 50 µl Clean Quick Plant to the supernatant and pipette up and down 10 times (ratio Supernatant leaf material : Clean Quick Plant must always be 2:1).

⚠ **Note:** Make sure the Clean Quick Plant magnetic particles are fully resuspended before adding to the supernatant.

3. Incubate at room temperature for 5 minutes.
4. Place the plate on the magnetic separation device to magnetize the Clean Quick Plant beads. Incubate at room temperature until the Clean Quick Plant beads are completely cleared from solution.
5. Aspirate and discard the cleared supernatant. Do not disturb the Clean Quick Plant beads.

⚠ **Note:** It is important not to discard beads with the supernatant, since this will have a direct effect on the yield.

6. Add 150 µl 80% ethanol to each well.
7. Take the plate from the magnetic stand and pipette up and down for 10 times.
8. Incubate at room temperature for 30 seconds and place the plate back on the magnetic separation device to magnetize the Clean Quick Plant beads.
9. Incubate at room temperature until the Clean Quick Plant beads are completely cleared from solution.
10. Repeat step 5-9 for 2 times, to perform a total of 3 washes.
11. Leave the plate on the magnetic separation device for 2-5 minutes to dry the beads.

⚠ **Note:** It is important not to overdry the Clean Quick Plant beads.

12. Remove, using a small volume pipette, the last residual ethanol present in the wells.
13. Take the plate from the magnetic separation device.
14. Add 50-100 µl elution buffer (not provided) or Molecular biology grade water to each well.
15. Pipette up and down for 20 times to resuspend the beads.

16. Incubate the sample for 5 minutes at room temperature.

⚠ **Note:** This incubation step can also be performed at 65 °C to enhance elution of the DNA.

17. Place the plate back on the magnetic separation device to magnetize the Clean Quick Plant beads. Incubate at room temperature until the Clean Quick Plant beads are completely cleared from the solution.
18. Transfer the supernatant containing the purified DNA to a new 96-well microplate and seal with non-permeable sealing film.
19. Store the plate at 2-8°C if storage is only for a few days. For long-term storage, samples should be kept at -20°C.

Protocol for DNA Isolation from Plant Seed Material

Before Starting:

• Make sure the Clean Quick Plant is at room temperature before starting.

Protocol:

1. Transfer 300 µl of supernatant to new 1,5 mL micro centrifuge tubes.
2. Add 100 µl Clean Quick Plant to the supernatant and pipette up and down 10 times (ratio Supernatant seed material : Clean Quick Plant must always be 3:1).

⚠ **Note:** Make sure the Clean Quick Plant magnetic particles are fully resuspended before adding to the supernatant.

3. Incubate at room temperature for 5 minutes.
4. Place the tubes on the magnetic separation device to magnetize the Clean Quick Plant beads. Incubate at room temperature until the Clean Quick Plant beads are completely cleared from solution.
5. Aspirate and discard the cleared supernatant. Do not disturb the Clean Quick Plant beads.

⚠ **Note:** It is important not to discard beads with the supernatant, since this will have a direct effect on the yield.

6. Add 500 µl 80% ethanol to each tube.
7. Take the tubes from the magnetic separation device and pipette up and down for 10 times.
8. Incubate at room temperature for 30 seconds and place the tubes back on the magnetic separation device to magnetize the Clean Quick Plant beads.
9. Incubate at room temperature until the Clean Quick Plant beads are completely cleared from solution.
10. Repeat step 5-9 for 2 times, to perform a total of 3 washes.
11. Leave the tubes on the magnetic separation device for 3-5 minutes to dry the beads.

⚠ **Note:** It is important not to overdry the Clean Quick Plant beads.

12. Remove, using a small volume pipette, the last residual ethanol present in the tubes.
13. Take the tubes from the magnetic separation device.

14. Add 50-100 µl elution buffer (not provided) or Molecular biology grade water to each tube.
15. Pipette up and down for 20 times to resuspend the beads.
16. Incubate the sample for 5 minutes at room temperature.

⚠ **Note:** This incubation step can also be performed at 65 °C to enhance elution of the DNA.

17. Place the tubes back on the magnetic separation device to magnetize the Clean Quick Plant beads. Incubate at room temperature until the Clean Quick Plant beads are completely cleared from the solution.
18. Transfer the supernatant containing the purified DNA to new tubes or a new 96-well microplate and seal with non-permeable sealing film.
19. Store the plate at 2-8°C if storage is only for a few days. For long-term storage, samples should be kept at -20°C.

Troubleshooting Guide

Please use this guide to troubleshoot any problems that may arise. For further assistance, please contact your local distributor.

Possible problems and Suggestions

Problem	Cause	Suggestion
Low DNA yield	Incomplete disruption of starting material	Make sure to grind samples completely.
	Poor lysis of tissue	Decrease amount of starting material.
		Increase lysis time.
		Change lysis buffer used.
	Ethanol residue	During the drying step, remove any liquid from the bottom of the well.
	Particle loss during the procedure	Increase magnetization time.
		Aspirate slowly when removing supernatant.
	DNA remains bound to particles	Increase elution volume.
	Incomplete resuspension of the particles during elution	Vortex or pipet up and down to fully resuspend particles.
Problems in downstream applications	Salt carryover	80% ethanol must be freshly prepared and equilibrated at room temperature before use.
	Ethanol carryover	Ensure the particles are completely dried before elution.

Symbols

	Reference number
	Manufacturer
	Caution
	Temperature limit
	Expiration date
	Lot number

Ordering Information

Contact your local distributor to order.

Product	Part Number
Clean Quick Plant - 50 mL	CQP-D0050
Clean Quick Plant - 500 mL	CQP-D0500

Product	Part Number
Clean Magnet Plate 96-well RN50	CMAG-96-RN50

Document Revision History

Manual Version	Date of revision	Revised Chapter	Explanation of revision
1	27/JAN/2025	Initial version	Initial version

Contact

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