Clean Plant DNA Kit

Instructions for Use

V.5 - FEBRUARY 2026

For Research Use Only

CPL-D01000, CPL-D10000, CXT-I096

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Intended Use

The purpose of the Clean Plant DNA Kit is to extract DNA from plant leaves and seeds in sufficient purity to be used in downstream applications such as PCR and NGS. It is designed to be used manually or on automated extraction devices that can handle magnetic particles.

Intended User

The Clean Plant DNA kit is intended to be used by professionals who are trained in molecular biology laboratory techniques.

Introduction and Principle

The Clean Plant DNA Kit is a fast and efficient solution for DNA isolation from plant samples, including leaves and seeds. Utilizing magnetic bead-based technology, this kit streamlines DNA extraction while ensuring high purity and yield.

Our Clean Plant DNA Kit includes optimised lysis and wash buffers for leaves and seeds of a variety of plant species. Together with the Plant DNA Particle Solution, the kit allows for the purification of plant DNA by removing unwanted biomolecular components such as polysaccharides and phenolic compounds.

The extracted DNA is of sufficient purity to use in downstream detection procedures based on the principle Polymerase Chain Reaction (PCR). The Clean Plant DNA Kit is suitable for manual processing as well as automated workflows on platforms such as our CleanXtract 96 or Thermo Fisher's KingFisher™ Flex.

Schematic Overview

Disrupted plant samples are first lysed with the included lysis buffer. The Plant DNA Particle Solution is added to the lysed plant material and the DNA binds to the surface of the magnetic particles. Afterwards, the magnetic particles are separated from the lysate by a magnetic separation device. Following several wash steps with the wash buffer and ethanol (not included) to remove trace contaminants, the purified DNA is eluted from the CleanNA particles using the Elution Buffer. The eluted DNA is directly suitable for downstream applications.

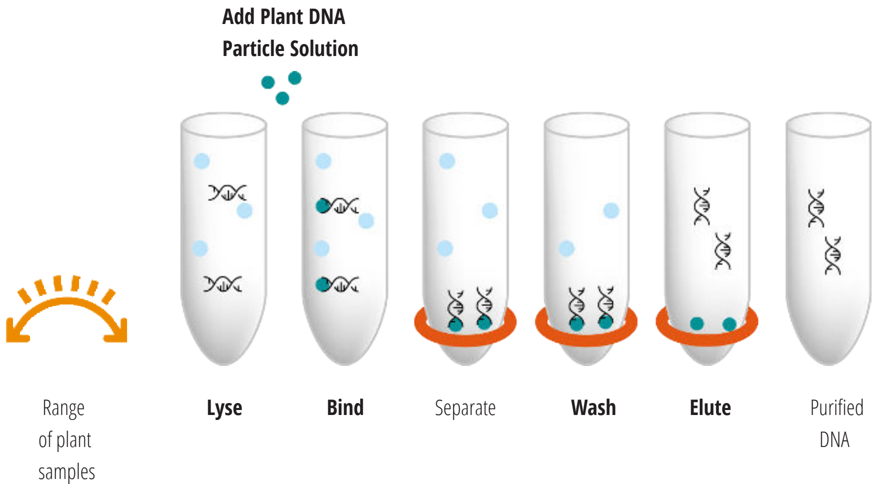

Figure 1: Schematic overview of the Clean Plant DNA Kit extraction procedure.

Materials Provided

Kit Contents:

Component	CPL-D01000	CPL-D10000
CB Buffer*	275 mL	3 x 920 mL
Plant DNA Particle Solution	50 mL	500 mL
GH Wash	73 mL	2 x 365 mL
Elution Buffer	120 mL	3 x 400 mL

*In case the CB Buffer shows a white precipitate in the bottle, pre-heat the buffer to 37 °C to dissolve the precipitate.

Amount of preps per protocol:

Protocol	CPL-D01000	CPL-D10000
100 µL Leaf protocol	1000 reactions	10000 reactions
200 µL Leaf protocol	500 reactions	5000 reactions
300 µL Seed protocol	330 reactions	3300 reactions
500 µL Seed protocol	300 reactions	3000 reactions

Reagent Shipping, Storage and Handling

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

Store the complete kit at room temperature (15-25 °C).

Do not freeze the components of the Clean Plant DNA Kit. After the Clean Plant DNA Kit has been frozen, it is no longer suitable for use.

Warnings

Read the instructions carefully before using the kit.

Do not mix several kit LOT numbers.

Make sure that the kit bottles are not damaged and that no liquid leaked from them. 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 safety information, please consult the safety data sheet (SDS). Request your SDS via www.cleanna.com/sds-request.

CB Buffer	
	H302 + H332 Harmful if swallowed or inhaled H315 Causes skin irritation H318 Causes serious eye irritation H335 May cause respiratory irritation H373 May cause damage to organs through prolonged or repeated exposure H410 Very toxic to aquatic life with long lasting effects P261 Avoid breathing dust / fume / gas / mist / vapours / spray P264 Wash skin thoroughly after handling P273 Avoid release to environment P280 Wear protective gloves / eye protection / face protection P301+ P312 IF SWALLOWED: Call doctor or Poisons Information Centre if felling unwell P302 + P352 IF ON SKIN: Wash with plenty of water P304 + P340 + P312 IF INHALED: remove person to fresh air and keep comfortable for breathing. Call doctor or Poisons Information Center if feeling unwell P305 + P351 + P338 IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing
GH Wash	
	H302 + H332 Harmful if swallowed or inhaled H315 Causes skin irritation H319 Causes serious eye irritation H373 May cause damage to organs through prolonged or repeated exposure P261 Avoid breathing dust / fume / gas / mist / vapours / spray P264 Wash skin thoroughly after handling P301+ P312 IF SWALLOWED: Call doctor or Poisons Information Centre if felling unwell P302 + P352 IF ON SKIN: Wash with plenty of water P304 + P340 + P312 IF INHALED: remove person to fresh air and keep comfortable for breathing. Call doctor or Poisons Information Center if feeling unwell P305 + P351 + P338 IF IN EYES: rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing

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

Quality Control

CleanNA produces each lot of the Clean Plant DNA Kit 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 the Clean Plant DNA Kit has been established in combination with the input materials below.

Input materials:

- Leaf material
- Seed material

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 Plant DNA Kit extraction process.

Materials and Equipment to be Supplied by User

For manual protocols

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

- Mechanical homogenizer
- 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 No. CMAG-96-RN50)
- Incubator capable of 56 °C
- Centrifuge capable of at least 4000 x g with an adapter for 96-well plates
- Vortex
- (Multichannel) pipettes and tips
- Multichannel disposable reservoirs
- 96-well microplate for elution
- Absolute ethanol
- Nuclease free water

For Automated protocols

- CleanXtract 96 (Part No. CXT-I096)
- 2,2 mL 96-well DW plate (Part No. CXT-P096)
- 96-well tip-comb (Part No. CXT-T096)
- Mechanical homogenizer
- Incubator capable of 56 °C
- Centrifuge capable of at least 4000 x g with an adapter for 96-well plates
- Vortex
- Absolute ethanol
- Nuclease free water

Preparation of Reagents

GH Wash

Prepare GH Wash with absolute ethanol as follows and store at room temperature.

Kit	Absolute ethanol to be added
CPL-D01000	93 mL
CPL-D10000	465 mL per bottle

80% ethanol:

Prepare fresh 80% ethanol each day by diluting absolute ethanol with nuclease-free water. Store at room temperature.

For 100 µL Leaf protocol

Reagent	1X GH Wash + 2X 80% ethanol		3X 80% ethanol	
	1 Sample	96 Samples*	1 Sample	96 Samples*
Absolute ethanol	240 µL	24,2 mL	360 µL	36,3 mL
Nuclease free water	60 µL	6,0 mL	90 µL	9,1 mL

*5% excess

For 200 µL Leaf protocol

Reagent	1X GH Wash + 2X 80% ethanol		3X 80% ethanol	
	1 Sample	96 Samples*	1 Sample	96 Samples*
Absolute ethanol	480 µL	48,4 mL	720 µL	72,6 mL
Nuclease free water	120 µL	12,1 mL	180 µL	18,1 mL

*5% excess

For 300 µL and 500 µL Seed protocol

Reagent	1X GH Wash + 2X 80% ethanol		3X 80% ethanol	
	1 Sample	96 Samples*	1 Sample	96 Samples*
Absolute ethanol	800 µL	80,7 mL	1200 µL	121,0 mL
Nuclease free water	200 µL	20,2 mL	300 µL	30,2 mL

*5% excess

Manual protocols

Protocol for DNA isolation from Plant Leaf Material

Before Starting:

- In case the CB Buffer shows a white precipitate in the bottle, pre-heat the buffer to 37 °C to dissolve the precipitate.
- In case more DNA is needed, 200 µL plant lysate can be used as sample input. The reagent volumes as specified in the 200 µL leaf protocol for the CleanXtract 96 can be used.

Protocol:

1. Add 250 µL CB Buffer to 1-4 leaf discs and grind the leaves in a mechanical homogenizer.
2. After grinding, shortly spin the plate to remove the drops from the caps.
3. Perform the incubation at 56 °C for 30 minutes.
4. Centrifuge at 4000 x g for 10 minutes.
5. Transfer 100 µL of supernatant in a new 96-wells microplate.
6. Add 50 µL Plant DNA Particle Solution to the supernatant and pipette up and down at least 10 times (ratio Supernatant leaf material : Plant DNA Particle Solution must always be 2:1).

⚠ **Note:** Make sure the Plant DNA Particle Solution are fully resuspended before adding to the supernatant.

7. Incubate at room temperature for 5 minutes.
8. Place the plate on the magnetic separation device to magnetize the Plant DNA Particles. Incubate at room temperature until the Plant DNA Particles are completely cleared from solution.
9. Aspirate and discard the cleared supernatant. Do not disturb the Plant DNA Particles.

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

10. Take the plate from the magnetic stand and add 150 µL GH Wash to each well.

⚠ **Note:** GH Wash needs to be diluted with ethanol prior to use. See page 11.

11. Resuspend the Plant DNA Particles by pipetting up and down at least 10 times.

12. Incubate at room temperature for 30 seconds and place the plate back on the magnetic separation device to magnetize the Plant DNA Particles.
13. Incubate at room temperature until the Plant DNA Particles are completely cleared from solution.
14. Aspirate and discard the cleared supernatant. Do not disturb the Plant DNA Particles.

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

15. Take the plate from the magnetic stand and add 150 µL 80% ethanol to each well.
16. Resuspend the Plant DNA Particles by pipetting up and down at least 10 times.
17. Incubate at room temperature for 30 seconds and place the plate back on the magnetic separation device to magnetize the Plant DNA Particles.
18. Incubate at room temperature until the Plant DNA Particles particles are completely cleared from solution.
19. Aspirate and discard the cleared supernatant. Do not disturb the Plant DNA Particles.

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

20. Repeat step 15-19 for a second ethanol wash.
21. Leave the plate on the magnetic separation device for 2-5 minutes to dry the magnetic particles. During this step, remove the last residual ethanol present in the wells with a small volume pipette.

⚠ **Note:** It is important not to overdry the Plant DNA Particles.

22. Take the plate from the magnetic separation device.
23. Add 50-100 µL elution buffer water to each well.
24. Resuspend the Plant DNA Particles by pipetting up and down at least 20 times.
25. 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.

26. Place the plate back on the magnetic separation device to magnetize the Plant DNA Particles. Incubate at room temperature until the Plant DNA Particles are completely cleared from the solution.
27. Transfer the supernatant containing the purified DNA to a new 96-well microplate and seal with non-permeable sealing film.
28. Store the plate at 2-8 °C if storage is only for a few days. For long-term storage, -20 °C is recommended.

Protocol for DNA Isolation from Plant Seed Material

Before Starting:

- In case the CB Buffer shows a white precipitate in the bottle, pre-heat the buffer to 37 °C to dissolve the precipitate.
- In case more DNA is needed, 200 µL plant lysate can be used as sample input. The reagent volumes as specified in the 200 µL leaf protocol for the CleanXtract 96 can be used.

Protocol:

1. Grind 20-100 mg seed material using a mechanical homogenizer.
2. Add 700 µL CB Buffer to each well/ tube. Vortex to mix thoroughly.
3. Incubate the samples at 56 °C for 30 minutes.
4. Centrifuge at 4000 x g for 10 minutes.
5. Transfer 300 µL of supernatant to new 1,5 mL micro centrifuge tubes.
6. Add 100 µL Plant DNA Particle Solution to the supernatant and vortex for at least 15 seconds or pipetting up and down at least 10 times (ratio Supernatant seed material : Plant DNA Particle Solution must always be 3:1).

⚠ **Note:** Make sure the Plant DNA Particle Solution are fully resuspended before adding to the supernatant.

7. Incubate at room temperature for 5 minutes.
8. Place the tubes on the magnetic separation device to magnetize the Plant DNA Particles. Incubate at room temperature until the Plant DNA Particles are completely cleared from solution.
9. Aspirate and discard the cleared supernatant. Do not disturb the Plant DNA Particles.

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

10. Take the tubes from the magnetic separation stand and add 500 µL 80% ethanol **or** GH Wash to each tube.

⚠ **Note:** The first wash step can be optimized with either 80% ethanol or GH Wash, depending on the type of seed used. GH Wash must be diluted prior to use, see page 11.

11. Resuspend the Plant DNA Particles by vortexing for at least 15 seconds or pipetting up and down at least 10 times.
12. Incubate at room temperature for 30 seconds and place the tubes back on the magnetic separation device to magnetize the Plant DNA Particles.

13. Incubate at room temperature until the Plant DNA Particles are completely cleared from solution.
14. Aspirate and discard the cleared supernatant. Do not disturb the Plant DNA Particles.

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

15. Take the tubes from the magnetic stand and add 500 µL 80% ethanol to each tube.
16. Resuspend the Plant DNA Particles by vortexing for at least 15 seconds or pipetting up and down at least 10 times.
17. Incubate at room temperature for 30 seconds and place the tubes back on the magnetic separation device to magnetize the Plant DNA Particles.
18. Incubate at room temperature until the Plant DNA Particles are completely cleared from solution.
19. Aspirate and discard the cleared supernatant. Do not disturb the Plant DNA Particles.

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

20. Repeat step 15-19 to perform a third wash.
21. Leave the tubes on the magnetic separation device for 3-5 minutes to dry the magnetic particles. During this step, remove the last residual ethanol present in the tubes with a small volume pipette.

⚠ **Note:** It is important not to overdry the Plant DNA Particles.

22. Take the tubes from the magnetic separation device.
23. Add 50-100 µL Elution Buffer to each tube.
24. Resuspend the Plant DNA Particles by vortexing for at least 30 seconds or pipetting up and down at least 20 times.
25. 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.

26. Place the tubes back on the magnetic separation device to magnetize the Plant DNA Particles. Incubate at room temperature until the Plant DNA Particles are completely cleared from the solution.
27. Transfer the supernatant containing the purified DNA to new tubes or a new 96-well microplate and seal with non-permeable sealing film.
28. Store the plate at 2-8 °C if storage is only for a few days. For long-term storage, -20 °C is recommended.

Automated protocols

100 µL Leaf protocol

Before Starting:

- In case the CB Buffer shows a white precipitate in the bottle, pre-heat the buffer to 37°C to dissolve the precipitate.
- Please refer to the CleanXtract 96 Instructions for Use for additional operating information

1.1: Lysis leaf material

1. Add 250 µL CB Buffer to 1-4 leaf discs and grind the leaves in a mechanical homogenizer.
2. After grinding, shortly spin the plate to remove the drops from the caps.
3. Perform the incubation at 56 °C for 30 minutes.
4. Centrifuge at 4000 x g for 10 minutes.
5. In the meantime, prepare the plates for the CleanXtract 96 according chapter 1.2.

1.2: Preparation of CleanXtract 96 plates

1. Prepare the plates according the specifications mentioned in Table 1.

⚠ **Note:** As a last step, prepare the binding plate according to step 2 and 3.

2. Prepare the binding plate with the centrifuged samples, pipette 100 µL lysate in the binding plate.
3. Add 50 µL Plant DNA Particle Solution to the lysate in the plate.

⚠ **Note:** make sure the Plant DNA Particle Solution is fully resuspended before adding it to the supernatant.

Table 1 . Specification plate positions and content for the CleanXtract 96 with the 100 µL leaf protocol of the Clean Plant DNA kit .

Position	Plate	Plate type	Content	Volume
1	Tip-comb	2,2 mL deep well plates V-bottom	CleanXtract 96 Tip-comb	N/A
2	Binding	2,2 mL deep well plates V-bottom	100 µL lysate + 50 µL Plant DNA Particle Solution	150 µL
3	Wash 1	2,2 mL deep well plates V-bottom	GH Wash	150 µL
4	Wash 2	2,2 mL deep well plates V-bottom	80% ethanol	150 µL
5	Wash 3	2,2 mL deep well plates V-bottom	80% ethanol	150 µL
6	Elution	2,2 mL deep well plates V-bottom	Elution buffer	50-100 µL

Note: GH Wash needs to be diluted with ethanol prior to use. See page 11.

1.3: CleanXtract 96 run

1. Load the plates in the CleanXtract 96 as mentioned in Table 1 and start the protocol: CXT96_CPL_LF100_EX_V1.
2. After the method is finished, remove the plates from the CleanXtract 96.
3. Seal the elution plate containing the eluted DNA or transfer the eluates into a storage tube/plate of choice.
4. Store the plate at 2-8 °C if storage is only for a few days. For long-term storage -20 °C is recommended.

200 µL Leaf protocol

Before Starting:

- In case the CB Buffer shows a white precipitate in the bottle, pre-heat the buffer to 37°C to dissolve the precipitate.
- Please refer to the CleanXtract 96 Instructions for Use for additional operating information

2.1: Lysis leaf material

1. Add 400 µL CB Buffer to 1-8 leaf discs and grind the leaves in a mechanical homogenizer.
2. After grinding, shortly spin the plate to remove the drops from the caps.
3. Perform the incubation at 56 °C for 30 minutes.
4. Centrifuge at 4000 x g for 10 minutes.
5. In the meantime, prepare the plates for the CleanXtract 96 according chapter 2.2.

2.2: Preparation of CleanXtract 96 plates

1. Prepare the plates according the specifications mentioned in Table 2.

⚠ **Note:** As a last step, prepare the binding plate according to step 2 and 3.

2. Prepare the binding plate with the centrifuged samples, pipette 200 µL lysate in the binding plate.
3. Add 100 µL Plant DNA Particle Solution to the lysate in the plate.

⚠ **Note:** make sure the Plant DNA Particle Solution is fully resuspended before adding it to the supernatant.

Table 2 . Specification plate positions and content for the CleanXtract 96 with the 200 µL leaf protocol of the Clean Plant DNA kit.

Position	Plate	Plate type	Content	Volume
1	Tip-comb	2,2 mL deep well plates V-bottom	CleanXtract 96 Tip-comb	N/A
2	Binding	2,2 mL deep well plates V-bottom	200 µL lysate + 100 µL Plant DNA Particle Solution	300 µL
3	Wash 1	2,2 mL deep well plates V-bottom	GH Wash	300 µL
4	Wash 2	2,2 mL deep well plates V-bottom	80% ethanol	300 µL
5	Wash 3	2,2 mL deep well plates V-bottom	80% ethanol	300 µL
6	Elution	2,2 mL deep well plates V-bottom	Elution buffer	50-100 µL

⚠ **Note:** GH Wash needs to be diluted with ethanol prior to use. See page 11.

2.3: CleanXtract 96 run

1. Load the plates in the CleanXtract 96 as mentioned in Table 2 and start the protocol: CXT96_CPL_LF200_EX_V1.
2. After the method is finished, remove the plates from the CleanXtract 96.
3. Seal the elution plate containing the eluted DNA or transfer the eluates into a storage tube/plate of choice.
4. Store the plate at 2-8 °C if storage is only for a few days. For long-term storage -20 °C is recommended.

300 μL Seed protocol

Before Starting:

- In case the CB Buffer shows a white precipitate in the bottle, pre-heat the buffer to 37 °C to dissolve the precipitate.
- Please refer to the CleanXtract 96 Instructions for Use for additional operating information

3.1: Lysis seed material

1. Grind 20-100 mg seed material using a mechanical homogenizer.
2. Add 700 μL CB Buffer to each well/ tube. Vortex to mix thoroughly.
3. Perform the incubation at 56 °C for 30 minutes.
4. Centrifuge at 4000 x g for 10 minutes.
5. In the meantime, prepare the plates for the CleanXtract 96 according chapter 3.2.

3.2: Preparation of CleanXtract 96 plates

1. Prepare the plates according the specifications mentioned in Table 3.

⚠ **Note:** As a last step, prepare the binding plate according to step 2 and 3.

2. Prepare the binding plate with the centrifuged samples, pipette 300 μL lysate in the binding plate.
3. Add 100 μL Plant DNA Particle Solution to the lysate in the plate.

⚠ **Note:** make sure the Plant DNA Particle Solution is fully resuspended before adding it to the supernatant.

Table 3 . Specification plate positions and content for the CleanXtract 96 with the 300 µL seed protocol of the Clean Plant DNA kit.

Position	Plate	Plate type	Content	Volume
1	Tip-comb	2,2 mL deep well plates V-bottom	CleanXtract 96 Tip-comb	N/A
2	Binding	2,2 mL deep well plates V-bottom	300 µL lysate + 100 µL Plant DNA Particle Solution	400 µL
3	Wash 1	2,2 mL deep well plates V-bottom	GH Wash or 80% ethanol	500 µL
4	Wash 2	2,2 mL deep well plates V-bottom	80% ethanol	500 µL
5	Wash 3	2,2 mL deep well plates V-bottom	80% ethanol	500 µL
6	Elution	2,2 mL deep well plates V-bottom	Elution buffer	50-100 µL

⚠ **Note:** The first wash step can be optimized with either 80% ethanol or GH Wash, depending on the type of seed used. GH Wash must be diluted prior to use, see page 11.

3.3: CleanXtract 96 run

1. Load the plates in the CleanXtract 96 as mentioned in Table 3 and start the protocol: CXT96_CPL_SD300_EX_V1.
2. After the method is finished, remove the plates from the CleanXtract 96.
3. Seal the elution plate containing the eluted DNA or transfer the eluates into a storage tube/plate of choice.
4. Store the plate at 2-8 °C if storage is only for a few days. For long-term storage -20 °C is recommended.

500 µL Seed protocol

Before Starting:

- In case the CB Buffer shows a white precipitate in the bottle, pre-heat the buffer to 37 °C to dissolve the precipitate.
- Please refer to the CleanXtract 96 Instructions for Use for additional operating information

4.1: Lysis seed material

1. Grind 20-150 mg seed material using a mechanical homogenizer.
2. Add 900 µL CB Buffer to each well/ tube. Vortex to mix thoroughly.
3. Perform the incubation at 56 °C for 30 minutes.
4. Centrifuge at 4000 x g for 10 minutes.
5. In the meantime, prepare the plates for the CleanXtract 96 according chapter 4.2.

4.2: Preparation of CleanXtract 96 plates

1. Prepare the plates according the specifications mentioned in Table 4.

⚠ **Note:** As a last step, prepare the binding plate according to step 2 and 3.

2. Prepare the binding plate with the centrifuged samples, pipette 500 µL lysate in the binding plate.
3. Add 166 µL Plant DNA Particle Solution to the lysate in the plate.

⚠ **Note:** make sure the Plant DNA Particle Solution is fully resuspended before adding it to the supernatant.

Table 4 . Specification plate positions and content for the CleanXtract 96 with the 500 µL seed protocol of the Clean Plant DNA kit.

Position	Plate	Plate type	Content	Volume
1	Tip-comb	2,2 mL deep well plates V-bottom	CleanXtract 96 Tip-comb	N/A
2	Binding	2,2 mL deep well plates V-bottom	500 µL lysate + 166 µL Plant DNA Particle Solution	666 µL
3	Wash 1	2,2 mL deep well plates V-bottom	GH Wash or 80% ethanol	500 µL
4	Wash 2	2,2 mL deep well plates V-bottom	80% ethanol	500 µL
5	Wash 3	2,2 mL deep well plates V-bottom	80% ethanol	500 µL
6	Elution	2,2 mL deep well plates V-bottom	Elution buffer	50-100 µL

⚠ **Note:** The first wash step can be optimized with either 80% ethanol or GH Wash, depending on the type of seed used. GH Wash must be diluted prior to use, see page 11.

4.3: CleanXtract 96 run

1. Load the plates in the CleanXtract 96 as mentioned in Table 4 and start the protocol: CXT96_CPL_SD500_EX_V1.
2. After the method is finished, remove the plates from the CleanXtract 96.
3. Seal the elution plate containing the eluted DNA or transfer the eluates into a storage tube/plate of choice.
4. Store the plate at 2-8 °C if storage is only for a few days. For long-term storage -20 °C is recommended.

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.
		Increase elution temperature to 65 °C.
	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.
Inconsistent results	Plant DNA Particle Solution was not resuspended fully before use	Make sure the Plant DNA Particle Solution are fully resuspended before use.

Symbols

Symbol	Meaning
REF	Reference number
	Manufacturer
	Caution
	Temperature limit
	Expiration date
LOT	Lot number

Ordering Information

Contact your local distributor to order.

Product	Part Number
Clean Plant DNA Kit - 1000 preps	CPL-D01000
Clean Plant DNA Kit - 10000 preps	CPL-D10000

Product	Part Number
Clean Magnet Plate 96-well RN50	CMAG-96-RN50
CleanXtract 96	CXT-I096
2,2 mL 96-well DW plate	CXT-P096
96-well tip-comb	CXT-T096

Document Revision History

Manual Version	Date of revision	Revised Chapter	Explanation of revision
5	17/FEB/2026	Reagent Shipping, Storage and Handling	Changed storage temperature of the whole kit to room temperature (15-25 °C).
4	26/AUG/2025	Automated protocols	Changed names of CleanXtract 96 scripts
3	24/JUN/2025	Protocols	Added CleanXtract 96 protocols
2	11/JUN/2025	General revision	Textual improvements
1	04/JUN/2025	Initial version	Initial version

Notes

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