

CTAB Extraction Buffer (RNase free)

Cat. No.: C1518317 | Pack size: 500 mL | Storage: Room temperature; protect from light

Overview

CTAB Extraction Buffer (RNase free) is a CTAB-based lysis/extraction buffer for plant nucleic acid extraction, primarily for total RNA extraction from plant tissues. The buffer is treated to be RNase-free and is intended for molecular biology research use.

Before use, 2-ME should be added to enhance reagent effectiveness and stability. Nucleic acids obtained with the CTAB workflow are suitable for most molecular biology experiments after appropriate purification.

Key Features

- RNase-free CTAB extraction buffer for plant tissues
- Includes 2-ME for freshly supplemented working buffer
- Useful for plant samples where polysaccharides and polyphenols may interfere with extraction
- Compatible with downstream nucleic acid purification and analysis
- Room-temperature storage; protect 2-ME from light

Product Specifications

Parameter	Specification	Notes
Product name	CTAB Extraction Buffer (RNase free)	CTAB lysis/isolation buffer
Cat. No.	C1518317	Available pack size: 500 mL
Grade	BioReagent; suitable for molecular biology	Research use only
Storage	Room temperature; protect from light	Shelf life: 12 months
Shipping	Normal temperature	2-ME supplied separately

Product Contents & Storage

Cat. No.	Component	500 mL Pack	Storage
C1518317A	CTAB Extraction Buffer (RNase free)	500 mL	RT
C1518317B	2-ME	10 mL	RT; store in the dark

Shelf life: Stable for 12 months at room temperature when protected from light.

Materials Required But Not Supplied

Item	Recommended Specification	Purpose
Liquid nitrogen, mortar or homogenizer	Pre-chilled when applicable	Plant tissue grinding
Centrifuge tubes	Appropriate sizes for sample volume	Extraction and phase separation
Incubator or water bath	60-65 °C capability	Preheating and lysis incubation
Centrifuge	Capable of 2000-8000 x g	Phase separation and pellet recovery
DEPC-treated water	RNase-free	Dissolving nucleic acids and preparing ethanol
Chloroform/isoamyl alcohol	24:1	Phase separation
75% ethanol	Prepared with DEPC-treated water	Pellet washing
DNase I	Optional, 1-5 µg/mL	Removal of residual DNA when required

Preparation Before Use

1. Prepare fresh working buffer by mixing CTAB Extraction Buffer with 2-ME at a 50:1 ratio (CTAB Extraction Buffer:2-ME).
2. Preheat the working buffer at 60 °C before adding it to powdered tissue.
3. If DNA removal is required, add DNase I according to the protocol or downstream workflow.

Protocol

1. Take 5 mL or an appropriate amount of CTAB Extraction Buffer and mix with 2-ME at a 50:1 ratio in a 15 mL or other suitable tube. Preheat at 60 °C.
2. Weigh 1.0-1.5 g of fresh plant tissue or leaves. Pre-cool the mortar or homogenizer with liquid nitrogen or dry ice, grind tissue into a fine powder, and transfer frozen powder into a centrifuge tube.
3. Add 4-5 mL of preheated CTAB Extraction Buffer per gram of powdered tissue, mix thoroughly, and incubate at 65 °C for 15-60 min with occasional mixing.
4. Add an equal volume of chloroform/isoamyl alcohol (24:1), mix by inversion, and centrifuge at 8000 x g for 5-10 min. Recover the upper aqueous phase.
5. Transfer the supernatant to a new tube, add 1/2 to 2/3 volumes of pre-chilled isopropanol, mix gently, and allow nucleic acids to precipitate. If no precipitate is visible, stand at room temperature for several hours or overnight.
6. Centrifuge at 2000 x g for 2 min and carefully discard the supernatant.
7. Add 75% ethanol to the loose DNA/RNA pellet, stand at room temperature for 20 min, centrifuge at 4000 x g for 10 min, and discard the supernatant carefully.
8. Air-dry the nucleic acid pellet and dissolve in an appropriate volume of deionized water or TE buffer. Store at -20 °C.

Expected Results

Expected Outcome	Description
Recovered nucleic acid	DNA/RNA-containing aqueous phase and precipitated nucleic acid pellet suitable for purification or downstream molecular biology analysis

Safety & Precautions

- Aliquot the reagent before use if only small amounts are used each time.
- Wear a lab coat and disposable gloves during operation.
- Use the reagent as soon as possible after opening to avoid affecting downstream results.
- Handle 2-ME and organic solvents in accordance with the SDS and local EHS requirements.

Read the current SDS before use. Wear lab coat, gloves, and eye protection. Handle reagents according to local laboratory safety and EHS procedures.

Quality Control

QC Item	Method	Acceptable Range
Component completeness	Visual inspection on receipt	Components and volumes match the Product Contents & Storage table.
Nuclease control / cleanliness	Application-specific control assay	No interference with intended downstream molecular biology workflow.
Functional performance	Small-scale extraction or precipitation control	Recovered nucleic acid is suitable for downstream application.

Troubleshooting

Issue	Possible Causes	Corrective Action
Low nucleic acid recovery	• Insufficient precipitation or lysis • Sample not fully homogenized • Pellet disturbed during wash	• Increase incubation time or optimize precipitation reagent • Improve tissue grinding/homogenization • Mark tube orientation and handle pellets carefully
Downstream inhibition	• Carryover of CTAB, salts, ethanol, or organic solvents • Excess coprecipitant or incomplete drying	• Wash pellet thoroughly and dry briefly • Purify nucleic acid before sensitive assays • Use recommended reagent amounts
Nucleic acid degradation	• Nuclease contamination • Repeated freeze-thaw or delayed processing	• Use nuclease-free tubes/tips/water • Process samples promptly or store appropriately • Aliquot reagents if needed

Recommended Applications

Plant nucleic acid extraction, especially total RNA extraction from plant tissues for molecular biology research.

Contact & Global Offices

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Limitations & Disclaimer

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Where any reagent or component is classified as hazardous under CLP (EC) 1272/2008 or OSHA HCS (29 CFR 1910.1200), the product Safety Data Sheet (SDS), product label, and approved specifications take precedence over this document for handling, storage, transport, and disposal.

Performance depends on sample type, sample condition, handling, storage, and operator technique. Users are responsible for validating this product for their specific application.