OPS DIAGNOSTICS

SYNERGY™ 2.0 Plant RNA Extraction Kit

Product No. SYNP 02-100-05

The SYNERGY™ 2.0 Plant RNA Extraction Kit utilizes a proprietary method to rapidly isolate high-quality RNA from plant tissue samples. SYNERGY™'s unique bead beating chemistry, combined with the utilization of dithiothreitol, replaces RNA isolation procedures requiring 2-mercaptoethanol and phenol extraction. Dithiothreitol is a stronger reducing agent than β-mercaptoethanol (βME), has a lower toxicity level, and has a less pungent odor. Each Homogenization Tube contains a grinding matrix that acts in conjunction with the Plant Homogenization Buffer and dithiothreitol to liberate RNA and capture contaminants from the sample that could be detrimental to downstream manipulations of RNA. Experimental data shows that the SYNERGY™ 2.0 Plant RNA Extraction Kit yields RNA of equal or better purity compared to other commercial kits and traditional CTAB protocols.

Plant samples (50 mg) and Plant Homogenization Buffer, with the addition of dithiothreitol, are placed in the 2 ml Homogenization Tubes and disrupted with a high velocity bead beater (e.g., HT Mini™ or HT 6™). The cell debris and PCR inhibitors bind to the grinding matrix and are then removed by centrifugation, leaving the liberated RNA in the supernatant. While RNA can be directly used for standard PCR or downstream applications, plant samples containing high levels of phenolic compounds and polysaccharides can be further purified by simple alcohol precipitation or by capturing RNA on a silica spin column and then eluting. The entire process, including additional purification steps, takes approximately 40 minutes.

Furthermore, OPS Diagnostics' application scientists can help with troubleshooting and questions.

SYNERGY™ 2.0 Plant RNA Extraction Kit contains:
60 mL Plant Homogenization Buffer
100 5.0 mm Stainless Steel Homogenization Tubes
100 Spin Columns with Collection Tubes
1.2 mL 1 M Dithiothreitol (DTT)
Instructions

Additional Materials Required:
Isopropanol (2-propanol)
70% Ethanol (Ethyl alcohol)
Molecular Biology Grade Water
High Velocity Bead Beater
Microcentrifuge
Microfuge Tubes
Vortexer

Related Products	Format	Product No.
Silica Spin Columns	100	SSC 100-01
SYNERGY™ 2.0 Plant DNA Extraction Kit	100 preps	SYNP 02-100-02
HT 6™	115 V/230 V	BM – D1036/BM – D1036E

This product is made for research purposes only, not for clinical use. Please follow safety and institutional guidelines when using this product. **Warning: Harmful if dust is inhaled. Buffer may cause irritation when in contact with skin and if swallowed.**

Protocol
SYNERGY™ 2.0 Plant RNA Extraction Kit

Materials

- 60 mL Plant Homogenization Buffer
- 100 Homogenization Tubes
- 100 Spin Columns with Collection Tubes
- 1.2 mL 1 M Dithiothreitol (DTT)
- Microfuge Tubes
- Isopropanol (2-propanol)
- 70% Ethanol (Ethyl alcohol)
- Molecular Biology Grade Water

Notes Before Beginning:

Rehydrate lyophilized dithiothreitol with 600 µL of Isopropanol before use. DTT Solution should be stored at 4°C, while Plant Homogenization Buffer and all other components should be stored at room temperature.

Protocol

1. Add up to 50 mg of sample, 500 µl of Plant Homogenization Buffer, and 10 µl of 1 M DTT to the 2 ml homogenization tube.
2. Place the homogenization tube into a bead beater and homogenize the sample at the highest speed for 2 minutes. If the sample is not completely homogenized, repeat the process. When adequately processed, the tube will lack foam.
3. Centrifuge the homogenization tube at 15,000 x *g* for 5 minutes to pellet the debris, grinding resin, and contaminants.
4. Transfer the clear supernatant into a clean centrifuge tube.
5. Add 7/10 volume of 100% isopropanol. Vortex. Incubate at -20°C for 15 minutes.
6. Transfer the solution to a spin column placed in a collection tube. Centrifuge the column at 8,000 x *g* for 1 minute to bind the RNA to the column.
7. Wash the column with 250 µl of ice cold 70% ethanol. Centrifuge the column at 8,000 x *g* for 1 minute to pass through the wash solution. Repeat the wash.
8. Centrifuge the column at 12,000 x *g* for 1 minute to remove any additional ethanol.
9. Elute the RNA by placing the column in a clean collection tube. Add 50 µl of Molecular Biology Grade Water and centrifuge the column at 15,000 x *g* for 1 minute.

If you have questions about this product, please contact OPS Diagnostics:

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