

Broad spectrum

Plant DNA extraction kit

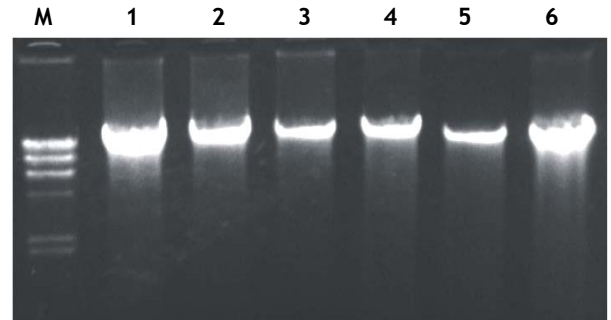
---- HiPure Plant DNA Kits

Introduction

Research methods such as PCR, RAPD, AFLP, and SSC play important roles in plant species identification, classification, and evolutionary research. These technologies are all based on genomic DNA as the research object. High purity genomic DNA is the key to these technologies. Due to the wide variety of plants, their metabolites are rich, including polyphenols, polysaccharides and various secondary metabolites, which greatly interfere with DNA extraction. Polyphenols undergo oxidation during lysis, resulting in DNA degradation or modification. Polysaccharides have a similar structure to DNA and are difficult to remove, often being recycled together with DNA. Studies have shown that polysaccharide contamination will interfere with restriction endonuclease digestion and inhibit PCR amplification efficiency. Therefore, isolating high-quality genomic DNA from plant samples is crucial for downstream applications. There are currently many methods used for extracting plant DNA, such as CTAB method, SDS-KAC method, etc. However, these methods often require pre-experiments and optimization based on different plant samples, which greatly affect research and development efficiency. In woody plants, complex metabolic substances often lead to DNA extraction failures, with extremely low yields or purity, leading to the stagnation of the entire research project. **The Plant DNA Kits series of Magen Company combines the silica gel column purification method with the classic CTAB/chloroform method to quickly extract high-purity genomic DNA from various crops, woody plant samples, or difficult-to-extract plant samples. The purified DNA can be directly used for RAPD, AFLP, SSC, PCR, Southern hybridization, enzyme, transgenic detection and other applications.**

1. Extract high-purity DNA from woody plants

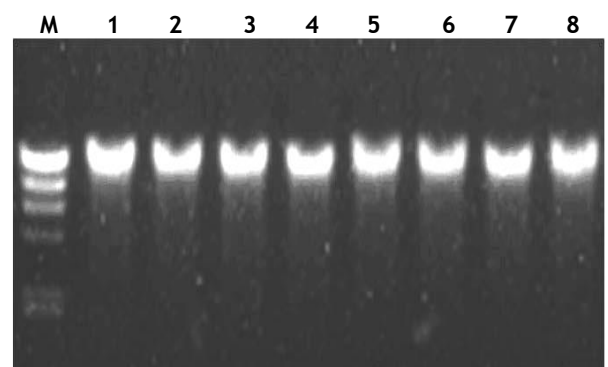
Take fresh leaves (100mg) of woody plants rich in polyphenol metabolites, grind them into powder with liquid nitrogen, and extract with HiPure Plant DNA Mini Kit. After extraction, take 5% purified DNA and analyze the integrity by 0.8% agarose gel electrophoresis (as shown in the figure below). From the electrophoresis map, it can be seen that the genomic DNA obtained using the kit has single band, complete fragments and is larger than 23KB.



M: Lambda DNA/Hind III Marker 1. Willow 2. Orange 3. Peach 4. Juniperus formosana 5. Longan 6. Pomegranate

2. Extract high-purity DNA from plant samples rich in polysaccharides

Take leaves or roots of plants rich in polysaccharide metabolites (100mg), grind them into powder with liquid nitrogen, and extract with HiPure Plant DNA Mini Kit. After extraction, take 5% purified DNA and analyze the integrity and stability by 0.8% agarose gel electrophoresis (as shown in the figure below). From the electrophoresis map, it can be seen that the genomic DNA obtained using the kit has single band and complete fragments.



M: Lambda DNA/Hind III Marker

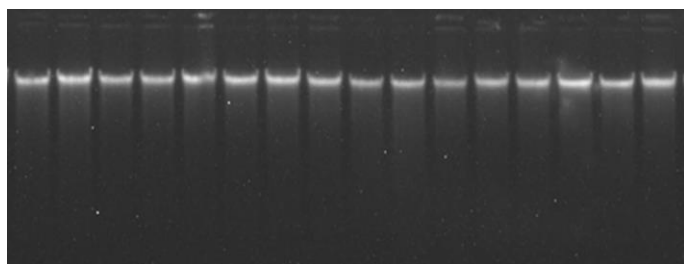
Measure the yield and purity of purified DNA using Nanodrop 2000 (Thermo Fisher) (as shown in the following figure). From the OD value, it can be seen that the extracted genomic DNA has high purity, with OD₂₆₀/OD₂₈₀ between 1.7 and 2.0 and high DNA yield.

Sample	Conc µg/µl	A260/ 280	A260/ 230	Yield µg
1 Towel Gourd leaves	0.0866	1.99	2.86	8.66
	0.1022	1.95	2.97	10.22
2 Aloe leaves	0.0797	1.88	3.46	7.97
	0.1004	2.06	3.11	10.04
3 Sugarcane leaves	0.1528	2.04	2.74	15.28
	0.1273	1.98	2.92	12.73
4 Banana leaves	0.3225	2.11	2.63	32.25
	0.3114	2.11	2.66	31.14
5 Sweet potato leaves	0.0544	2.18	4.44	5.44
	0.0497	2.14	4.78	4.97
6 Onion	0.1229	2.86	2.7	12.29
	0.0857	1.96	3.01	8.57
7 Potato	0.0735	1.88	3.17	7.35
	0.0770	2.0	2.81	7.70
8 Garlic	0.0749	2.06	3.09	7.49
	0.0786	2.06	3.23	7.86

3. Genomic DNA extraction stability

Take 16 fresh cotton leaf samples (100mg), grind them into powder with liquid nitrogen, and extract with HiPure Plant DNA Mini Kit. After extraction, take 5% purified DNA and analyze the integrity and stability by 0.8% agarose gel electrophoresis (as shown in the figure below). From the electrophoresis map, it can be seen that the genomic DNA obtained using the kit has single band, complete fragments, and good stability in different samples.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



Measure the yield and purity of purified DNA using Nanodrop 2000 (Thermo Fisher) (as shown in the following figure). From the OD value, it can be seen that the extracted genomic DNA has high purity, with OD260/280 between 1.7 and 2.0, high DNA yield, and good stability in different samples.

Sample	Conc µg/µl	A260/ 280	A260/ 230	Yield µg
1	0.1689	1.80	1.31	16.89
2	0.1689	1.76	1.26	16.89
3	0.1743	1.80	1.34	17.43
4	0.1443	1.81	1.21	14.43
5	0.1481	1.85	1.24	14.81
6	0.1507	1.75	1.21	15.07
7	0.1481	1.85	1.26	14.81
8	0.1703	1.77	1.35	17.03
9	0.1649	1.80	1.32	16.49
10	0.1222	1.84	1.19	12.22
11	0.1295	1.80	1.18	12.95
12	0.1295	1.87	1.18	12.95
13	0.1545	1.81	1.30	15.45
14	0.1331	1.83	1.29	13.31
15	0.1494	1.85	1.32	14.94
16	0.1331	1.86	1.25	13.31

4. Samples that have been tested for this product:

At present, the product has been successfully applied to the below samples:

Sample (crop)	Sample (woody)	Sample (food)	Sample (miscellaneous)
Corn leaves	Eucalyptus leaves	Corn seeds	Wedelia leaves
Rice leaves	Rubber leaves	Rice seeds	Mikania leaves
Soybean leaves	Willow leaves	Soybean seeds	Water hyacinth leaves
Peanut leaves	Citrus leaves	Wheat seeds	Alternanthera philoxeroides leaves
Tomato leaves	Peach leaves	Peanut seeds	Spartina
Potato leaves	Longan leaves	Cotton seeds	Eupatorium odoratum
Sugarcane leaves	Lychee leaves	Arabidopsis seeds	Eupatorium adenophorum leaves
Wheat leaves	Pine leaves	Peanut seeds	Ipomoea cairica leaves
Cotton leaves	Juniper leaves	Garlic	Ryegrass
Tobacco leaves	Banyan leaves	Ginger	Paspalum notatum
Arabidopsis leaves	Guava leaves	Potato roots	Alpine grass
Rape leaves	Camphor tree leaves	Apple	Bermuda grass
Strawberry leaves	Excoecaria cochichinensis leaves	Tomatoes	Ivory grass
Carrot leaves	Oleander leaves	Pepper	Carpet grass
Garlic leaves	Bamboo leaves	Snow pear	Centipede grass
Ginger leaves	Crape myrtle leaves	Onion root	Zoysia japonica