

Nucleic Acid Plant Purification Systems

5' AIC GTA
3' RNA ACT CAGA
5' TC GTA ACC GAC CA
3' CT ACT CAG RNATCT
5' TA RNA GAC CAA GC
3' CT CAG CAT RNA ATC
5' C RNA CAA GCT A
3' G CATTCT

5' AIC GTA
3' DNA ACT CAGA
5' TC GTA DNA GAC CA
3' CT ACT CAG AAT TCT
5' TA DNA GAC DNA GC
3' CT CAG CAT TCT ATC
5' C GAC CAA DNA A
3' G CATTCT

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High Throughput

Plant DNA Kit

The E.Z.N.A.® Plant DNA Kit uses a novel buffer system to isolate DNA from samples with high polysaccharides, phenolic compounds, and enzyme inhibitors in less than 60 minutes. Up to 50 mg of dry or 100 mg of fresh/frozen plant tissue are disrupted and then lysed in a specially formulated buffer containing detergents. Proteins, polysaccharides, and cellular debris are subsequently precipitated. Contaminants are further removed by an isopropanol precipitation of DNA. Binding conditions are adjusted and the DNA is then loaded onto a HiBind DNA column where contaminants are further removed. Pure DNA is eluted in a low salt buffer. Purified DNA is suitable for PCR², Restriction enzyme digestion and hybridization techniques.

E.Z.N.A.® Plant DNA Kit	
Product	Preparations
D3485-00	5
D3485-01	50
D3485-02	200

HP Plant DNA Kit

The E.Z.N.A.® HP Plant DNA Kit is designed for efficient recovery of genomic DNA up to 60 kb in size from plant tissue samples rich in lipid, polyphenol and polysaccharides or those with lower DNA contents. This procedure relies on the well established properties of the cationic detergent, cetyltrimethyl ammonium bromide (CTAB), in conjunction with the selective DNA binding of Omega Bio-tek's HiBind matrix. Samples are homogenized and lysed in a high salt buffer containing CTAB and extracted with chloroform to remove polysaccharides and other components that interfere with many DNA isolation and downstream applications. After adjusting the binding conditions, DNA is further purified using HiBind DNA spin columns. Pure DNA is eluted in a low salt buffer. Purified DNA is suitable for PCR, Restriction enzyme digestion and hybridization techniques.

E.Z.N.A.® HP Plant DNA Kit	
Product	Preparations
D2485-00	5
D2485-01	50
D2485-02	200



SP Plant DNA Kit

The E.Z.N.A.® SP Plant DNA Kit is specially designed for the rapid and reliable isolation of high quality total cellular DNA from variety of plant species and tissues. Up to 100 mg of fresh sample or 30 mg dry sample can be processed in less than 40 min. The optimized procedure incorporates the homogenizer spin column, a unique filter filtration and homogenization column that can efficiently removes cell debris. Samples are then bound to a HiBind DNA column where they are further purified. DNA is eluted in a low salt buffer. Purified DNA is suitable for PCR, Restriction enzyme digestion and hybridization techniques.

E.Z.N.A.® SP Plant DNA Kit	
Product	Preparations
D5511-00	5
D5511-01	50
D5511-02	200



Table 1.1 Plant kit comparisons

		D3485	D2485	D5511	Company Q
		Plant DNA Kit	HP Plant DNA Kit	SP Plant DNA Kit	
		Yield (µg)	Yield (µg)	Yield (µg)	Yield (µg)
Sample (100mg) Fresh	Sugar Cane Leaf	2.99	12.44	13.35	3.53
	Rice Leaf	11.91	7.22	4.13	2.07
	Arabidopsis Leaf	2.56	2.82	3.57	2.69
	Soy Bean Leaf	6.73	3.79	6.28	5.46
	Corn Leaf	4.68	5.35	4.40	6.10
	Tobacco Leaf	1.36	2.54	3.61	2.06

Choosing the right kit for your sample type - the following kits have been validated to work best with the samples in their respective columns.

Plant DNA Kit

Ficus Microcarpa Linn
Ipomoea Batatas
Psidium Guajava
Chaenomeles Sinensis
Mentha Haplocalyz Briq. A
Dioscorea Opposita
Luffa Cylindrica
Apium Graveliens L
Cucurbita Moschata
Ficus benghalensis
Zea mays
C. sinensis
Phaseolus vulgaris
Psidium guajava

HP Plant DNA Kit

Citrus Reticulata Blanco
Punica Granatum
Benincasa Hispida
Zingiber Officinale Roscoe
Dimocarpus Longan Lour.
Solanum Melongena
Capiscum Annuum
Litchi Chinensis
Mangifera Indica
Bambusa Multiplex
Brassica Juncea
Brassica Pekinesis
Chrysanthemum
Nelumbo Nucifera
Axonopus Compressue

Salix Babylonica
Juniperus Formosana
Lactuca Sativa Linn
Ipomoea Aquatica
Oryza Sativa Linn
Hibiscus Rosa-Sinesis
Zea Mays
Vitis Vinifera
Musa Nana Louir
Piper nigrum (root)
Capsicum annuum
Cucurbita moschata
S. lycopersicum
Brassica rapa

SP Plant DNA Kit

Vigna Unguiculata
Colocasia Esculenta
Saccharum Officinarum
Amygdalus Persica
Allium Fistulosum
Nicotiana Tabacum
Aloe Vera
A. Graveolens (root)
Zea. Mays (root)
Allium sativum(root)
Cucurbita moschata (root)
Cochliobolus sativus
Allium sativum
Prunus persica
Arachis hypogaea
Solanum tuberosum



2010 Geno/Grinder®

The Ultimate Plant and Animal Tissue Pulverizer and Cell Lyser

- Unique new design with vigorous up-and-down motion
- Capable of processing up to four deep-well plates and sample vials from 0.6 to 50 mL
- Small footprint maximizes available bench space
- Simple controls allow precise grinding speeds from 500 to 1750 strokes per minute.
- Typical samples include plant and animal tissues, cell culture, seeds, yeast and bacteria.

Improve your yield by preparing your samples with the Geno/Grinder® coupled with our Magnetic Beads extraction kits!



Fig 1.1
2010 Geno/Grinder®

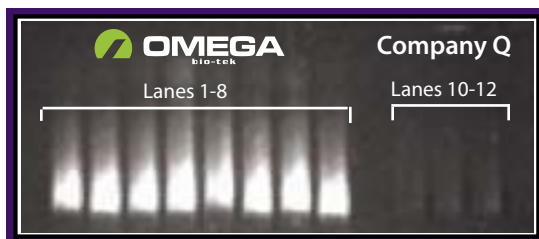


Fig 1.2

50 mg Corn Leaf Samples, 5 µL of Eluate was loaded onto a 1% TBE Agarose gel
Lanes 1-8 Omega Bio-tek Mag Bind Plant DNA Kit using Fast Protocol for PCR
Lanes 10-12 Company Q using Standard Protocol
Shearing of DNA is caused by adding lysis buffer during homogenization step; Higher molecular weight DNA can be obtained by homogenizing then adding lysis buffer.

2010 Geno/Grinder® and Accessories

Part Number	Product Details
SSP2010-155	Geno/Grinder®, 115V/60Hz, CE Approved
SSP2010-230	Geno/Grinder®, 230V/50Hz, CE Approved
SSP2100	Grinding Ball Dispenser
SSP2150	Grinding Balls 5/32" (4 mm), Bag of 5000
SSP2155	Grinding Balls 3/8" (9.5 mm), Bag of 100
SSP2156	Grinding Balls 7/16" (11 mm), Bag of 100



Kits validated on the Geno/Grinder® 2010

- E-Z 96 Plant DNA Kit
- E-Z 96 Mag Bind Plant DNA Kit
- Mag-Bind Plant DNA Kit
- Mag Bind Soil DNA Kit
- Mag Bind Stool DNA Kit
- Yeast DNA Kit
- E-Z 96 Plant RNA Kit
- SP Plant Midi Kit
- SP Plant Maxi
- Plant DNA Midi Kit
- Plant DNA Maxi Kit



E.Z.N.A.® RNA Plant & E-Z 96 Plant RNA Kits

E.Z.N.A.® Plant RNA Kits provides a convenient and rapid method for the isolation of total RNA from a variety of plant samples. This kit provides a homogenizer column or plate for homogenization and filtration of viscous plant cell lysate by centrifugation in combination with HiBind RNA spin column for RNA purification. All the contaminants including polysaccharides and phenolic compounds are effectively removed. Purified RNA can be used for most downstream applications such as RT-PCR, Northern blot analysis, differential display and poly A+ RNA selection.

Column based

E.Z.N.A.® Plant RNA Kit	
Product	Preparations
R6827-00	5
R6827-01	50
R6827-02	200

96 plate based

E-Z 96 Plant RNA Kit	
Product	Preparations
R1027-01	2 x 96
R1027-02	8 x 96



Fig 1.3
E-Z 96 RNA Plate

Yield vs. Competitors

#	Kit	Yield (µg)	260/280 Ratio
1	OMEGA	16.45	2.02
2	OMEGA	20.63	2.08
3	OMEGA	19.11	1.96
4	Company Q	17.43	2.02
5	Company Q	18.05	1.95
6	Company Q	16.71	2.05

Samples validated on Plant RNA kit and E-Z 96 Plant RNA

<i>Arabidopsis Thaliana</i>	<i>Hordeum vulgare</i>
<i>Humulus Lupulus</i>	<i>Lycopersicon esculentum</i>
<i>Beta Vulgaris</i>	<i>Malus sp</i>
<i>Fragaria Virginiana</i>	<i>Solnm tuberosum</i>
<i>Clarkia spp.</i>	<i>Spinacia oleracea</i>
<i>Daucus Carota</i>	<i>Surfinia sp.</i>
<i>Ornithogalum thyrsoides</i>	<i>Triticum aestivum</i>
<i>Dendranthema sp.</i>	<i>Vetis sp.</i>
<i>Euglena gracilis</i>	<i>Zea Mays</i>
<i>Oryza sativa</i>	<i>Nicotiana tabacum</i>

Table 1.2 *Arabidopsis Thaliana* RNA Isolation with EZNA® Plant Isolation versus Company Q

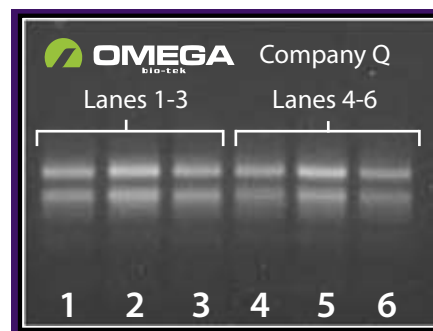


Fig 1.4 100 mg of fresh *Arabidopsis Thaliana* was isolated according to manufacturer's standard protocol.



E-Z 96 Plant DNA Kit

E-Z 96 Plant DNA Kits allow rapid and reliable isolation of high-quality total cellular DNA from a wide variety of plant species and tissues in a 96 well plate format. E-Z 96 Plant DNA Kits have adapted buffer systems from the SP Plant DNA system, which processes a variety of plants, such as those with unusually high levels of phenolic compounds or polysaccharides. Samples are first mechanically lysed then followed by a chemical lysis. Polysaccharides and proteins are precipitated and the binding conditions are adjusted and the DNA is bound to the E-Z 96 DNA plate during centrifugation. The DNA is further purified by wash steps then high quality DNA is eluted.

Up to 50 mg of wet tissue (or 12 mg dry tissue) can be processed in each well in less than 1 hour.

E-Z 96 Mag-Bind Plant DNA Kit	
Product	Preparations
D1086-01	1 x 96
D1086-02	4 x 96



Fig 1.5
E-Z 96 Plant DNA Kit

E-Z 96 Mag-Bind Plant DNA Kit

E-Z 96 Mag Bind Plant DNA Kits allow rapid and reliable isolation of high-quality total cellular DNA from a wide variety of plant species and tissues in a 96 well plate format. The E-Z 96 Mag-Bind Plant DNA Kit can be used in conjunction with Beckman Coulter's Biomek FX®, Biomek NX®, Biomek 2000®, Tecan Freedom Evo®, Velocity Biocell®, and Thermo's Kingfisher Flex® workstations.

Up to 50 mg of wet tissue (or 12 mg dry tissue) can be processed in each well in less than 1 hour.

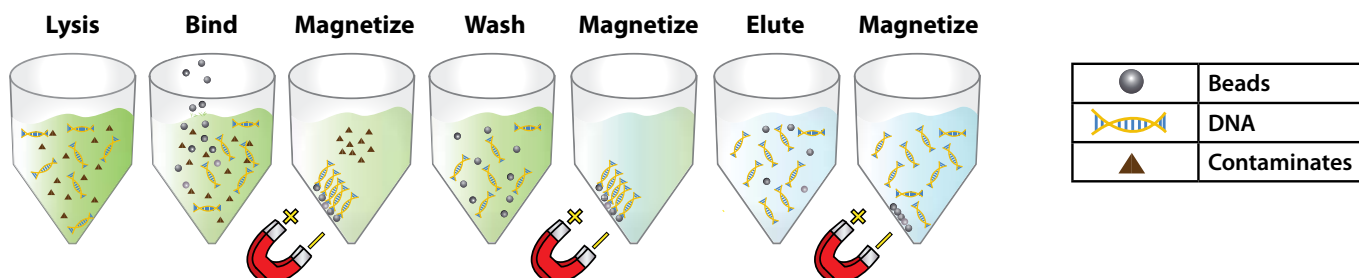


Illustration 1.1 Mag-Bind Plant Protocol with paramagnetic beads

E-Z 96 Mag-Bind Plant DNA Kit	
Product	Preparations
M1027-01	2 x 96
M1027-02	8 x 96
M1027-03	20 x 96

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