

Comparison Test of Plant Sample using GF-1 Plant DNA Extraction Kit & GF-1 Plant DNA Extraction Kit II (Improved Version)

GF-1 Plant DNA Extraction Kit and GF-1 Plant DNA Extraction Kit II (Improved Version) are both using mini-spin column based technology with specially-treated glass filter membrane for efficient recovery of highly pure DNA. Plants can be very tough for DNA extraction due to the plant samples are very hard to be lysed during the sample preparation and isolation part. First, the **tough cell wall surrounding the cytoplasmic membrane** makes the lysis process difficult. Second, the **contaminating lysate, for example polyphenols and polysaccharides from the broken-down cell wall** of most of the plants is quite a big reason that to skew the results. The plant DNA yield and purity of DNA is both low if using the inorganic-based extraction. **GF-1 Plant DNA Extraction Kit II is the improved kit to provide more efficient plant cell lysis, denaturation of proteins and subsequent release of DNA.** The recovery of highly pure DNA has increased to make it ready to be used in various downstream applications.

Comparison Test

30 plants samples were collected and **100mg of plant tissue samples** were grounded into fine powder or crashed into mashed form. The 100mg plant tissue samples were used with GF-1 Plant DNA Extraction Kit and GF-1 Plant DNA Extraction Kit II to extract the DNA.

After the plant DNA extraction, the extracted DNA was checked with **Nanodrop ND1000** on **concentration of DNA** as well as **purity of DNA**. The concentration of DNA can be varying based on different plant species since different plant has unique physical characteristics. The purity of DNA 260/280 ratio between 1.8 and 2.0 is generally accepted as “pure” for DNA.

The plant extracted DNA was then proceed with downstream conventional PCR in final 50µl reaction.

All the extracted plant DNA used in final 50µl reaction **did not dilute; 1µl of extracted plant DNA** used straight in PCR reaction.

The primers were the plant universal primers that targeted for most of the different plant species. The primers used were:

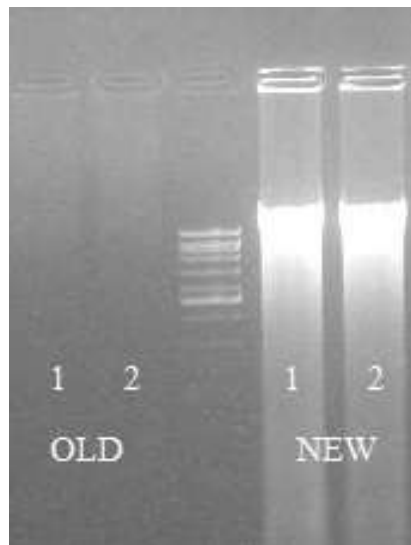
- a. **rbcl-α primer** with expected PCR product size amplified **600bp**
- b. **MatK primer** with expected PCR product size amplified **1020bp**

5µl of PCR product was loaded per lane and electrophoresed in **1.0% TBE agarose gel**.

Paulownia Leaf (Daun Paulownia)



Genomic DNA



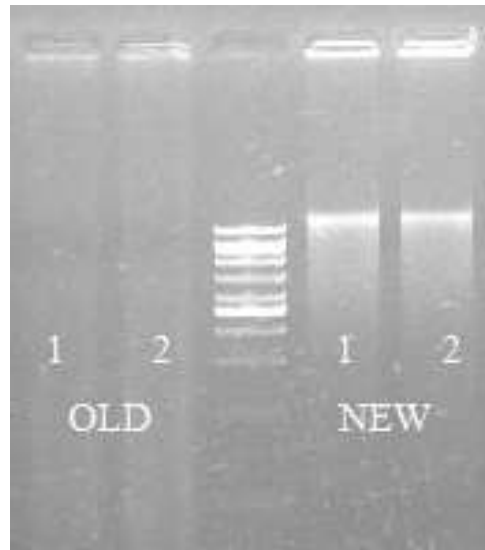
Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
77.0	1.37/0.14	453.4	1.95/1.80
96.3	1.49/0.18	425.7	1.96/1.87

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Longan Leaf (Daun Mata Kucing)



Genomic DNA



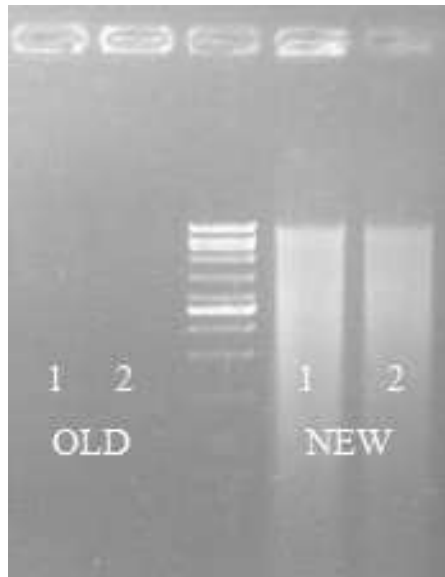
Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
177.5	1.03/0.29	121.3	1.78/1.84
224.1	0.95/0.40	127.9	1.75/2.10

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Snakegrass Leaf (Daun Hempedu Ular)



Genomic DNA



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
37.4	2.48/0.09	710.5	2.04/1.98
24.6	2.49/0.04	667.6	2.07/1.99

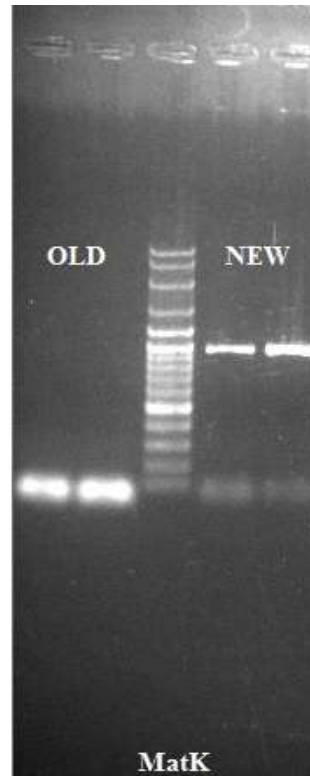
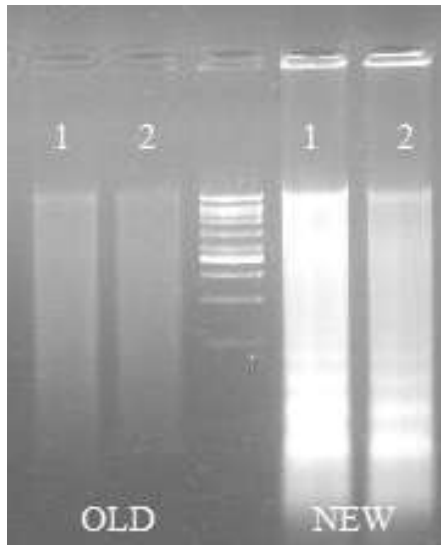
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Bamboo Leaf (Daun Buluh)



Genomic DNA

Downstream PCR (MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
76.2	1.93/0.26	276.6	1.77/1.15
68.8	1.97/0.12	301.8	1.75/1.14

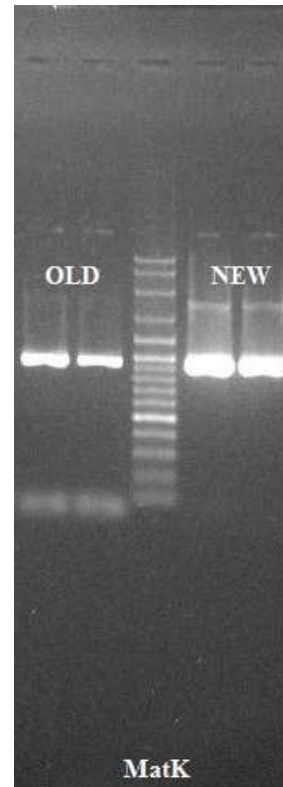
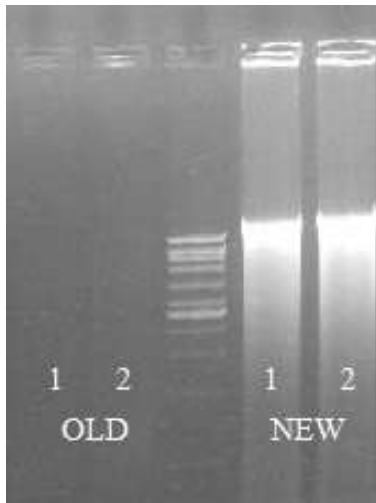
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Banana Leaf (Daun Pisang)



Genomic DNA

Downstream PCR (MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
80.4	2.03/0.13	418.6	1.98/1.87
80.4	2.08/0.14	452.1	1.97/1.87

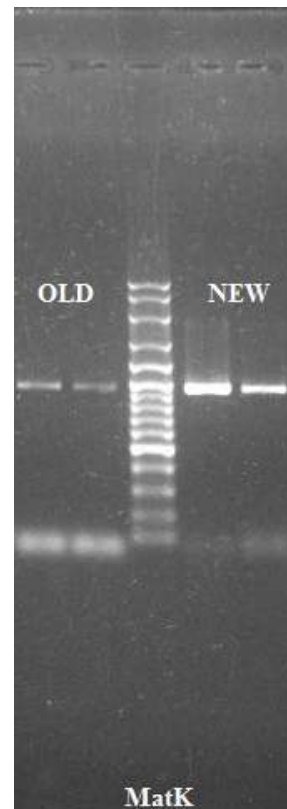
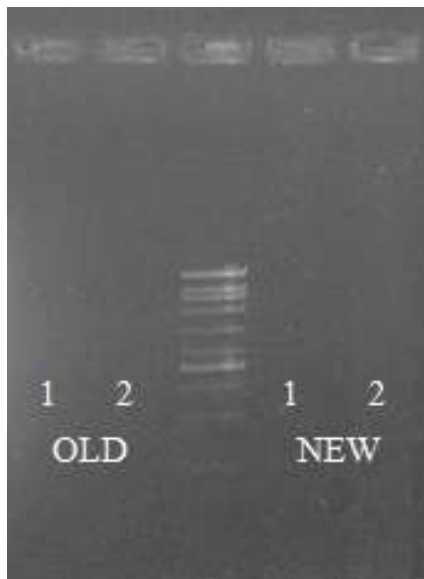
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Boat-lily Leaf (Daun Kepah)



Genomic DNA

Downstream PCR (MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
40.2	2.18/0.07	134.8	2.00/1.88
37.8	2.06/0.07	152.0	2.01/1.88

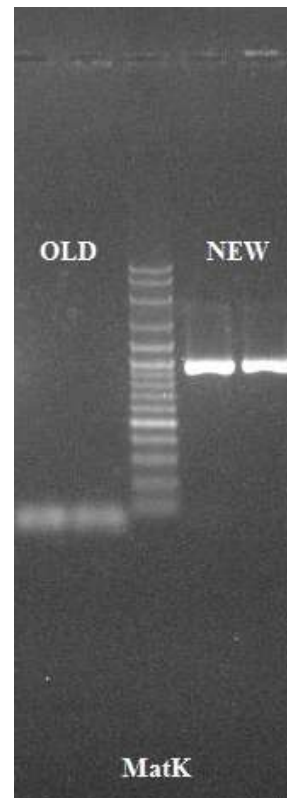
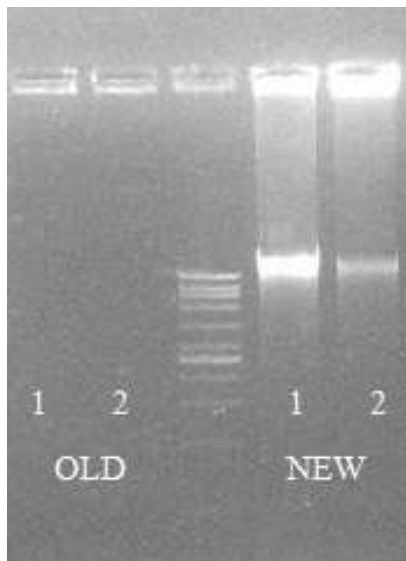
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Jackfruit Leaf (Daun Nangka)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
13.8	1.29/0.02	321.0	1.88/1.34
13.45	1.46/0.10	320.7	1.87/1.27

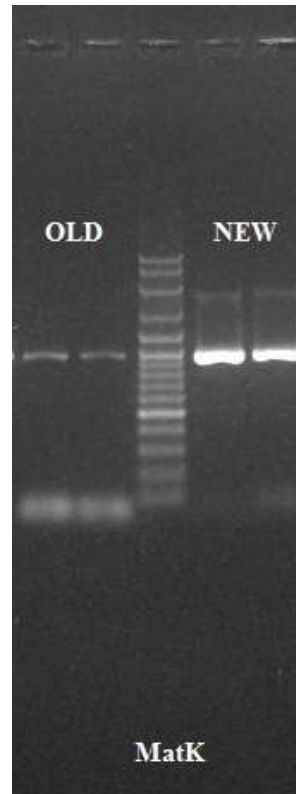
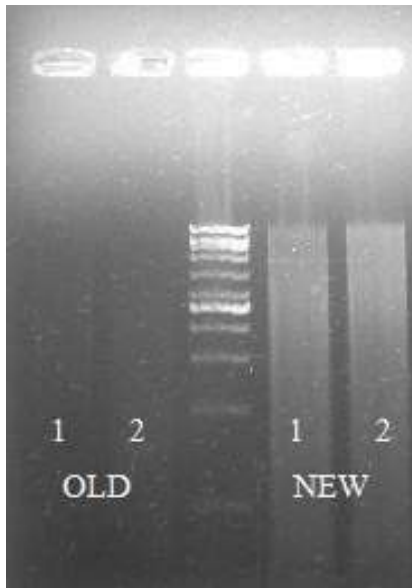
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Mytragyna Species Leaf (Daun Ketum)



Genomic DNA

Downstream PCR (MatK)



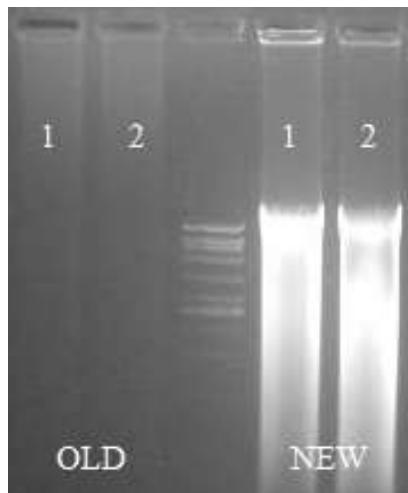
Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
41.2	1.99/0.07	307.3	1.99/1.74
41.4	1.99/0.08	325.4	1.98/1.65

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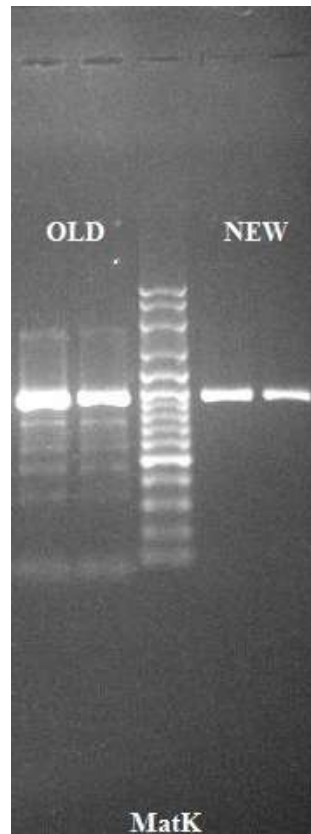
Palm Oil Leaf (Daun Kelapa Sawit)



Genomic DNA



Downstream PCR (MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
222.2	1.82/0.40	749.1	1.96/1.62
194.1	1.85/0.34	722.7	1.95/1.60

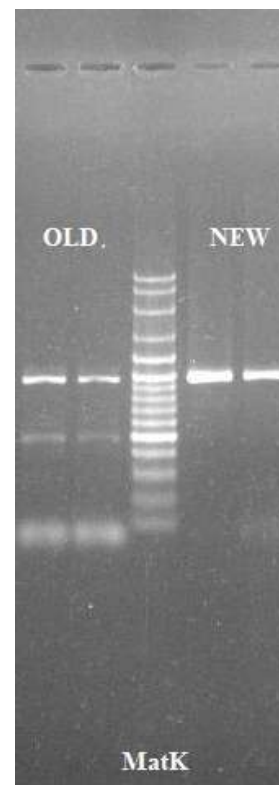
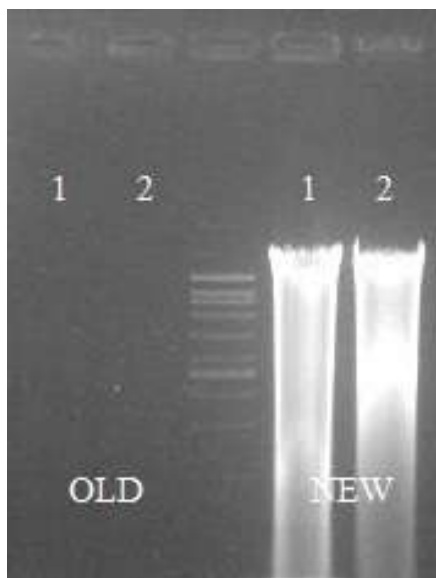
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Sugarcane Leaf (Daun Tebu)



Genomic DNA

Downstream PCR (MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
134.5	1.99/0.23	790.2	1.93/1.84
119.4	2.02/0.24	772.4	1.94/1.83

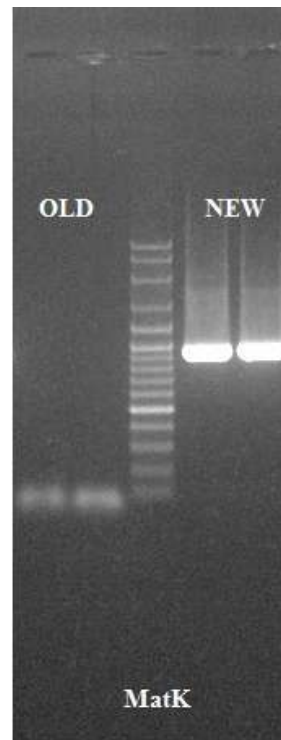
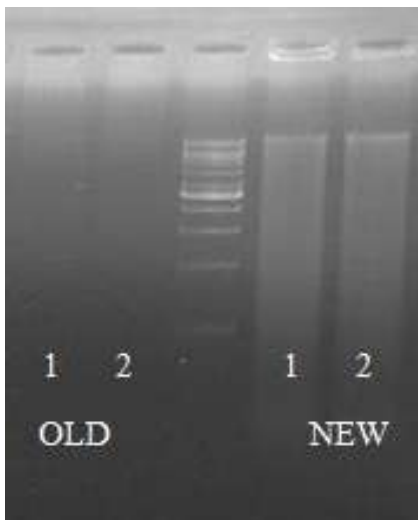
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Yellow Palm (Sawit Kuning)



Genomic DNA

Downstream PCR (MatK)



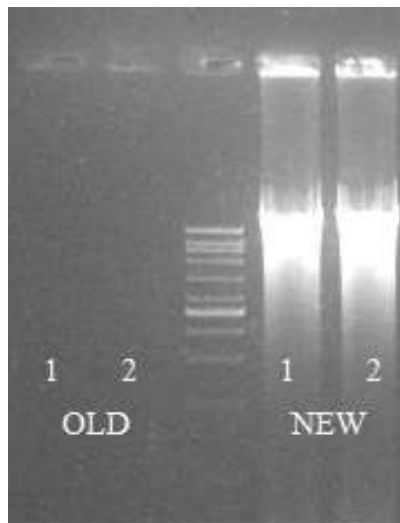
Old Method		New Method	
Conc. (ng/ul)	Purity	Conc. (ng/ul)	Purity
17.1	1.54/0.03	71.5	1.88/1.33
14.2	1.62/0.03	64.8	1.86/1.34

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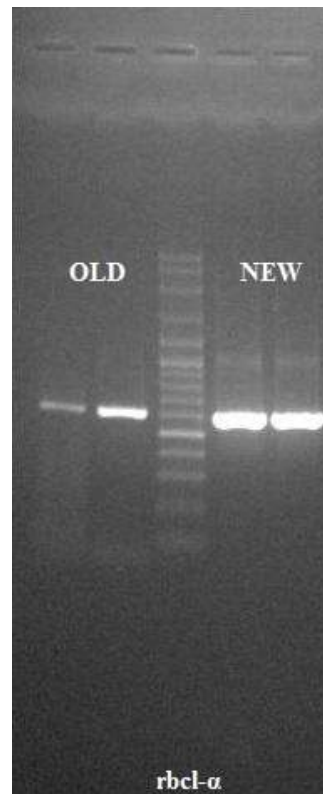
Bird's Nest Fern Leaf (Daun Paku Langsuir)



Genomic DNA



Downstream PCR (rbcL- α)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
36.4	2.01/0.11	487.1	2.02/2.35
28.3	1.93/0.61	494.6	2.03/2.34

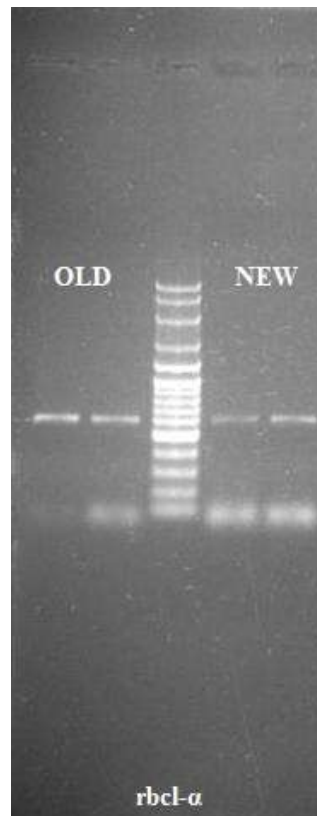
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Mango Leaf (Daun Mangga)



Genomic DNA

Downstream PCR (rbcL- α and MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
8.2	1.35/0.02	49.3	1.95/1.97
10.2	1.57/0.02	37.7	2.00/1.78

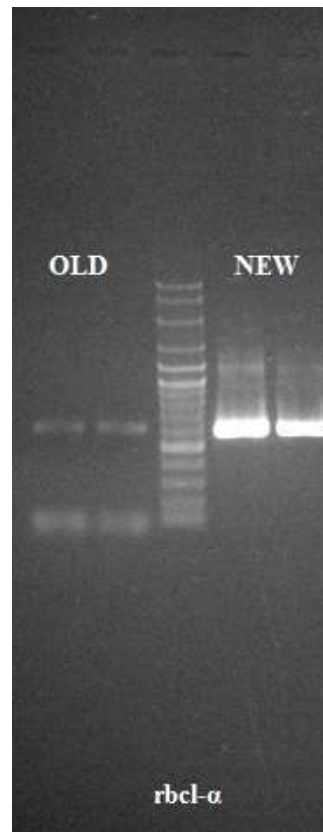
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Palm-lily Leaf (Daun Jenjuang)



Genomic DNA

Downstream PCR (rbcL- α)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
21.79	2.09/0.04	392.6	2.03/2.22
24.77	1.85/0.05	376.3	2.05/2.25

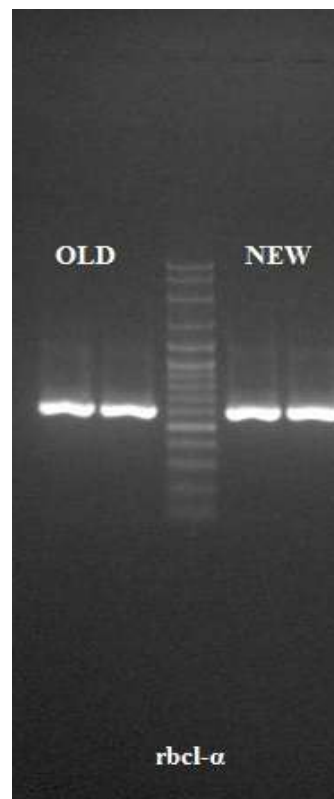
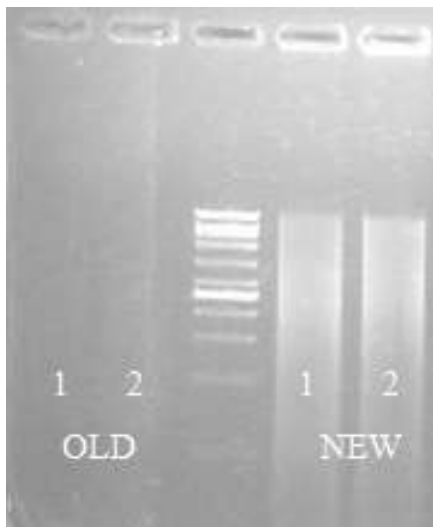
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Sand Ginger Leaf (Daun Cekur)



Genomic DNA

Downstream PCR (rbcl- α)



Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
27.7	1.80/0.06	101.5	1.97/2.21
19.4	1.76/0.06	111.4	2.00/2.28

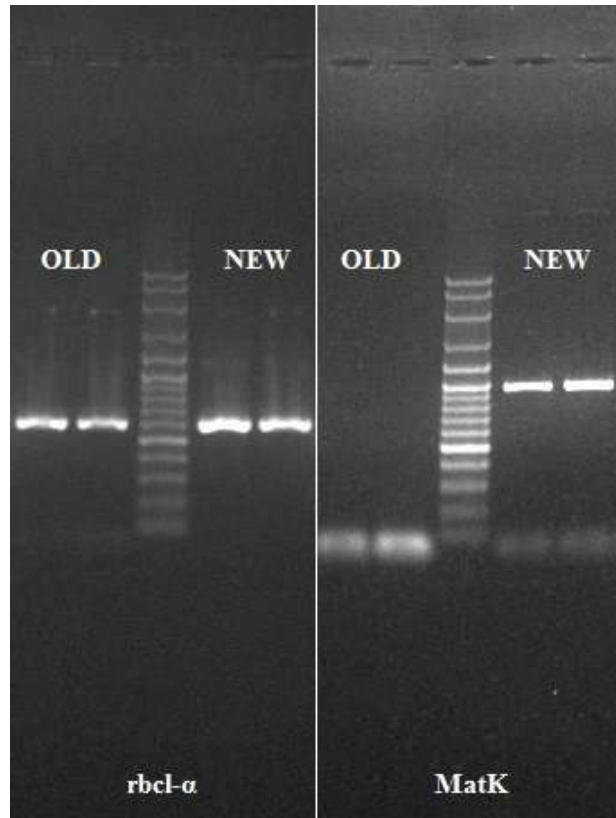
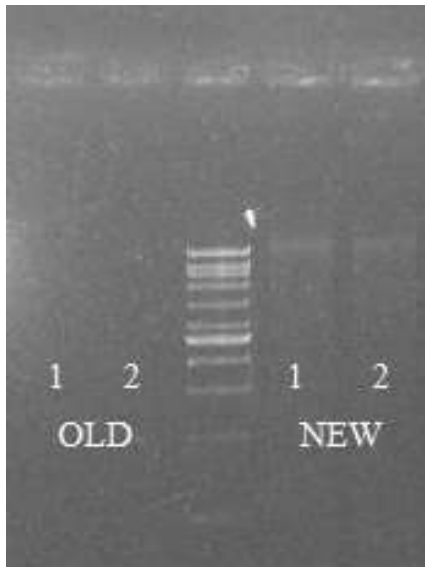
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Aloe Vera Stem (Batang Lidah Buaya)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



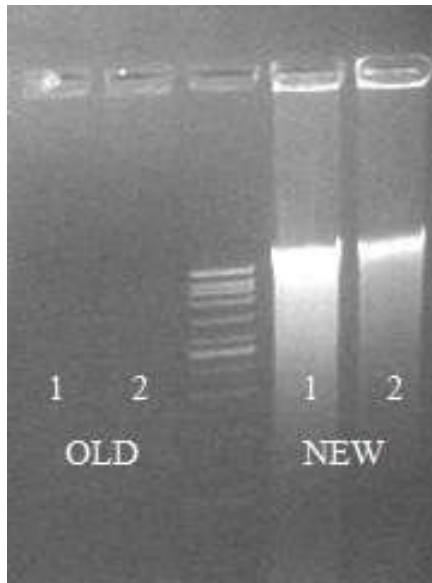
Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
9.8	2.04/0.03	59.8	2.00/2.28
11.8	1.70/0.02	59.4	2.07/2.25

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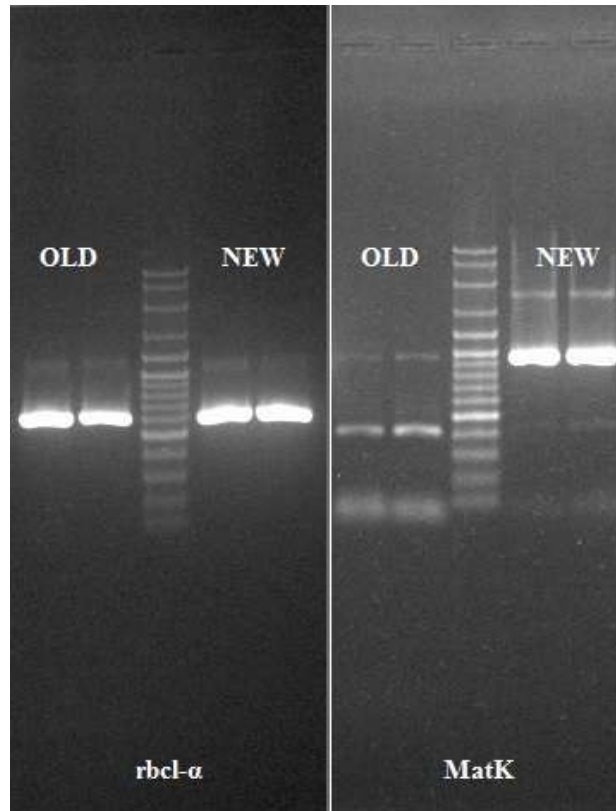
Alpinia Galanga Leaf (Daun Lengkuas)



Genomic DNA



Downstream PCR (rbcl- α and MatK)



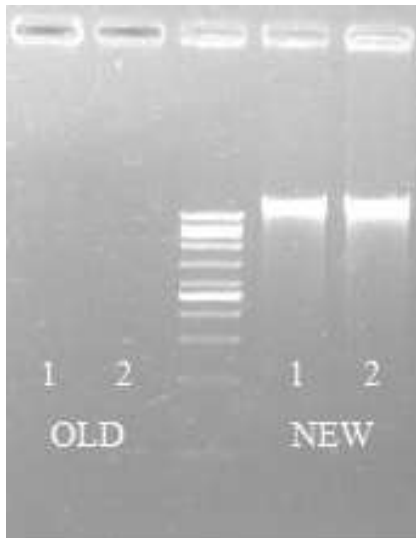
Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
36.4	2.03/0.08	316.7	2.03/2.33
37.4	2.10/0.06	244.0	2.04/2.31

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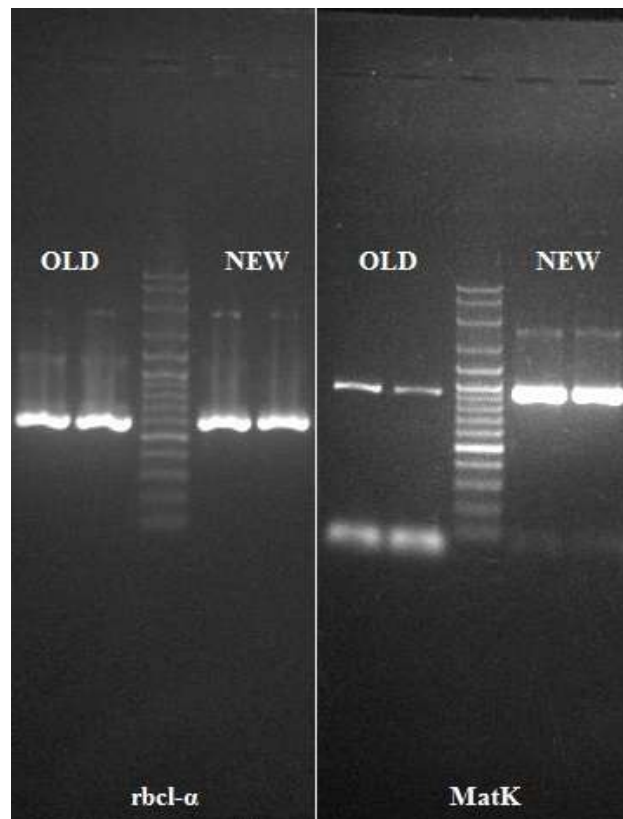
Champak Flower (Bunga Cempaka)



Genomic DNA



Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
41.0	1.84/0.07	31.2	1.67/1.62
23.7	1.75/0.13	30.7	1.72/1.40

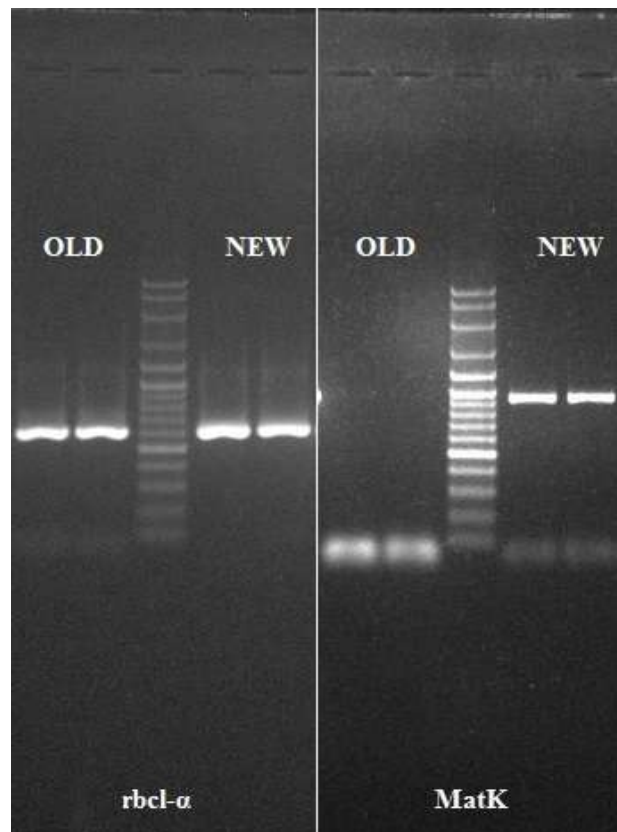
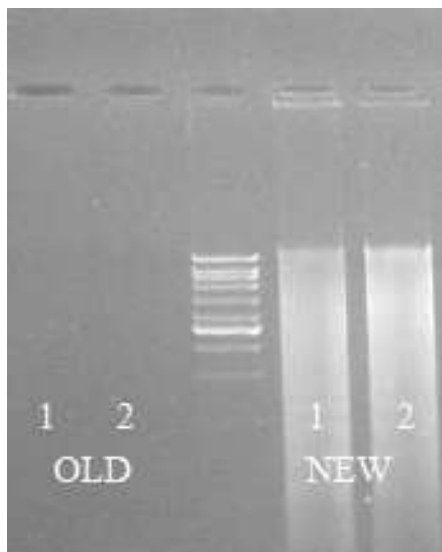
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Champak Leaf (Daun Cempaka)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



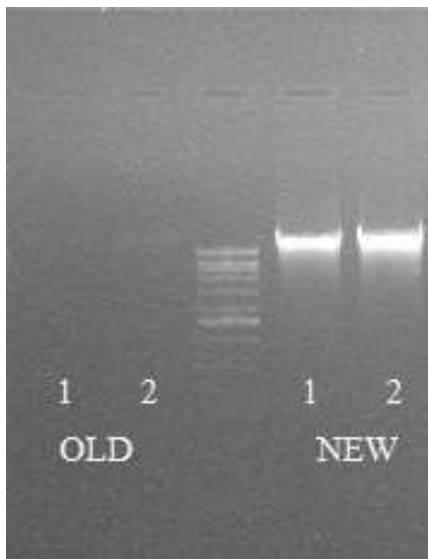
Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
23.4	1.69/0.04	121.7	1.94/2.02
32.2	1.75/0.32	111.8	1.92/2.02

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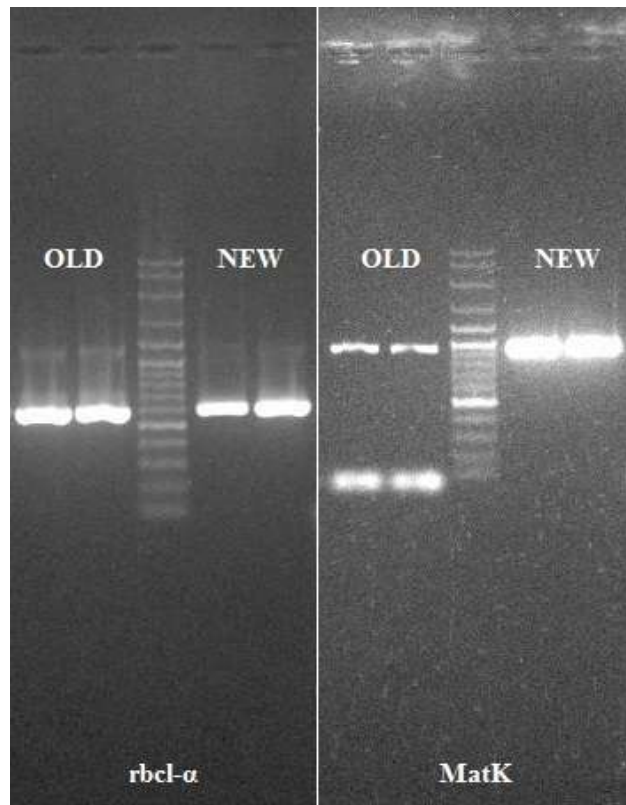
Dinnerplate-aralia Leaf



Genomic DNA



Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
10.6	1.56/0.29	55.0	1.78/1.70
16.8	1.87/0.03	61.0	1.85/1.90

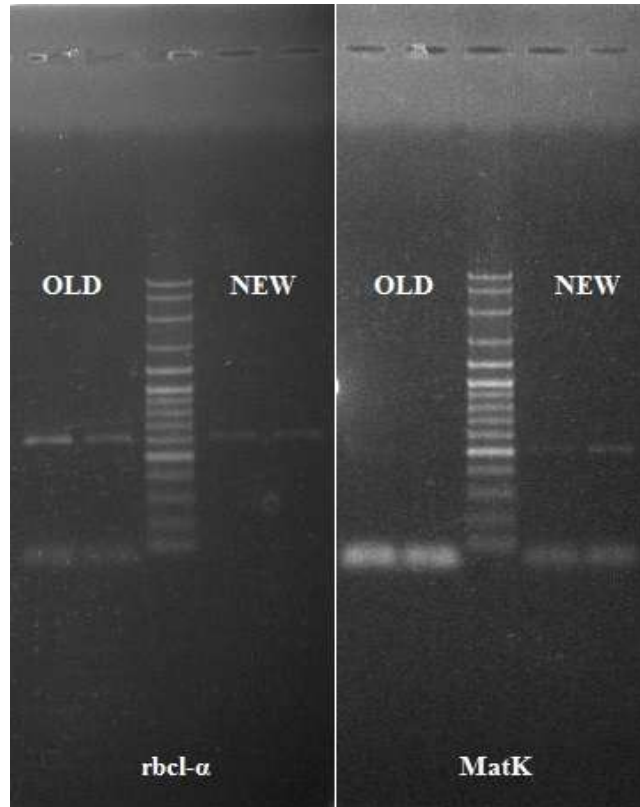
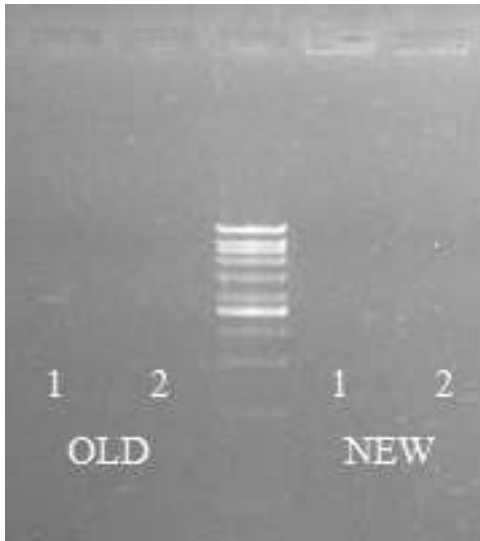
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Grey Oyster Mushroom (Cendawan Tiram)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
19.6	1.94/0.22	63.3	2.22/2.03
23.5	2.11/0.09	61.4	2.33/2.41

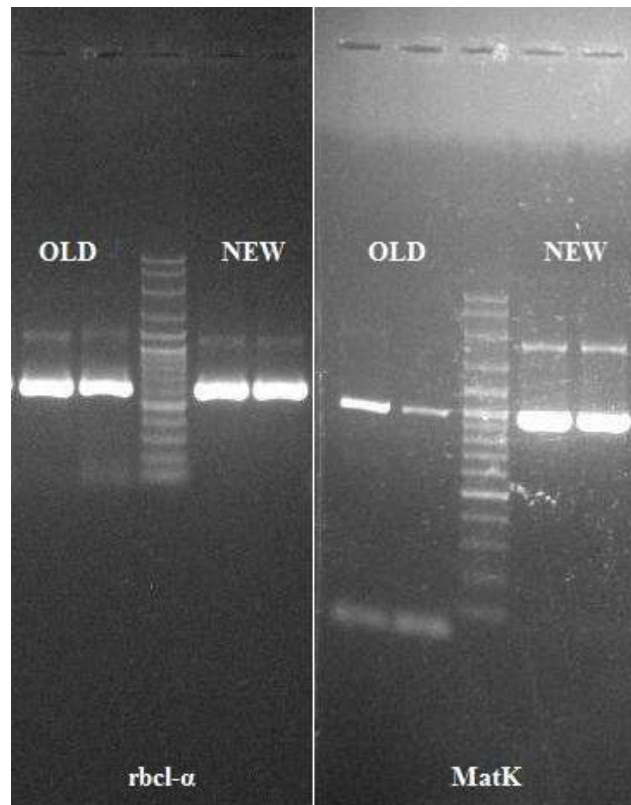
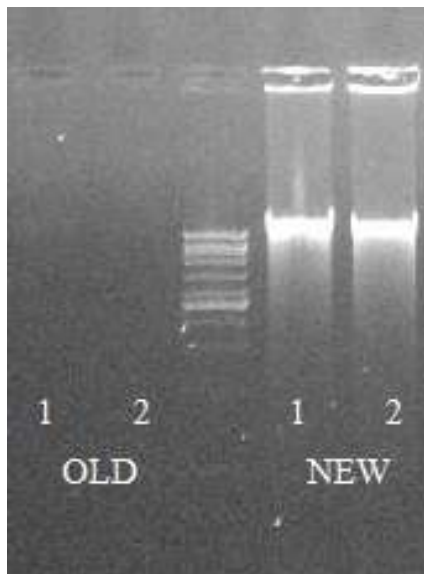
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Jasmine Flower (Bunga Melur)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
64.9	2.02/0.10	76.3	1.94/2.34
45.9	2.08/0.08	77.0	1.89/2.31

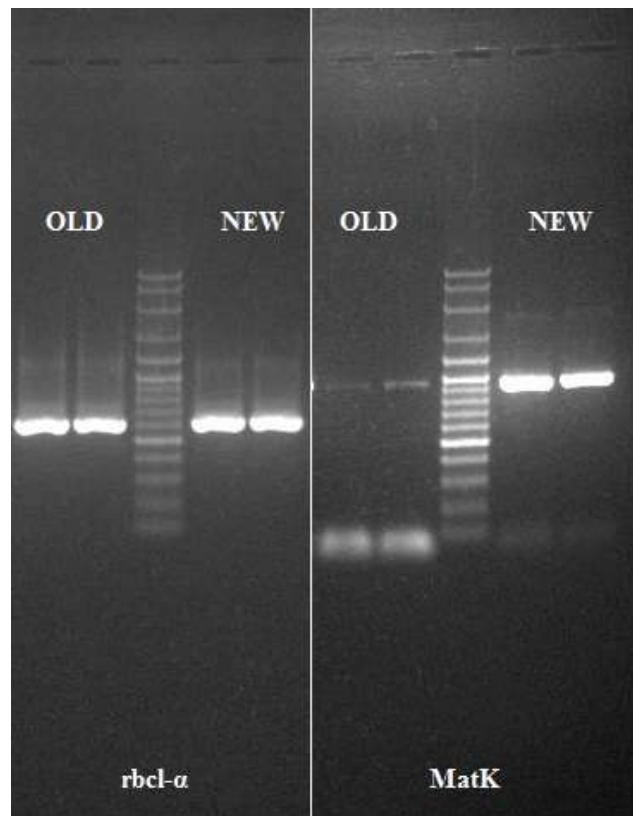
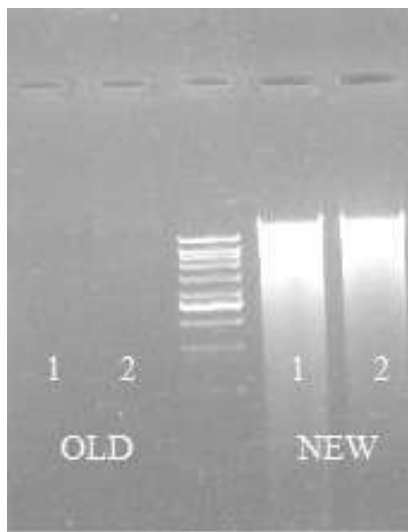
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Kaffir Lime Leaf (Daun Limau Purut)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



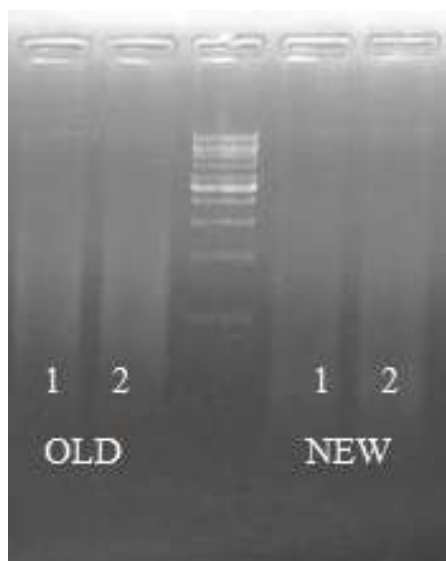
Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
30.4	1.80/0.05	265.8	2.04/2.21
32.9	1.91/0.07	241.8	2.05/2.19

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Lemongrass Leaf (Daun Serai)

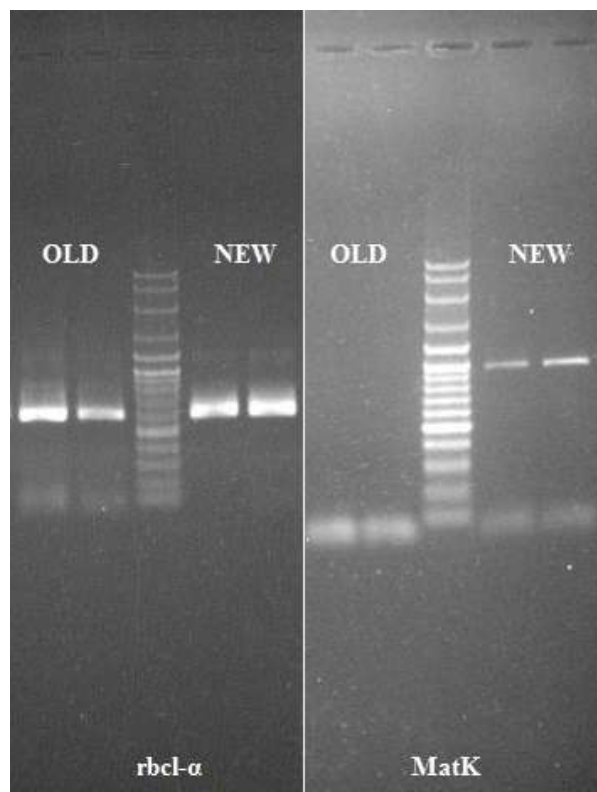


Genomic DNA



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
42.4	1.93/0.44	33.2	1.68/1.35
38.3	1.87/0.18	44.6	1.91/1.62

Downstream PCR (rbcl-α and MatK)

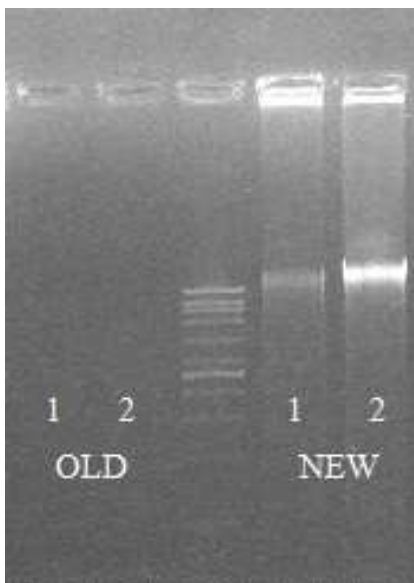


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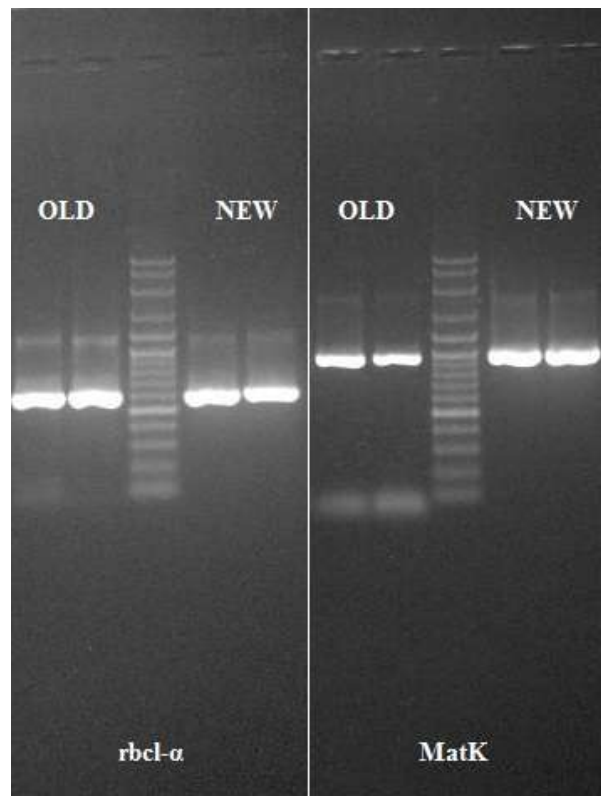
Pandanus Leaf (Daun Pandan)



Genomic DNA



Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
28.2	1.90/0.05	67.8	1.91/2.07
32.5	2.05/0.06	64.9	1.93/2.07

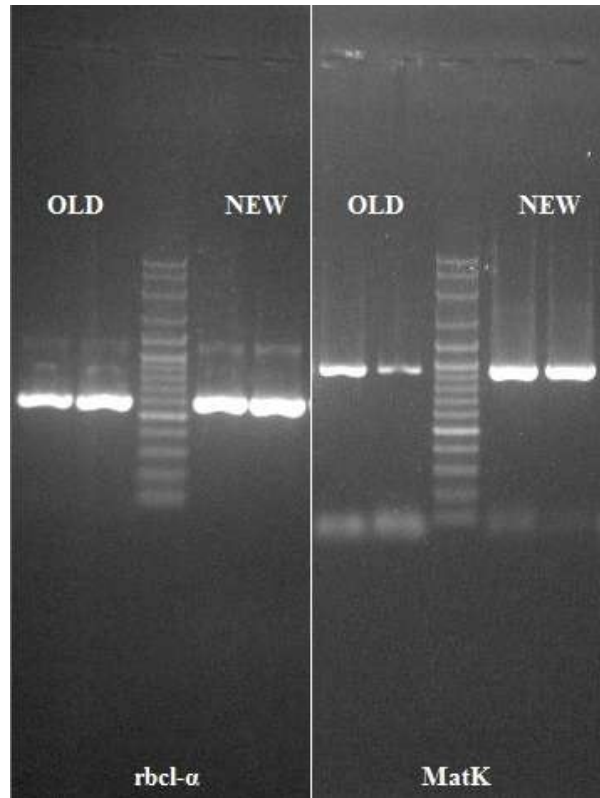
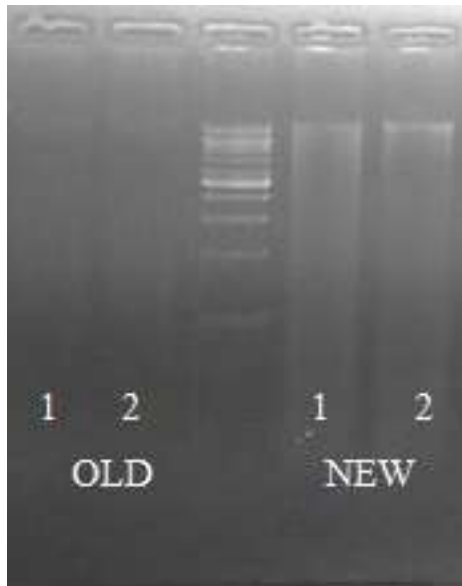
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Papaya Leaf (Daun Betik)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
12.6	1.82/0.10	39.5	1.90/1.73
6.8	1.61/0.06	40.0	2.09/1.67

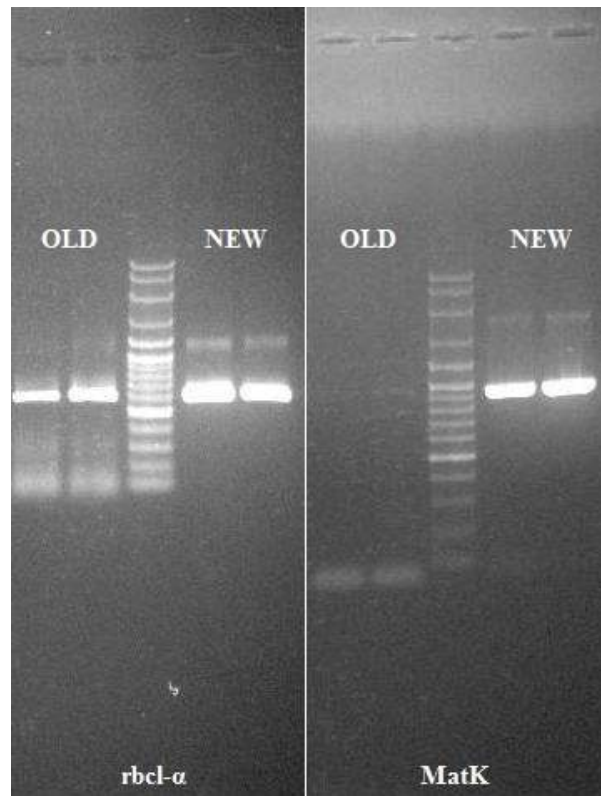
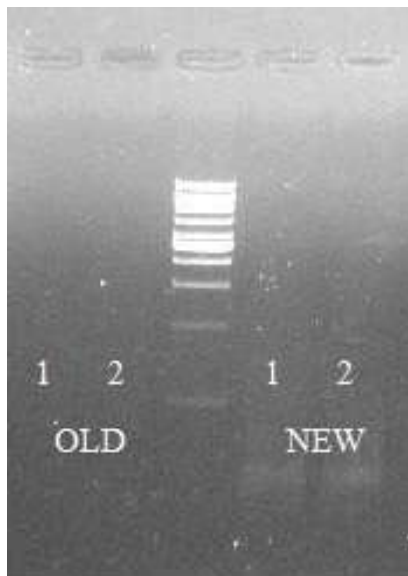
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Pineapple Leaf (Daun Nanas)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/ μ l)	Purity	Conc. (ng/ μ l)	Purity
36.2	2.12/0.06	39.2	1.86/2.24
35.2	2.15/0.06	38.4	1.85/2.31

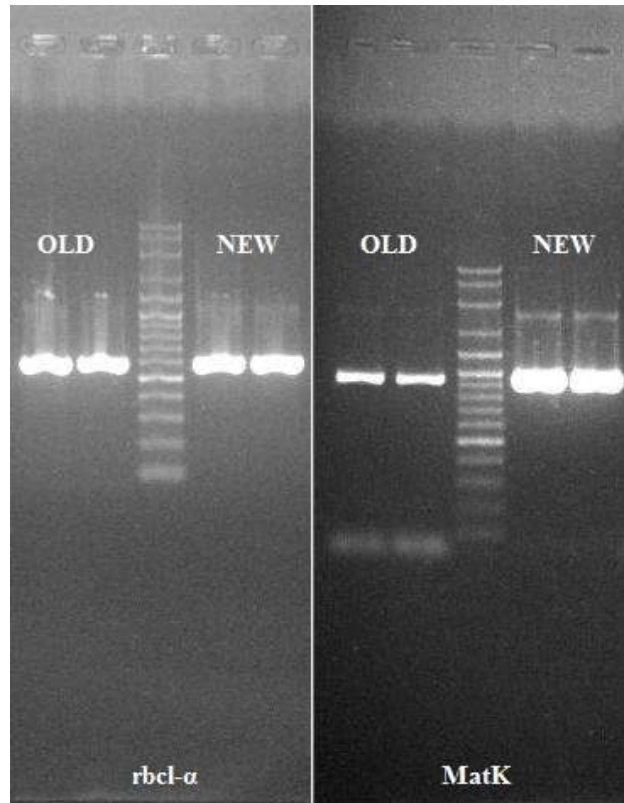
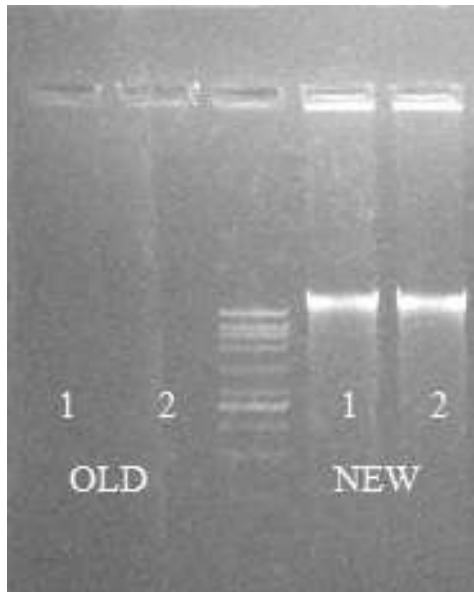
Pairing Nature with Scientific Discoveries

Rosy Periwinkle Leaf (Daun Bunga Pokok Bunga Tapak Dara)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
28.4	2.15/0.05	47.2	1.88/2.04
30.6	1.84/0.09	43.8	1.94/2.08

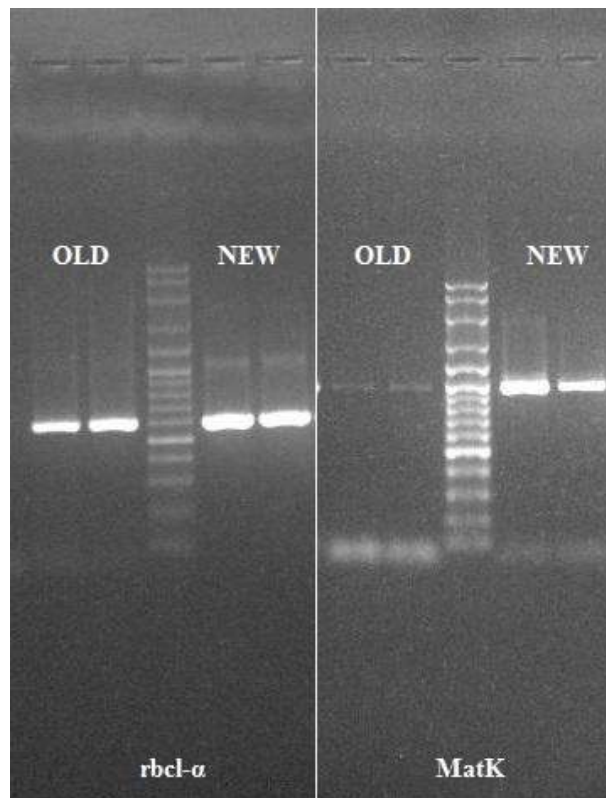
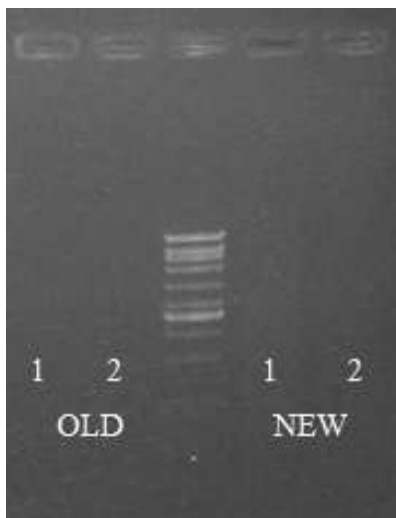
Pairing Nature with Scientific Discoveries

Sansevieria Trifasciata Leaf (Daun Lidah Jin)



Genomic DNA

Downstream PCR (rbcL- α and MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
19.8	2.15/0.03	27.2	1.91/1.93
24.4	2.19/0.04	27.2	1.82/1.99

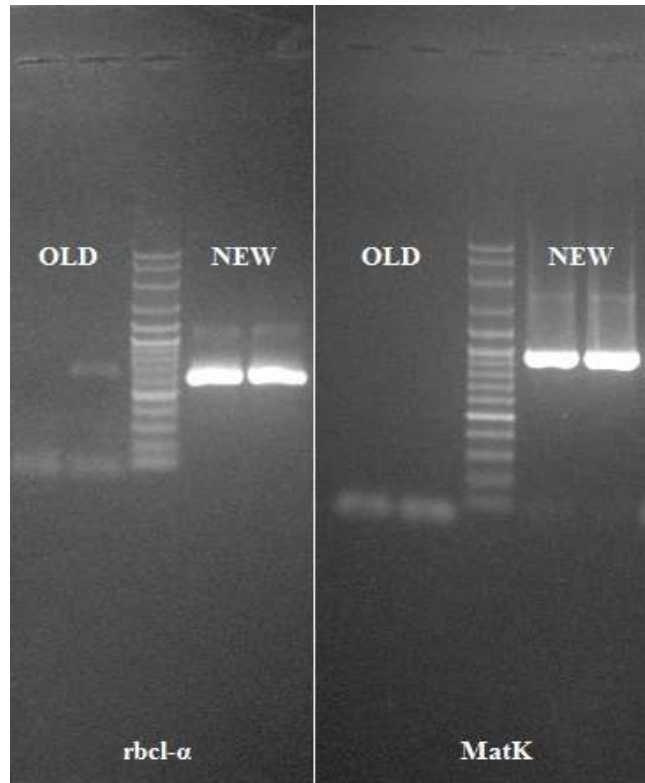
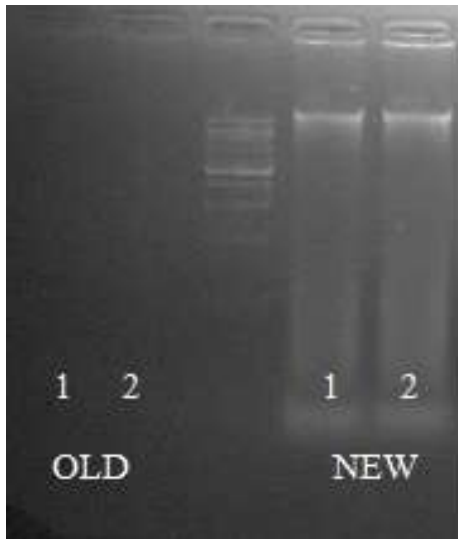
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Tapioca Leaf (Daun Ubi Kayu)



Genomic DNA

Downstream PCR (rbcl- α and MatK)



Old Method		New Method	
Conc. (ng/μl)	Purity	Conc. (ng/μl)	Purity
5.7	2.03/0.07	195.4	2.10/2.23
2.8	1.33/0.01	213.9	2.13/2.21

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