1st BASE
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PrimeWay Gel Extraction/ PCR Purification II (KIT-9051)

PrimeWay Gel Extraction/ PCR Purification Kit II offers two applications in one kit. It is a simple procedure that uses a silica-based spin column to perform gel extraction or purify the DNA fragments from 65 bp to 15 kb within 16 minutes with a high recovery rate.

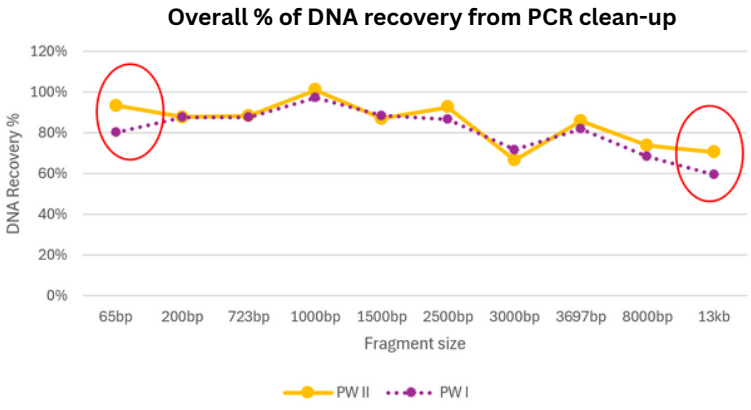
This kit enables removal of primers, dNTPs, enzymes, salts, and short PCR products (< 65 bp). Thus, making it suitable for downstream processes such as DNA sequencing, PCR, in-vitro transcription, restriction mapping, cloning, and labelling application.

Improvement on PrimeWay Gel Extraction/ PCR Purification Kit II

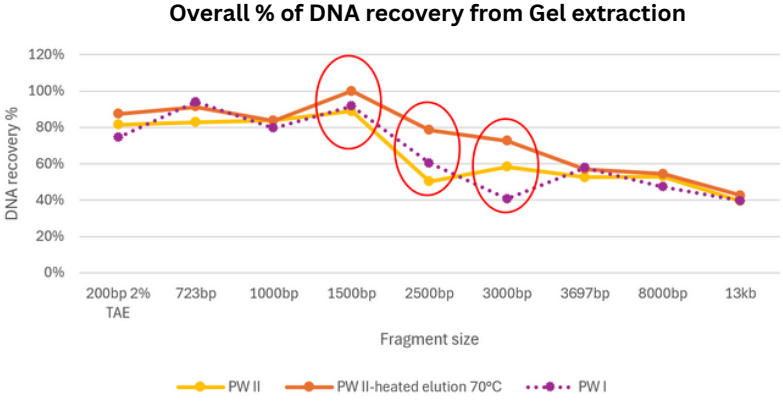
Eliminate column assembly

Figure 1: PrimeWay I uses separate column and collection tube (left); while PrimeWay II features an integrated pre-assembled format for user convenient.

New buffer chemistry for optimized recovery and heated elution buffer



Graph 1: In PCR clean-up, the PrimeWay II shows around 10% higher recovery at the smallest (65bp) and largest (13kb) fragment sizes.



Graph 2: In gel extraction, the PrimeWay II with 70 °C heated elution demonstrates consistently higher DNA recovery compared to the previous PrimeWay I kit across nearly the entire fragment size range. The improvement is most notable for mid-sized fragments (1.5–3 kb), while even smaller fragments (~200 bp) show an additional 10–29% increase in yield.

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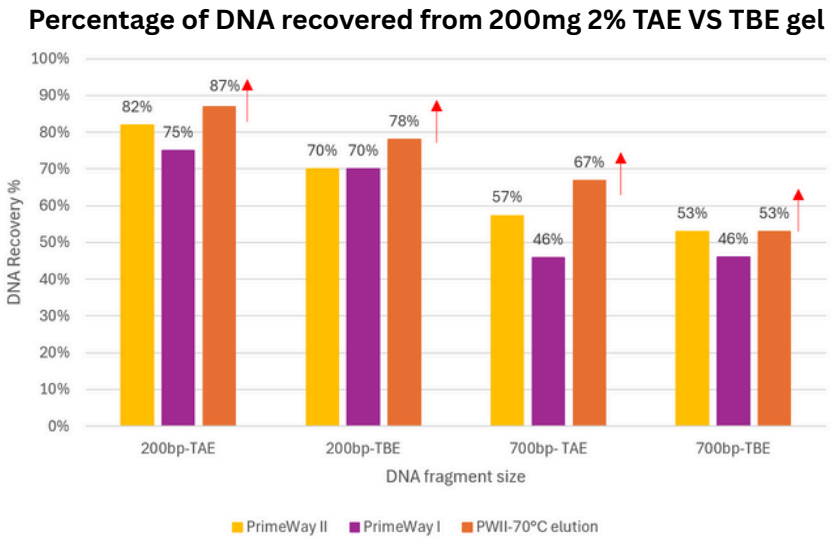
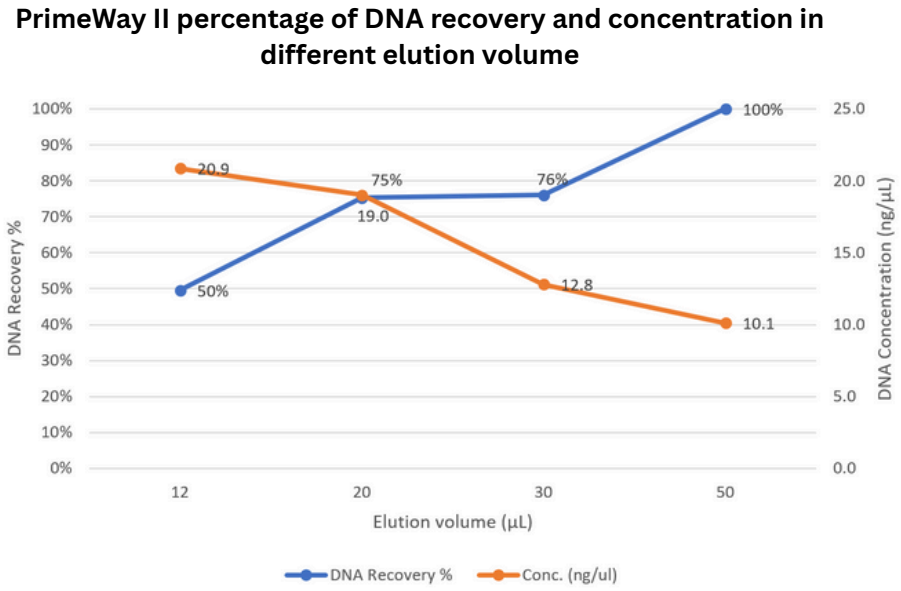
New buffer chemistry support efficient DNA recovery from both TAE and TBE gel systems, with improved performance using heated elution



Graph 3: PrimeWay II consistently delivers matching or higher DNA recovery than the PrimeWay I kit across both TAE (Tris-Acetate-EDTA) and TBE (Tris-Borate-EDTA) gels. Recovery is further enhanced when using 70 °C heated elution with PrimeWay II.

Flexible elution volume



Graph 4: Percentage of DNA Recovery Versus Elution Volume. PCR product with fragment size of 723 bp was directly purified using PCR clean up protocol in triplicate and quantified by Implen spectrophotometer.
At smallest elution volume of 12 µL, the DNA concentration able to reach 20.9 ng/µL, with approximately 50% of total DNA recovery maintained.

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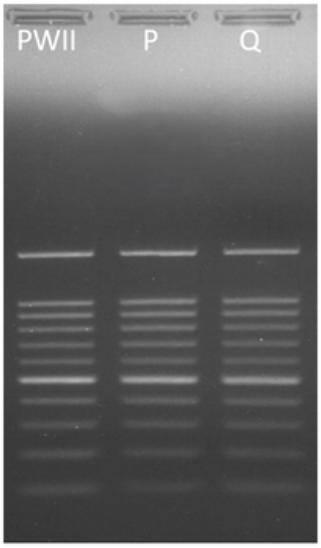
Product Value & Market Performance

PCR Purification - Yield & Purity

100bp ladder



Note:
PWII = PrimeWay II
P = Brand P
Q = Brand Q

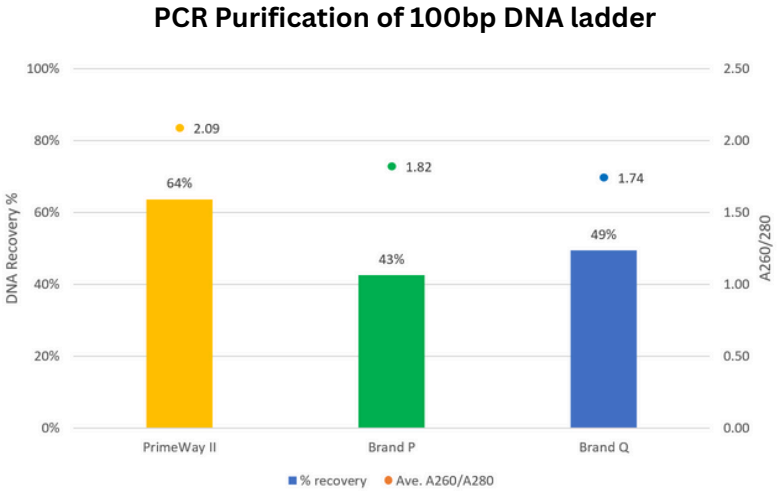
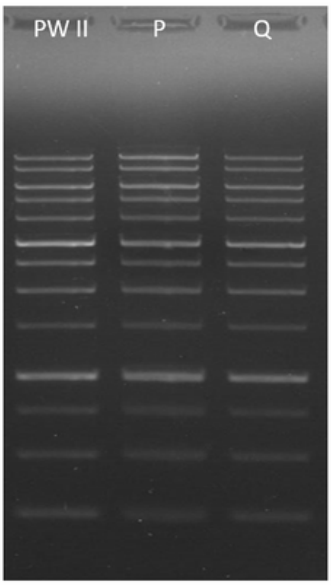


Figure 2: 10 µL of 100 bp DNA ladder (1st BASE, BIO-5130-50ug) are purified using different brands of Gel/PCR kit. DNA is eluted with 50 µL Elution Buffer. 1 µL of purified 100 bp DNA ladder are analyzed using 1.7% TAE gel stained with Floro+Red Nucleic Acid Stain (BIO-5171-600ul).

1kb DNA ladder



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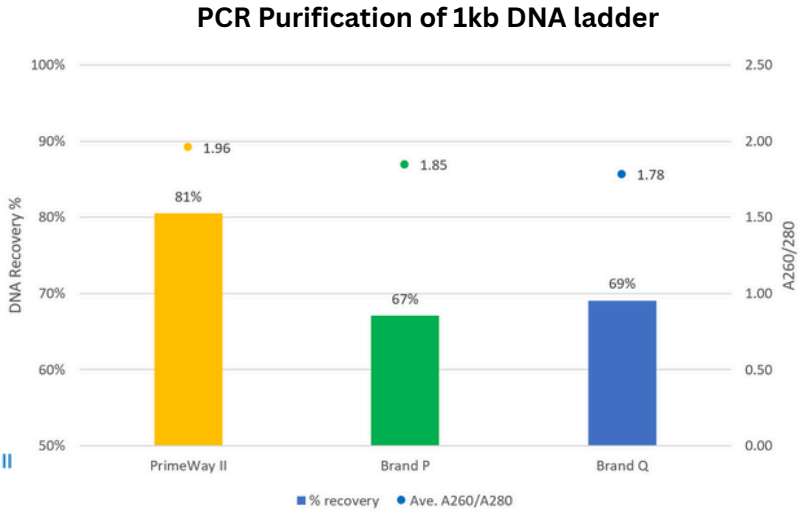

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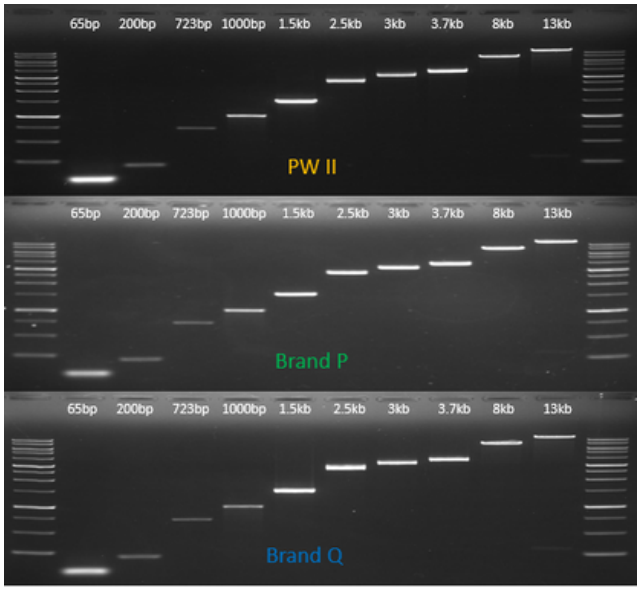
PCR Purification



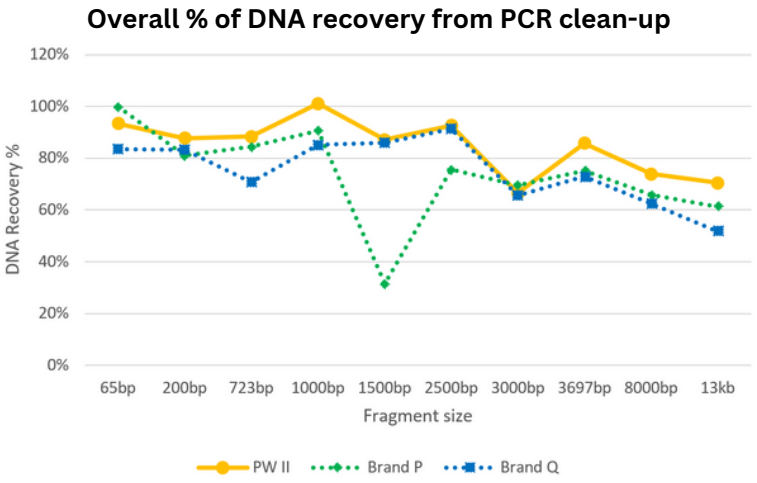
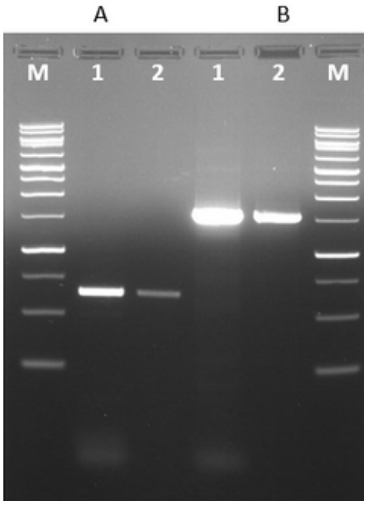


Figure 5: 1µL of purified PCR product and restriction enzyme linearized plasmid are analyzed using 1% TAE gel stained with Floro+Red Nucleic Acid Stain (BIO-5171-600ul). 1 kb DNA ladder (1st BASE, BIO-5140-50ug) is used as the size standard.

PCR Purification - Technical Sheet Info

Removal of primer dimer



Note:

M = 1kb ladder
A = 723bp PCR product
B = 1500bp PCR product

1. Before
2. After PCR cleanup

Figure 6: 1µL of unpurified PCR product (1) and purified PCR product (2) are analyzed using 1% TAE gel stained with Floro+Red Nucleic Acid Stain (BIO-5171-600 µl). 1 kb DNA ladder (1st BASE, BIO-5140-50 µg) is used as the size standard.

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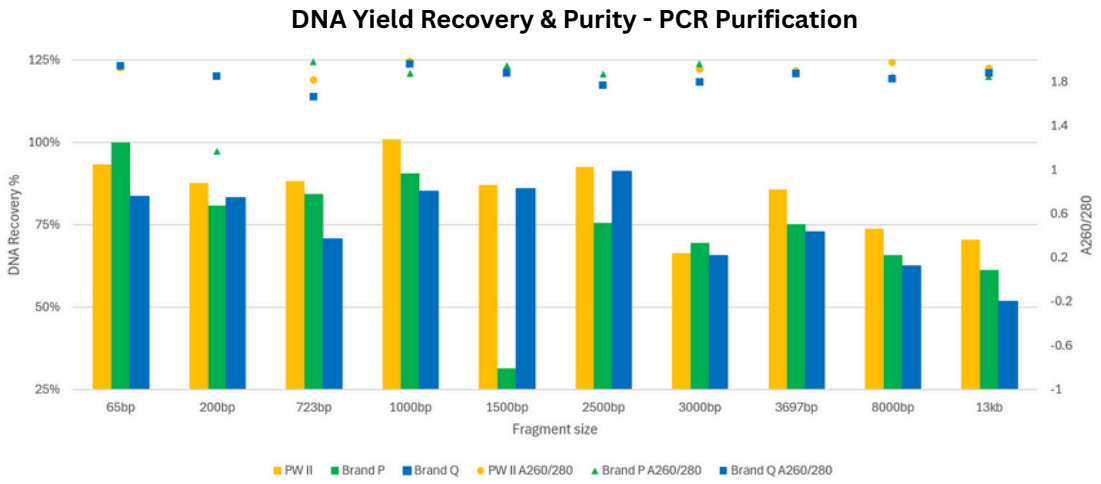


Graph 4: DNA yield recovery and DNA purity performance from PCR purification protocol.

Gel Extraction - Technical Sheet Info

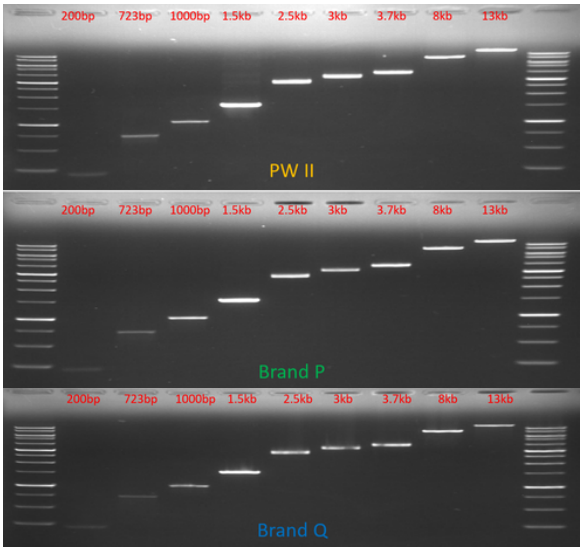
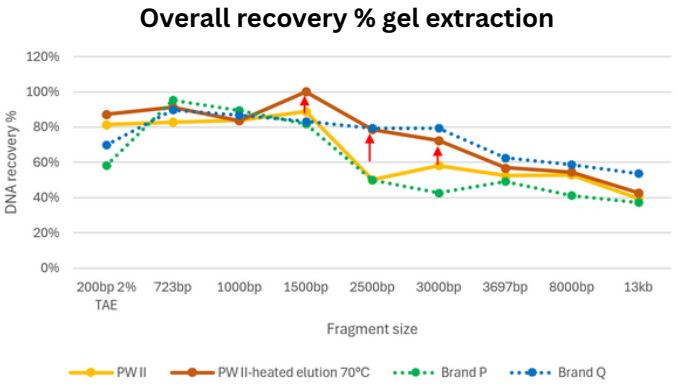
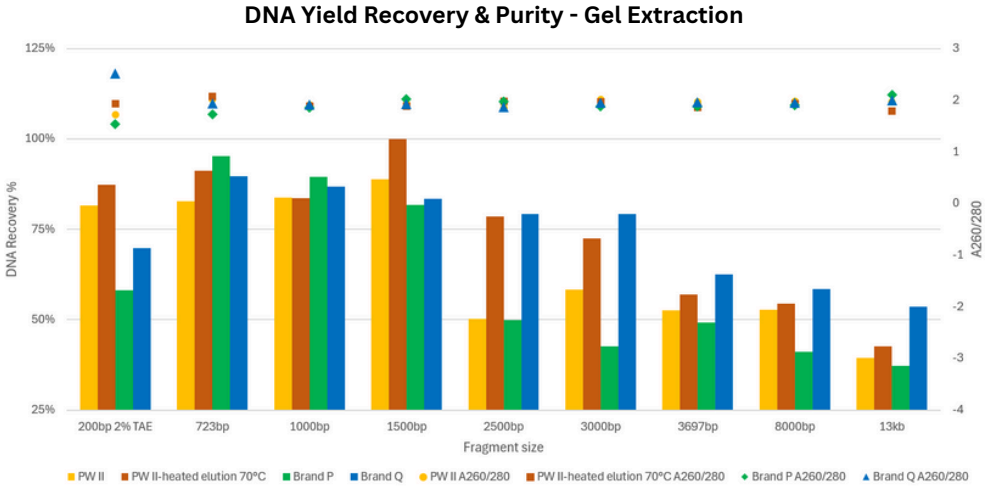


Figure 8: 1µL of PCR product and restriction enzyme linearized plasmid are analyzed using 1% TAE gel stained with Floro+Red Nucleic Acid Stain (BIO-5171-600ul). 1 kb DNA ladder (1st BASE, BIO-5140-50ug) is used as the size standard.



Graph 5: Using pre-heated elution buffer (70°C), PW II achieved DNA recovery similar to the Brand Q standard and outperformed room-temperature PW II elution, especially for medium and large DNA fragments. At room temperature, PW II gave recovery comparable to Brand P, but pre-heated elution buffer (70°C) has improved recovery across all fragment sizes.



Graph 6: DNA yield recovery and DNA purity performance from gel extraction protocol

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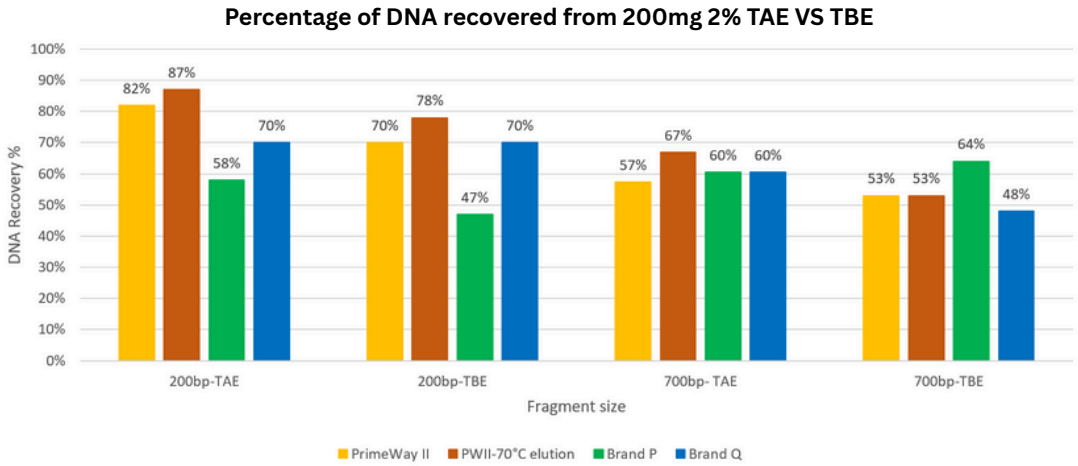

Graph 7: DNA yield recovery performance from PrimeWay II compared to competitor brand across both TAE (Tris-Acetate-EDTA) and TBE (Tris-Borate-EDTA) gels. PrimeWay II consistently matches or outperforms major brands across TAE & TBE systems.

Downstream performance - Cloning

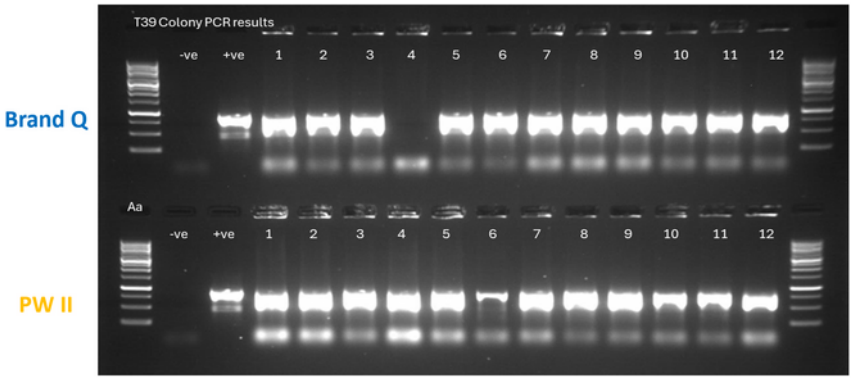

Figure 9: 3µL of colony PCR product are analyzed using 1% TAE gel stained with Floro+Red Nucleic Acid Stain (BIO-5171-600ul). 1 kb DNA ladder (1st BASE, BIO-5140-50ug) is used as the size standard.

Both Brand Q and PW II gel extraction protocols achieved 100% recovery of the 723bp PCR amplicon (20 µL input) from 300 mg of 1% TAE gel stained with GelRed.

For cloning the 723 bp fragment into cloning vector pJET1.2:

- Brand Q: yielded 11 positive clones out of 12.
- PW II: yielded 12 positive clones out of 12.