

Recovery of different sizes of DNA fragments

- Validation Data for HiYield™ Gel/PCR DNA Fragments Extraction Kit (YDF kit)-

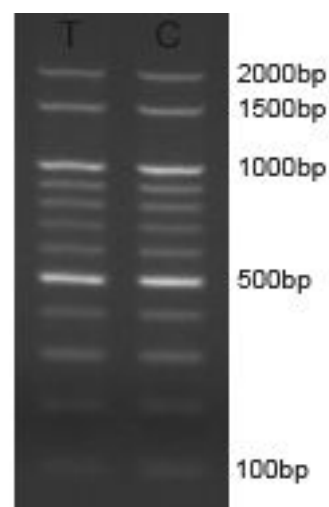
Experimental Design

Solution of various lengths of DNA fragments (100bp sharp DNA ladder: 46ng/μl: RBC bioscience, Cat. No. RD002) were prepared for experiment. 300mg of agarose gel (1% TAE) was completely dissolved in 500μl DF buffer. 50 μl of prepared DNA solution were mixed in agarose dissolved DF buffer simulating gel extraction application. Subsequent Gel Extraction Protocol of YDF kit was conducted with the solution. 20% volume of eluted DNA was loaded onto an agarose gel comparing 10μl of 100bp sharp DNA ladder. The agarose gel was stained with ethidium bromide for subsequent analysis. DNA quantification was conducted measuring fluorescence intensity of each band of the gel.

Result

A. Electrophoresis image of recovered DNA

Intensity of fluorescence of processed DNA solution (T, Left) was compared with corresponding proportion of applied DNA solution (C, Right).



B. Percent Recovery

DNA Fragment Size	Percent Recovery
100bp	87%
200bp	97%
300bp	94%
400bp	91%
500bp	90%
600bp	93%
700bp	95%
800bp	91%
900bp	92%
1000bp	94%
1500bp	92%
2000bp	96%

Conclusion

More than 90 % of DNA recovery was showed with DNA fragments of 200-2000bp. Difference of recovery rate may be the level of experimental error. While percent recovery of 100bp fragment is 87%, recovery loss may be higher for fragments shorter than 100bp. Other products, such as RBC bioscience, Cat No. YCG50 or YCG25, are recommended for purification of low molecular weight DNA fragments like DNA oligomers.