The Comparison of different Procedures for DNA extraction from paraffin-embedded Tissues: A commercial kit and a traditional method based on heating

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Abstract

Background and objectives: Paraffin-embedded tissues and clinical samples are a valuable resource for molecular genetic studies, but the extraction of high-quality genomic DNA from this tissues is still a problematic issue. In the Present study, the efficiency of two DNA extraction protocols, a commercial kit and a traditional method based on heating and K Proteinase was compared.

Material and Methods: Fifty paraffin-embedded blocks of colon cancer tissues (more than 5 years old) were used to compare two methods of DNA extraction. DNA was extracted by traditional method using heat and commercial DNA extraction (Qiagen kit) method. Then the purity and concentration of extracted DNA were measured by Spectrophotometer. Two sequences of TLR4 "The most important receptors in innate immunity" were amplified by polymerase chain reaction. SH-1 '188bp' and SH-2 '124bp' were amplified and then the products were separated on a 2% agarose gel.

Results: The results show that the yield of DNA by traditional method (297 mg/ml) is significantly ($p<0.01$) higher than Commercial kit (176mg/ ml). But traditional method has the lower OD ratio (1.2) Compared to Commercial method. The Amplification of the TLR4 gene sequences is more successful by the traditional method ($p<0.01$) compared with commercial method. The length of the sequence affects on the results of PCR in that short sequence is amplified more successful compared to the long sequence.

Conclusion: The traditional method is more successful in PCR amplification and also simple and cheap. Therefore, we recommend using this method for DNA extraction taken from the paraffin-embedded blocks with more than 5 years old and selecting shorter sequence for better amplification in PCR.

Key words: DNA Extraction, paraffin embedded tissue, PCR