DNA PURIFYING METHOD FROM BONE SAMPLES BY AGAROSE GEL ELECTROPHORESIS FOR STRS MULTIPLEX AMPLIFICATIONS

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DNA analysis of bone samples is of great importance in the identification of human remains in forensic cases. However, it is usually difficult to analyze these samples by PCR methods even by STRs multiplex amplification methods. Many factors for bone samples from forensic cases, including the post-death time, temperature and humidity around the environments, the metal ions as well as chemical materials from soil and so on, could affect PCR reaction in great degree. Therefore, removing these inhibitors and getting high-quality DNA templates for PCR are vital in analyzing these forensic samples. In our study, the agarose gel purification method was applied to recover high molecular weight DNA from 6 bone DNA samples in forensic cases extracted by phenol/chloroform method. The six bone samples, from 1 to 4 years post-death, failed to directly amplify with Profiler Plus™ PCR amplification Kits (Perkin Elmer) at the first time after phenol/chloroform extraction. We subjected the six DNA samples to agarose gel electrophoresis, isolated the high molecular weight area and recovered DNA by washing and precipitating method. Then the same PCR reaction was conducted at the second time. The results showed that the six recovered DNA samples were all successfully amplified. These indicated that agarose gel purification method could effectively remove inhibitors in bone samples and obtain high -quality DNA template for PCR. It was concluded that the purification method was a valid alternative to purify DNA from bone samples for PCR and it offered the advantages of being simple, quick, and inexpensive.