Improvements of extraction methods of sedimentary fish-origin DNA for reconstruction of marine fish communities

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Environmental DNA is DNA fragments derived from body fluids or skin fragments of macro organisms contained in water or soil. It is expected to can be a technology to reveal long-term fish community changes which still remains unknown in the world ocean. However, DNA in the sediments has a low concentration, therefore, it is difficult to detect for a various kind of fish species. The purpose of this research is to elucidate the method that can take sedimentary DNA more efficiently. At this time, we tested five DNA extraction methods including the conventional one together with beads beating time. Quantitative PCA results showed that Power Soil had the best yield in the replications. In addition, DNA extraction of *Truchurus japonicus* figured out a better yield by increasing the amount of sediment sample. There was a significant difference between 10 min. and 30 sec. of beads beating time, it is possible that there is a higher yield with short time beating. Our future works is to test whether DNA yield improves by shortening or eliminating bead beating, effectively removal of PCR inhibitors, and an utility of PCR inhibitor.

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