Plant Paleogenetics with Plant Macro-Remains from the Last Glacial Maximum

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Ancient DNA (aDNA) from plant remains should provide valuable information for paleoecologists as well as population geneticists; however, the rarity of well-preserved plant macro-remains has often prevented widespread adoption for plant aDNA studies. Here we report remarkably well-preserved sediments originated from the Last Glacial Maximum (LGM), and an attempt to retrieve aDNA from macro-remains in the sediments.

The sediment core was collected from Sugiyaike in the Hira Mountains, Siga Prefecture, Japan. Plant macro-remains were isolated from eight parts of the sediment core (*ca.* 1 g each) dated *ca.* 27,200 cal yr. BP. The sediment samples included a large number of small pieces of needles with some kept almost in the complete shapes. *Picea* and *Abies* needles were abundant and identifiable based on their morphology.

DNA extraction was conducted for 53 samples of each large piece or mixtures of small pieces of needles. The extracted DNA solutions were used for templates of PCR targeting a short region of cpDNA, and the PCR products were sequenced.

Three out of the 53 samples showed positive PCR amplification; however, their sequences correspond with only *Pinus*. We speculate that the inconsistency of sequences could originate from unexpected contamination; therefore, more appropriate procedures should be done for the future experiments.