

An assessment of the reliability of carbon samples for ^{14}C dating.

*Shin Atsumi¹

1.Chiba University

Charcoal samples are considered to be ones of the most reliable samples in the radiocarbon dating. Also, straws and wheat are considered to be ones of the most reliable samples because they have no annual structures. However, all of them have no chemical criteria for verification based on chemical composition and processing conditions. In the present study, we focus on the alkaline treatment stage of the Acid-Base-Acid pretreatment method generally used, and Carbon/Nitrogen ratio for the evaluation of the quality of carbon samples. Results are; 1. Charcoal samples which were left out-side environment and on which photochemical reaction occurred, melt away in 1M NaOH solution; 2. Charcoal samples which melt away in 1M NaOH solution but leave residues in low concentration NaOH solution, have 10-30 C/N ratios which means litter decomposition specified in forest soil science; 3. Dates of those samples described above show significant errors beyond 1 substrata(2010, Atsumi).

Results described above are effective for reliability criteria of samples for the radiocarbon dating. That is, 1. Carbon samples should leave residues against 1M concentration of NaOH solution; 2. C/N ratio of carbon samples should be over 30(2010, Atsumi). The presentation discusses systematically about technological sampling and sample selection. In addition, those 3 reasons derive that straws and wheat which melt away in 1M NaOH solution or C/N ratio of which are 10-30, are not reliable samples for ^{14}C dating.

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