Characterization of specific elements accumulated in a marine biomineral

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Neanthes Virens has a strong jaw which accumulates iodine at high concentration (10wt %), and the roll and chemical form of iodine in the jaw have not been ascertained yet. In this study, we tried to elucidate the chemical form of iodine by XAFS technique.

The I K-edge XAFS spectra was measured in the transmission mode with the standard instruments of BL-01B1 and Si(111) monochromator. The jaws of *Neanthes Virens* were grained in the agate mortar and put into a glass tube of 2mm ϕ. The I K-XAFS spectrum of the specimen was measured three times to confirm the reproductive property of the spectra. For comparison, the spectra of N-Iodosuccin-imide(a), L-Thyroxin($C_{15}H_{11}I_4NO_4$), CH_3I(d), I_2(e) were also measured as standards.

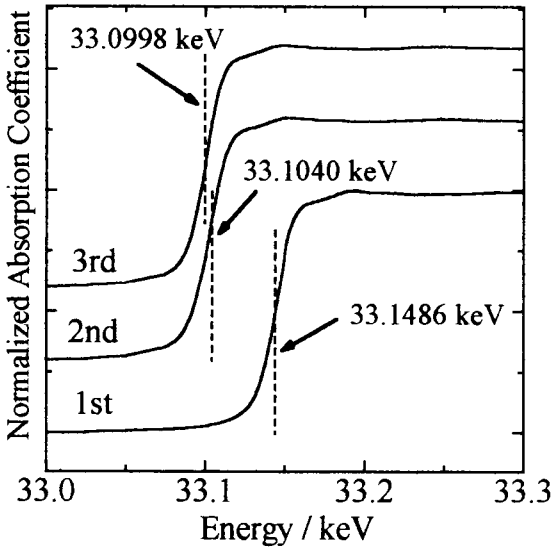

Fig. 1 The normalized I K-edge XANES spectra of the jaw of *Neanthes Virens*. The spectra were measured three times in the same condition; the angle of the monochromator was scanned from 3.390 to 3.427° with 0.00022° step in the XANES region.

Figure 1 shows the I K-XANES spectra of the jaw specimen. The three measurements were performed continuously in the same condition, however, these spectra showed the different edge energy. The gaps of edge energy among the measurements were not constant, all of the spectra are difficult to be corrected by the calculation. Figure 2 shows the EXAFS spectra of the jaw specimen and standards of iodine. The shape of the spectrum of jaw specimen(b) is resemble that of L-Thyroxin(c) and different from those of other inorganic compounds. From this result, it could be considered that the iodine in the jaw of *Neanthes Virens* exists as an organic compound like L-Thyroxin.

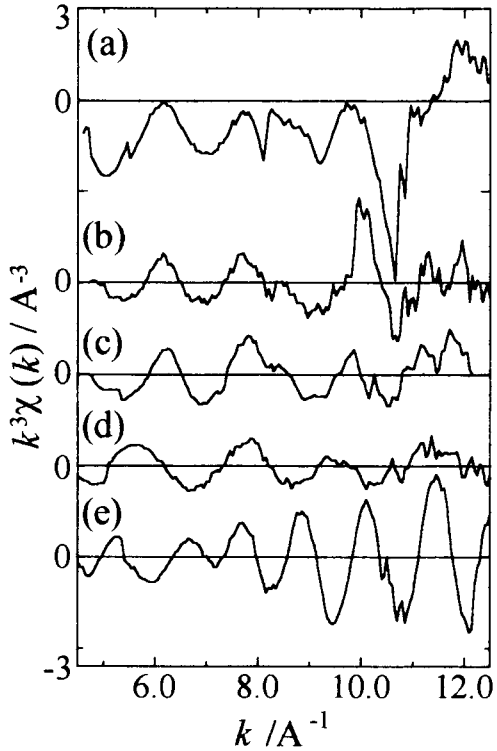

Fig. 2 The EXAFS spectra of the jaw of *Neanthes Virens* and standard materials.