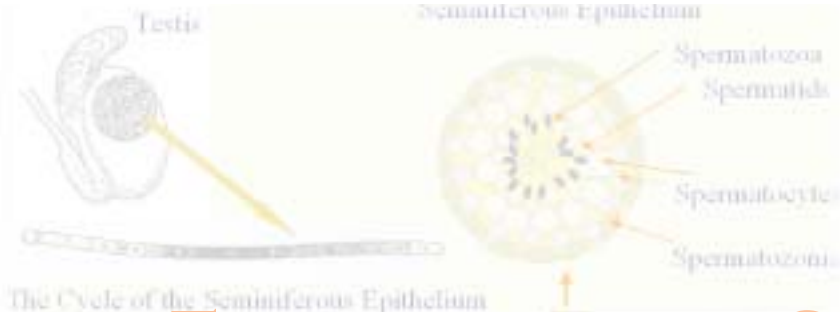


# Environmental Science

X-ray analysis using SPring-8 synchrotron radiation is a powerful method for environmental sciences. The fields of application are extending, and applications to experiments are increasing. I'm very glad to report excellent results. Regrettably, we can only report on five topics from many great results.

Takeda *et al.* detected Sn in spermatozoa of rats exposed to tributyltin chloride. They showed that high-energy SR-XRF analysis using a microprobe would be a powerful technique for investigating elemental dynamics in tissues with complex structures.

Nakai *et al.* applied micro-XRF imaging and micro-XANES to an arsenic hyperaccumulator fern. Arsenic in root tissues of the Chinese brake fern exists as a mixture of As(III) and As(V) and the As(III)/As(V) ratio increases in the inner cortex and the boundary between the cortex and central cylinder. These techniques could be used in the analysis of the mechanism of phytoremediation.

Yamaguchi *et al.* showed the transformation of iodine species in soil under upland field and submerged paddy field. In agricultural soils, the reduction of $IO_3$- resulted in the formation of $I_2$. Soil organic matter in upland field and the development of reduction conditions attributable to microbial activity in submerged paddy field are responsible.

Akiho *et al.* are characterizing trace elements in a complicated mixture. Standard mercury materials, gypsum and a mercury/gypsum mixture were prepared as follows: mixed gas consisting of $N_2$, $C0_2$, $0_2$ and $Hg^{2+}$ was fed into 9.3wt% gypsum slurry at 313 K. Their XAFS spectra showed that gaseous mercury was captured in gypsum slurry as $HgS0_4$.

Fujita *et al.* developed an *in situ* liquid cell that was applied to the observation of the reduction of Pd-supported catalysts. Using this cell and quick XAFS, they analyzed it with a formaldehyde solution.

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