

### C-2.2.2 Studies on Biological Accumulation and Metabolism of Aluminum

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Acidification of environment causes the aluminum to the aquatic environment where bioavailable aluminum is suspected to have the detrimental effect to fish. The research project is to study distribution of aluminum in fish body living in acidic environment in order to reveal the biological availability of aluminum. We have determined aluminum and other metals in organs of *Tribolodon hakonensis* from two naturally acidified lakes of different pH (strongly acidified Lake Usoriko (pH 3.43.8), and Lake Inawashiroko (pH 5.0)) and that from nonacidified river as a control. There was no difference in the total aluminum concentrations in the organs of fish from two acidified lakes, where both of them were found to be significantly higher than that of control fish. In order to investigate the distribution and localization of aluminum in tissues, we have tried the direct detection of aluminum in fish tissues by laser scanning confocal microscope after staining with lumogallion, which is the most sensitive fluorescent reagent for aluminum. As a result different fluorescent images of gills were obtained from fish of two acidified lakes, corresponding to the fact that the water quality of two lakes, including pH, aluminum concentrations and species, were different.