

Biogeochemical processes of trace metals from seawater to bivalve with symbiotic zooxanthellae

Akihide Itoh[1]

[1] Sci. Edu., Ryukyu Univ.

In Coral Sea, a characteristic ecosystem is formed by many kinds of marine animals and plants, although seawater is uneutrophic. This may be explained by the fact that various chemical species including bioessential trace metals are effectively taken and used by lower animals and plants in Coral Sea area. A symbiotic relationship often found among different animals and plants in this area is considered to be working as one of such processes. However, the specific biogeochemical processes of the elements for the marine animals and plants in coral reef area have not been studied from the viewpoints of trace metals. It is found by the present authors that bivalve with symbiotic zooxanthellae (*Tridacna crocea*) living on coral reef had relatively higher bioaccumulation factors for V, Cr, Mn, Co, Ni, Zn, Cd, Pb and U than other kinds of bivalves, although they live in the uneutrophic sea area. Furthermore, as compared with the analytical results for other bivalves, the observed values for most elements were the highest in the kidney. It was suggested from these results that trace metals taken into symbiotic zooxanthellae from seawater were finally accumulated in the kidney. However, biogeochemical processes of trace metals in symbiotic relationship are not elucidated yet. Thus, in the present study, biogeochemical processes of trace metals from seawater to bivalve with symbiotic zooxanthellae (*Tridacna crocea*) were investigated by using stable enriched isotopes of ^{111}Cd and ^{68}Zn .