Distribution pattern of minerals and iron-oxides in hydrothermal vent shrimp *Rimicaris* with special focus on its gut contents

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The vent shrimp *Rimicaris*, dominated at many vent sites along the Mid-Atlantic Ridge and the Central Indian Ridge, harbors episymbiotic bacteria in their gill chamber. Because of those microbes, surface of the *Rimicaris* in gill chamber is fully covered by iron-oxides, and thus the *Rimicaris* has been considered one of the animals which do bioaccumulation of metals. In contrast to their gill chamber, however, gut contents haven't been investigated well. Here, we examined distributions of iron-oxides and minerals in digestive tract and in gill chamber of the *Rimicaris kairei* from the Edmond hydrothermal vent field on Central Indian Ridge.
We found Barite ($BaSO_4$), Sphalerite (ZnS), Chalcopyrite ($CuFeS_2$), Pyrite (FeS_2), Marcasite (FeS_2), Argentite (Ag_2S) and Hematite (Fe_2O_3) on the surface and in the gut of the *Rimicaris.* Nano- to micron sized iron-oxides were dominated in everywhere we examined, i.e. the surface, mouth part, stomach and gut. Relative amount of the iron-oxides largely increased between mouth and gut. In contrast, sulfide minerals decreased between them. Maximum diameters of those mineral particles drastically decreased through the digestive tract, especially at the mouthpart and the stomach. Those features suggest that the *Rimicaris* crushes the mineral particles at the mouthpart and within the stomach, and the sulfide minerals are consumed and/or deserted at the stomach.

Keywords: Hydrothermal vent, bioaccumulation, ore deposit, macrofauna

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