

ESR microscopic study on radicals in Calyptogena for chemical changes in cold seepage

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Giant clam *Calyptogena* colonies were observed at deep seafloor. The biological activity is considered to be kept by sulfur and carbon compounds in upwelling fluid at the site. In this paper, the clam sampled at the seafloor of Sagami bay was investigated by electron spin resonance (ESR) microscopy in order to see the records of chemical history of cold upwelling water. The sample was irradiated by γ -rays from cobalt 60 source because natural one did not show any significant ESR signals. Preliminary study showed that ESR signals of carbon dioxide and sulfur trioxide radicals were observed. The former radicals increased along the line from the hinge to outer part, while the latter radicals decreased. Organic radicals also appeared at the outer part. We will develop to get more accurate image by deconvolution and improvement of apparatus and discuss how this measurement can be useful in geology.