

## Carbon- and oxygen-isotope compositions of a modern brachiopod collected from east coast of Sokcho, Korea

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Carbon- ( $\delta^{13}\text{C}$ ) and oxygen-isotope ( $\delta^{18}\text{O}$ ) compositions of fossil brachiopods have been regarded as one of important data source for delineating their secular variations of the Phanerozoic seawater, especially those of the Paleozoic, because it has been believed that brachiopods secrete their shells in isotopic equilibrium with ambient seawater. Recent studies, however, demonstrated that their  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  values are highly variable within a single shell as well as among taxa and that shell calcite may or may not be precipitated in isotopic equilibrium with ambient seawater. These are due to the degree of kinetic and metabolic effects that may vary depending upon the shell portions and among taxa. However, enough sequential high resolution isotopic data are still lacking to generalize this theory. Therefore, more information is needed to clarify which brachiopod taxa and shell portions reliably record past ocean environments.

We show within-shell variations of  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  values using a modern brachiopod, *Coptothyris grayi*, collected at a water depth of 8.8 m in eastern coast of Sokcho, Korea. Although many fossil brachiopod shells are ornamented with fine radial costae, the detailed isotopic analyses of modern brachiopods have been performed for those without such ornamentation. Therefore, our research is expected to provide useful information on paleoenvironmental condition based on stable isotope compositions of fossil brachiopods, especially of Paleozoic age.

Keywords: brachiopod, carbon isotope, oxygen isotope, Korea