Characteristics of amino acid distributions in coastal waters off Korea Peninsula

B. YEO[1], H. K. KWON[1], H. HAN[1], J. H. SEO[1], G. KIM[1*]

[1]Environmental & Marine Biogeochemistry Laboratory, School of Earth & Environmental Sciences, College of Natural Sciences, Seoul National University, Seoul 08826, Republic of Korea.
(booheon1995@gmail.com, kwon124@snu.ac.kr, hanheejun@snu.ac.kr, hyeongs2@naver.com,
* correspondence: gkim@snu.ac.kr)

The concentrations of dissolved organic carbon (DOC), D- and L-forms of total dissolved hydrolysable amino acids (D-AA, L-AA), fluorescent dissolved organic matter (FDOM), and inorganic/organic nutrients were observed in coastal waters in Jinhae Bay, Korea. In general, relatively higher concentrations of DOC, DON, D-AA, and L-AA were observed in the innermost stations of the bay, due to the influence of fresh water inputs. Based on the correlation analyses with salinities, the concentrations of DOC, terrestrial humic-like FDOM, and D-AA were almost conservative, but there was significant removal of inorganic/organic nutrients and a source of L-AA inside the bay. The concentrations of THAA, L-AA, DON, DOC were much higher than those observed in the surface waters of a marginal sea (East Sea) and the Pacific and Atlantic oceans. However, D-AA concentrations and D/L ratios were lower than those in the East Sea and some regions in the major oceans, indicating that in-situ production of D-AA in coastal waters is insignificant. Thus, our study suggests that (1) amino acids in coastal waters are mostly bioavailable and (2) there are significant inputs and conservative mixing of terrestrial D-AA in coastal waters.