

Study of dissolved copper (II) speciation at coastal water of Peninsular Malaysia

ABSTRACT

Samples from Perhentian and Pangkor Island Marine Park, Peninsular Malaysia were analyzed for Cu(II) speciation by using CLE-AdCSV. Northeast monsoon effect was studied in Perhentian and compared with Pangkor. Excess concentration of CuL found for all stations in both islands showed >99.5% of total dissolved Cu (dCu) was bound to Cu (II) complexing ligands. The $\log K'_{CuL} > 12$ data indicated the presence of strong natural ligands (L1) in Perhentian Island. Lower $\log K'$ ($\log K' = 10$ to 12) and two types of ligands (L1 and L2) were found in Pangkor Island. The ratio of CuL/dCu was analysed to see the ligand distributions, and saturation rate with dissolved Cu. Statistical analysis showed weak relationship between the in-situ parameters to $\log K'$ values ($p > 0.05$). The $\log K'_{CuL}$ (PP: 12.00-12.96, PG: 10.93-12.840) data suggested that the dissolved Cu are used by marine organisms, thus preventing the free Cu^{2+} ions to be produced.

Keyword: Cu speciation; Cu toxicity; Northeast monsoon; CLE-AdCSV; South China Sea