Microbial environmental cleaning activity in tidal flat sediments in Ariake and Yatsusiro Seas

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As a first step to evaluate microbial environmental cleaning activity, or degradation of organic matter, alkaline phosphatase activity of tidal flat sediments along the Midorikawa River estuary were monthly observed from July, 2002, to June, 2003, and compared with the activities of some environmental and microbiological factors. Average values of alkaline phosphatase activities were 1.61 ng at P/g/hr in the muddy tidal flat sediments, compared with the 0.40 ng at P/g/hr in the sandy tidal flat sediments. Several related factor with phosphatase activities were also studied. Phytopigment concentrations including both chlorophyll a and phaeopigments were about 10 times higher in muddy tidal flat sediments than sandy sediments; average values 15.9mg/m^2 in the sandy sediments and 139.5mg/m^2 in the muddy tidal flat sediments. Total phophorus concentrations in the sandy sediments were 0.11 μ g at P/g in average compared with almost 6 fold higher concentrations 0.67 μ g at P/g in the muddy sediments. Clear negative or positive relationships were not observed with alkaline phophatase activities and phytopigments or total phosphorus concentrations. Further studies are needed to correlate the microbial cleaning activities of tidal flat land sediments with some other factors, such biomass of microorganisms, respiratory and enzymatic activities, photosynthetic rates and species composition of the sessile microalgae in the tidal flat lands in these areas.