

Amino acid and hexosamine in the equatorial western Pacific: the vertical fluxes through water column to surface sediments

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The settling particles were composed of fairly fresh OM. Siliceous diatom with less amount of calcareous plankton were major source components. The preservation ratio of each AA from settling to sedimentary particles was highly variable. The ratio of nonprotein AA was two orders of magnitude higher than aromatic and sulfur-containing AA and one order higher than protein neutral AA. In contrast, after burial, even most labile, aromatic and sulfur-containing AA, degrade at a rate similar to the other protein AA. Better preservation of THHA over THAA was probably due to the general incorporation of HA into structural biopolymer matrices, such as bacterial cell-walls and chitinous material. Beta-alanine and gamma-aminobutyric acid were the least labile AA. Probably they are so difficult to degrade for bacteria to get biochemical energy that the degradation proceeds fairly slowly. However, another nonprotein AA, ornithine, degraded at a rate similar to common protein AA in the sediments.