

Optical characteristics of particulate organic matter in coastal marine environments

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In coastal areas, the sources of non-living organic matter include phytoplankton and higher plants, and they comprise dissolved (DOM) and particulate organic matter (POM). A part of POM contributes to the DOM production process and a part of DOM is transformed to POM by adsorption onto suspended particles and this process affects the relative quantity of DOM and POM. Therefore, more knowledge of dynamics of exchanges between DOM and POM can help us for a better understanding of biogeochemical cycles in coastal marine environments. At this stage, the characterization of organic matter can be carried out by some chemical procedures such as concentration, isolation, fractionation, and purification. Optical UV-Vis absorption and fluorescence have also been employed to characterize DOM and discussed the dynamics of organic matter in coastal marine environments. However, previous study on UV-Vis absorption and fluorescence in POM is limited.

This study aims to test different extraction methods to measure the optical characteristics of POM. Two methods including the hot-water extraction and acid extraction were used to estimate the fraction of labile POM. Humic fraction was processed by the alkaline extraction method. The extracts were used for UV-Vis absorbance and fluorescence measurements. Here, we also present the data on chlorophyll *a* (Chl *a*), dissolved organic carbon (DOC), and particulate organic carbon (POC) concentrations to discuss the dynamic of organic matter in the ocean.

Keywords: particulate organic matter, dissolved organic matter, absorbance, fluorescence