actual OGR (Fig. 2). Consequently, the extract would be the major reason for the inhibition of the photosynthesis II reaction. In order to quantitatively evaluate the photosynthesis inhibition effect, the ratio of the OGRs before and after the extract addition was estimated as in terms of the residual activity ratio of the photosynthesis light reaction (RARP). Based on the data between RARP and CTLI, the RARP decreased clearly as the increase in the CTLI. A half-inhibition concentration (IC_{50}) is defined to be the critical CTLI value corresponding to the 50 % value of the RARP. Some IC_{50} values are given for *Prunus* as 1.9×10^{-9} mg/cell、 for *Acer buergerianum* as 1.4×10^{-9} mg/cell、 and for *Quercus acutissima* as 0.8×10^{-9} mg/cell in order, implying that the IC_{50} values would be depending on the sort of the deciduous trees or possibly on the extent of photosynthesis light reaction of the leaves of the trees.

The application of foraminifera and ostracod for long-term ecosystem monitoring in enclosed coastal sea: A case study of Osaka Bay, Seto Inland Sea, Japan

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Foraminifera and Ostracoda are shelled meiobenthos. They are sensitive to anthropogenic activities, and their remains are abundantly preserved as 'fossil' in bay sediments after their death. Thus, they can be used to trace environmental/ecosystem changes over periods of decades and centuries using sediment cores. In this study, we investigated spatial and temporal distributions of foraminiferal and ostracod assemblages in Osaka Bay, one of the most polluted marine areas in the world.
Benthic foraminiferal and ostracod assemblages from surface sediment in Osaka Bay, collected in 2004, were analyzed to characterize the distribution of the modern foraminiferal and ostracod assemblages. The results suggested that low diversity community, typically characterized by exclusive dominance of three eutrophication-tolerant foraminiferal species (Ammonia beccarii, Eggerella advena, and Trochammina hadai), is found in the inner part of the bay, where eutrophication is serious.
Four sediment cores, which obtained along a transect from mouth of the Yodo River (a source of nutrient input) to middle part of Osaka Bay, were examined to trace the development process of modern low diversity community. The records of foraminiferal and ostracod assemblages in the cores clearly documented the development of low diversity community after the urbanization in the early part of the 20th century. Many foraminiferal and ostracod species that are unable to tolerate low-oxygen conditions decreased and three eutrophication-tolerant foraminiferal species increased after the early part of the 20th century, when Japan's industrial revolution started. As a consequence, low diversity community developed rapidly in the inner part of the bay since that time. Low diversity community most progressed as a result of severe hypoxia and food increase by eutrophication during the high economic growth period (~1970's). A sewage treatment program for the Seto Inland Sea was enacted in 1970's in order to reduce the organic pollutant loads. Coincident with the commencing period of the program, the density of eutrophication-tolerant foraminiferal species decreased, but no major changes in the foraminiferal and ostracod assemblages occurred. This study provides new information regarding the use of foraminifera and ostracod as paleoecological indicators of anthropogenic environmental/ecosystem changes.

Annual variations of Oxygen Deficient Water Mass (ODW) in Jinhae Bay

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As a basic study to improve oxygen deficient water mass (ODW), this study analyzed the spatial and temporal variation of the water quality and investigated the characteristics of ODW in Jinhae bay, from 1989 to 2006. By observing the annual variation of water qualities, the severe polluted area was found, and the effects of a special management sea area in Masan bay and the construction of Pusan Newport on the water