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Screening of Highly Lead-Tolerant and -Sensitive Varieties in Rice

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Lead inhibits root growth in plants. To study the effect of lead-toxicity on rice, we carried out screening for lead-tolerance and -lead sensitivity from 200 rice varieties. Three day-old seedlings were grown for 12 days in 20 μ M lead containing-solution. Our criteria for the lead-tolerance and lead-sensitivity were the root length and weight of the dry root. We obtained 3 varieties of lead-tolerant and 4 varieties of lead-sensitive rice. The weight of the root of lead-tolerant varieties (CH-55, KH-2J, Kumnung) was heavier than that of lead-sensitive varieties (Aixueru, C-9491, Heixueru, Milyang 23) by approximately tenfold. The growth-pattern of the adventitious root was strikingly different between lead-tolerant and lead-sensitive rice. Lead-tolerant varieties developed adventitious roots after 6 days of lead-treatment whereas lead-sensitive varieties did not during 20 days of lead treatment. This result might be related to an important mechanism of lead tolerance in rice. Our study on the mechanism of lead-toxicity in rice is now in progress.

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Phytoplankton Dynamics Across the Fronts in the West Pacific Sector of the Southern Ocean

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Phytoplankton of the Southern Ocean, 140-148 °E and 40-53 °S, was sampled from November 1995 to December 1995 to examine cell abundance, cell volume and biomass (cell carbon) distribution across the fronts.

A total of 93 phytoplankton taxa were identified. They were 53 diatoms, 36 dinoflagellates, 2 silicoflagellates, 1 prymnesiophyte, and 1 coccolithophorid. Nanoplankton predominated cell number of phytoplankton throughout the stations but, biomass was lower than microphytoplankton. Maximum cell number and biomass was observed from subsurface layer. Cell number of diatoms dominated dinoflagellates, coccolithophorids, and prymnesiophyte, but the biomass were largely made up of the dinoflagellates except 4 stations. Phytoplankton community changed across the fronts and 4 different communities were observed. However, fronts did not seem to influence greatly on the phytoplankton community from the west Pacific Sector of the Southern Ocean.