



Studies on Salinity Tolerance Relating Grain Productivity in Cereals

An adequate food supply from agricultural crops is essential to the quality of human life. Salinity is one of the most serious environmental stresses severely limiting crop growth and grain productivity. Salt-affected land occupies about 19.5% of irrigated agricultural land. Rice, a major staple food for the ever-increasing world population, is one of the most salinity-sensitive crops. As such, improving the salinity tolerance of rice is desired to increase productivity on salt-affected soil. However, genetic and physiological knowledge of salinity tolerance relating grain productivity in rice is still limited. We study salinity tolerance in rice at both physiological and molecular levels. We found several quantitative trait loci (QTLs) for salinity tolerance relating high plant dry weight and grain yield under long-term saline conditions by using chromosome segment substitution lines carrying segments from a salinity-tolerant variety in the genetic background of a salinity-sensitive variety. Our research advance will contribute to developing rice varieties with high yield under salinity stress conditions.

Prof.
HIRAI Yoshihiko



Varietal difference in salinity tolerance



Salinity-induced white head