

[P3] Abiotic Stress for Crop Production

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 3 (Poster) (Abiotic Stress for Crop Production)

1:15 PM - 2:00 PM

[P3-42] Contribution of the Chromosome 11 of a Salinity-Tolerant Rice Variety Nona Bokra to High Dry Matter Production under Salinity and Its QTL Mapping

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Rice is a popular crop in the world especially Asia. In Asia, salinity is a serious problem especially in the coastal areas. Rice is one of salinity-sensitive crops, and salinity causes rice yield reduction. Therefore, it is important to produce a high-yielding rice variety under salinity. Mitsuya et al. (2019) have succeeded in screening a salt-tolerant Koshihikari/Nonabokura Chromosome Segment Substitution Lines (CSSLs) that shows high yield and growth in a salinized paddy field. The genetic background of the CSSLs is mostly Koshihikari (salinity-sensitive) whereas some parts are substituted by the salinity-tolerant Nona Bokra chromosome. Within 44 lines, CSSL538 showed a higher yield than Koshihikari in the consecutive 2-year experiments. CSSL538 has a segment of Nona Bokra chromosome 11. We determined the physiological mechanism of salt tolerance of CSSL538. We found that CSSL538 maintained dry matter production and leaf areas under salinity at not only the early ripening stage but vegetative stage in comparison to Koshihikari. However, the salt concentration in shoots not always explained the growth difference between two genotypes. Also, we hypothesized that there are QTLs for high dry matter production under salinity in the segment of Nona Bokra chromosome 11. We will show the identified QTLs for high dry matter production under salinity in the CSSL538, in the conference.