[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

[P3-20]Expression Analysis of Genes Involved in Removal of Na^+ and Cl^- by Leaf Sheath in Rice

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A significant mechanism of salt-tolerance in rice is the ability to remove Na^+ and Cl^- in the leaf sheath, which limits the entry of these toxic ions into the leaf blade. The leaf sheath removes Na^+ and Cl^- in the basal and tip parts, respectively, by unloading them from xylem vessels and sequestering them into the fundamental parenchyma cells (Neang et al. 2019). This study aimed to identify Na^+ and Cl^- transporter genes, their distribution patterns of Na^+ and Cl^- along the longitudinal axis of leaves and in the internal tissues of leaf sheaths, and the genes that increase their expression levels under salinity. Our results indicated that *OsHKT1;1*, *OsHKT1;5*, *OsNHX1*, *2*, *3* and *5* might be involved in the Na^+ accumulation in basal parts of leaf sheaths under salinity. Additionally, *OsHKT1;5* may be involved in Na^+ unloading from xylem vessels. The Na^+ accumulation in fundamental parenchyma cells is probably mediated by *OsNHX3* in the central parts and *OsNHX5* in the peripheral parts under salinity. Furthermore, our results indicated that Cl^- removal in leaf sheaths is possibly regulated by *OsNPF2;4*, *OsCLC1*, *OsCLC2*, *OsSLAH1* and *OsSLAH2*. Cl^- accumulation in fundamental parenchyma cells might be associated with *OsNPF2;4* and *OsCLC2* under salinity.