[P3] Abiotic Stress for Crop Production

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

12:15 PM - 1:00 PM

[P3-17]Differences in the Strategies of Salinity Tolerance between Two Different Genotypic Groups of Quinoa (*Chenopodium quinoa* Willd.)

*Nominated for Presentation Awards

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Salinity causes yield loss and it is a common problem in the world. Millions of hectares of land have been damaged by salinity and more will be degraded by salinity. Quinoa (*Chenopodium quinoa* Willd.), a halophyte crop, is receiving increased attention due to its high tolerance to salinity. Quinoa is divided into 3 genotypic groups (Christensen et al., 2007); Southern highland (SH) type, Northern highland type, and Lowland (L) type. SH type is thought to have a high tolerance to salinity since it can survive in Bolivian saline area. However, little is known about the physiological mechanisms and differences in salinity tolerance among the genotypic groups of quinoa. In this study, three lines of SH type quinoa and three lines of L type quinoa were used, and their salinity tolerance was evaluated in pot experiments. We found that regardless of the genotype, quinoa had a high salinity tolerance compared to other crops such as rice and barley. Quinoa could maintain a low Na^+/K^+ ratio in the shoot under high salinity stress condition. The strategy of salinity tolerance differed greatly between the genotypic groups. SH type quinoa avoided the accumulation of Na^+ into the shoot and maintained high biomass. However, L type quinoa maintained high biomass even though they accumulated Na^+ in the shoot. In conclusion, quinoa had a high salinity tolerance regardless of genotypic groups and they showed different strategies between the two genotypic groups to survive under salinity stress conditions.

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