[P3] Abiotic Stress for Crop Production

2021年9月9日(木) 12:15 ～ 14:00 Room 3 (Poster) (Abiotic Stress for Crop Production)

12:15 ～ 13:00

[P3-27]Breeding for Submergence-Tolerant Rice by Marker Assisted Backcross

○Yu-Chien Tseng[1], Yu-Chia Hsu[1], Yu-Chin Chang[2], Yong-Pei Wu[2] (1.Agronomy Department, National Chiayi University, Taiwan, 2.Agronomy Department, Chiayi Agricultural Experiment Station, Taiwan Agricultural Research Institute, Taiwan)

Rice (*Oryza sativa* L.) is an important food crop in the world. Due the climate change, to develop a rice variety which can tolerate the abiotic stress becomes a critical research topic. On this study, submergence-tolerant *indica* variety, IR96321-315-240 was used as donor parent. DT3 is the recurrent parent, which is drought tolerant and show good yield, eating quality and agronomic traits as elite Taiwanese variety, Taiken 9 (TK9). Marker-assisted selection (MAS) was applied in backcross breeding method. For foreground selection, there were two submergence-tolerant markers, Sub1A and SubAB1, utilized on BC_2F_1, BC_3F_1 and BC_3F_2 generations to select submergence-tolerant gene, *Sub1A*. Also, the flooding experiment in the field was applied in BC_3F_2 generation and the surviving plants then used for foreground and background selection.The results showed the similarity between surviving plants and recurrent parent was 92.87%. There are 100 plants evaluated for agronomic traits, yield and eating quality from BC_3F_3 generations. Eleven plants were selected and three of them had higher yield than DT3; three of them had better eating quality than DT3. By MAS, the submergence-tolerant trait has been successfully delivered to a drought tolerant, high yield and quality rice variety.