

## [P4] Crop Genetics and Physiology

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 4 (Poster) (Crop Genetics and Physiology)

1:15 PM - 2:00 PM

### [P4-36] Genetic and Morphological Mechanisms for Soil-Surface Roots Originated from a New Plant Type Cultivar in Rice (*Oryza sativa* L.)

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Soil-surface roots of rice might be useful for the stresses under reduced soil in Tropical region, such as iron, manganese toxicity and salinity field. The QTLs for soil-surface root have been already detected on the three regions of chromosomes (chr.) 2, 5, and 7 originated from a New Plant Type (NPT) cultivar, IR 65600-87-2-2-3, with the genetic background of an *indica* Group cultivar IR 64. NPT alleles of these QTLs increased soil-surface roots. Seven chromosome segment lines (CSL) harboring and combined from single to three QTLs' regions with the IR 64 genetic backgrounds were developed. Using these CSLs, these effects of each and pyramided QTL(s) were evaluated, and that of chr. 5 particularly played a role for supporting the effect with the others. And these lost the gravitropic response of seminal root partially under dark condition. Therefore, these QTLs for soil-surface roots were occurred by partial losing of root gravitropic response and these accumulations in the NPT cultivar. These CSLs for QTLs will be useful materials for genetic and physiological studies for understanding the root architecture of rice, and for resources of rice breeding.