[O34] O_2 Deficiency, Submergence

Chair: Mikio Nakazono (Nagoya University, Japan)
Chair: Feng Yu (Hubei University, China)
2021年9月10日(金) 09:45 ～ 11:45 Room 3 (Oral) (Abiotic Stress for Crop Production)

10:55 ～ 11:10

[O34-05]*SNORKELs* and Deepwater Response in the African Cultivated Rice *Oryza glaberrima*

*Nominated for Presentation Awards

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SNORKEL1 (SK1) and *SNORKEL2 (SK2)* were discovered as ERF-type transcription factors that confer floating ability in the Asian cultivated rice *Oryza sativa*. Here we describe the identification of *SK* genes and growth response to partial submergence in the African cultivated rice *Oryza glaberrima*. Screening for *SK* gene presence by PCR amplification of genomic DNA using gene-specific primers revealed that putative *SK1* and *SK2* genes were amplified in 49 of 50 *O. glaberrima* accessions. By sequencing of the PCR products, 3 *SK1* genes, *OgSK1-A* to *OgSK1-C*, and 4 *SK2* genes, *OgSK2-A* to *OgSK2-D*, were identified. The *OgSK1* genes have 84.4 to 95.5% nucleotide identity to *OsSK1* whereas the *OgSK2* genes have 65.2 to 98.0% nucleotide identity to *OsSK2*. Seventeen of these *O. glaberrima* accessions were tested for elongation response to gradual submergence at 50 days of age. In *O. glaberrima* accessions possessing *SK2-A, SK2-B* or *SK2-C* gene, as well as in *O. sativa* deepwater rice, submergence induced expression of each gene in internodes and promoted internodal elongation. On the other hand, *O. glaberrima* accessions carrying *SK2-D* gene or carrying no *SK* genes did not show submergence-induced internodal elongation. These data suggest that the diversity of *SK* genes exist in African cultivated rice, some of which can be expressed and function in the deepwater response.