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Characterization of Salt Resistant Rice Mutant Lines with AZC Resistance

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Objectives

To assess salt resistant rice mutant lines derived from the applications gamma ray and AZC, a proline analog, we investigated biological characters by biochemical and molecular analyses.

Materials and Methods

1. Plant materials; 7 rice mutant lines with salt resistant in M_3 generation selected from 20,000 AZC resistance seeds were treated with 1.5 % NaCl for 48 hrs.
2. Methods; General amino acid content analysis.
   Ion contents analysis.
   cDNA-RAPD and RT-PCR.

Results and Discussion

In amino acid analysis, total amino acid contents in seedling leaves of the SR-13 and SR-16 were 1.24 and 1.30 times higher than the wild-type (cv. *Donganbyeo*), 1.49 and 2.43 times in seeds, and 1.32 and 1.60 times in callus, respectively. Ion content was analyzed in leaves and roots of the salt resistant mutant lines and the wild-type. The ratio of Na^+/K^+ in all the SR-lines [leaves, 1.02 (SR-13) ~ 3.75 (SR-29); roots, 11.5 (SR-10) ~ 28.5 (SR-13)] was showed lower than the wild-type (leaf, 3.46; root, 32.9). The cDNA-RAPD analysis showed specific bands in the SR-lines absent in the wild-type. In addition, higher RNA expression of P5CS and NHX1 genes in RT-PCR analysis was observed in the all SR-lines than in the wild type.

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