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Functional characterization of *ssm1*, a novel salt stress-sensitive mutant 1

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Objectives

We have screened T-DNA insertion mutant pools and isolated genes involved in NaCl sensitivity in *Arabidopsis*.

Materials and Methods

1. Material

Plant-*Arabidopsis thaliana* plants (ecotype C24) expressing *RD29A* promoter:luciferase (provided by Prof. Jian-Kang Zhu).
Tagging vector-pSK1015 (provided by Prof. Detlef Weigel)

2. Methods

Arabidopsis plants were mutagenized with an *Agrobacterium tumefaciens*-mediated T-DNA transformation using the activation tagging vector pSK1015. Seeds from T2 plants which are resistance to bialaphos (30mg/L) were used for screening mutants sensitive to NaCl.

Results and Discussion

We carried out large scale genetic screens to isolate *Arabidopsis* mutants which are sensitive to NaCl. Among the mutants we isolated, the *ssm1* (for salt stress-sensitive mutant1) exhibited the highest sensitivity to NaCl. The *ssm1* was sensitive to ionic (NaCl) but not nonionic (mannitol) osmotic stress in a root growth assay. This result suggests that *ssm1* is specifically involved in ion homeostasis in plant. When compared with wild-type, the *ssm1* mutant displayed a more branched root pattern with or without NaCl stress. And also, the germinations of seeds were more delayed than wild-type. Consistent with this observation, *ssm1*mutant was more sensitive to ABA. In the poster, we will describe the phenotypic significance of *ssm1* in the NaCl tolerance of *Arabidopsis* plants and several molecular biological approaches for cloning of *SSM1* gene from *ssm1* mutant.

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