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## Improved resistance of transgenic sweetpotato plants to photoinhibition under water stressed condition

Sun-Wha Song, Soon Lim<sup>1</sup>, Suk-Yoon Kwon<sup>2</sup>, Haeng-Soon Lee<sup>1</sup>,  
Sang-Soo Kwak<sup>2</sup>, Yong-Mok Park \*

Department of Life Science, Cheongju University, Cheongju 360-764, Korea (ecopark@cju.ac.kr)

<sup>1</sup>Laboratory of Environmental Biotechnology and <sup>2</sup>Laboratory of Plant Cell Biotechnology, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Oun-dong 52, Yusong-gu, Daejeon 305-806, Korea.

### Objectives

Photosynthetic characteristics and tolerance to photoinhibition under water stressed condition were studied to evaluate resistance of transgenic sweetpotato plants to water stress.

### Materials and Methods

1. Materials: pot grown transgenic (SSA) and non-transgenic (NT) sweetpotato (*Ipomoea batatas* Lam. cv. Yulmi) plants
2. Methods:
  - Photosynthesis measurement: LI-1600 (Li-Cor, USA)
  - Leaf water potential measurements: Microvolt Meter (Wescor, USA), Pressure Chamber (Soil Moisture Corp., USA)
  - Chlorophyll fluorescence measurement: FMS II (Hansatech, UK)

### Results and Discussion

In the process of soil drying both plants showed decreased stomatal conductance and transpiration rate. However, SSA plants revealed relatively high stomatal conductance and transpiration rate compared with NT plants. Maximum photosynthesis in SSA plants under water stressed condition was higher than that in NT plants. In addition, saturation light intensities on day 10 after dehydration treatment were 1,300 and 870  $\mu\text{mole m}^{-2} \text{s}^{-1}$  in SSA and NT plants, respectively, indicating that NT plants are highly susceptible to photoinhibition under water stressed condition. These results indicate that Ssa plants are more tolerable than NT plants to photoinhibition under water stressed condition, suggesting that SSA plants are more resistive to environmental stress compared with NT plants.

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