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## Transgenic Sweetpotato (*Ipomoea batatas* Lam.) Plants with Enhanced Tolerance to SO<sub>2</sub>

**Soon Lim<sup>1</sup>, Kyoung-Sil Yang<sup>1</sup>, Yun-Hee Kim<sup>2</sup>, Suk-Yoon Kwon<sup>2</sup>, Sim-Hee Han<sup>3</sup>,  
Jae-Cheon Lee<sup>3</sup>, Kee-Yoeup Paek<sup>4</sup>, Haeng-Soon Lee<sup>1</sup>, Sang-Soo Kwak<sup>2</sup>**

<sup>1</sup>Laboratory of Plant Cell Biotechnology and <sup>2</sup>Laboratory of Environmental Biotechnology, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejeon 305-806, Korea;

<sup>3</sup>Dept. of Forest Genetic Resources, Korea Forest Research Institute, Suwon 441-350, Korea;

<sup>4</sup>Dept. of Horticulture, Chungbuk National University, Cheongju 361-763, Korea

### Objectives

Sweetpotato (*Ipomoea batata* Lam.) is one of important industrial crops in the 21<sup>st</sup> century. In previous study, we developed transgenic sweetpotato expressing both CuZn superoxide dismutase (SOD) and ascorbate peroxidase (APX) in chloroplasts under the control of an oxidative stress-inducible SWPA2 promoter (SSA plants). SSA plants showed enhanced tolerance against methyl viologen-induced oxidative stress and low temperature. In this study, we evaluated the tolerance of SSA plants to an important air pollutant SO<sub>2</sub>.

### Materials and Methods

1. Materials: Transgenic SSA sweetpotato (cv. Yulmi) plants grown in the green house
2. Methods
  - SO<sub>2</sub> treatment: 500 ppb SO<sub>2</sub> for 8 h/day for 5 days in a chamber
  - Analysis: Photosynthetic efficiency (Fv/Fm), chlorophyll contents, RT-PCR

### Results and Discussion

When exposed to 500 ppb SO<sub>2</sub> for 5 days in growth chamber, SSA plants showed a strong tolerance compared to non-transgenic (NT) plants showing a severe morphological leaf damage. Photosynthetic efficiency (Fv/Fm) of NT plants reduced to 42% after treatment, whereas SSA plants reduced only to 6.3%. The foreign CuZnSOD and APX genes in SSA plants exposed to SO<sub>2</sub> were detected by RT-PCR using specific primers. The further characterization of SSA plants is under study in terms of multiple stress tolerance.