

(05-1-34)

Transgenic Sweetpotato Plants Expressing NDP Kinase 2

**Soon Lim¹, Kyoung-Sil Yang¹, Eun-Joon Park², Suk-Yoon Kwon², Dae-Jin Yun³,
Kee-Yoeup Paek⁴, Haeng-Soon Lee¹, Sang-Soo Kwak²**

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

³Division of Applied Life Science, Gyeongsang National University, Jinju 660-701, Korea

⁴Department of Horticulture, Chungbuk National University, Cheongju 361-763, Korea

Objectives

Sweetpotato (*Ipomoea batatas* Lam.) ranks the 7th among food crops in annual production in the world and is one of the most important crops to secure a staple food supply in the 21st century. To develop transgenic sweetpotato plants with enhanced tolerance to multiple environmental stresses, we generated transgenic sweetpotato expressing nucleoside diphosphate kinase 2 (NDPK2) gene under the control of an oxidative stress-inducible *SWPA2* promoter (SN plants). The characterization of SN plants in terms of environmental stress will be introduced.

Materials and Methods

- Plant material: Sweetpotato (cv. Yulmi) embryogenic callus
- Expression vector: SWPA2pro:NDPK2/pCAMBIA2300 (SN-K vector),
- Transformation: Particle bombardment
- Molecular analysis: PCR, Southern blot analysis

Results and Discussion

Transgenic sweetpotato plants (SN plants) were successfully developed by a particle bombardment. Embryogenic calli were transferred to selective regeneration medium and kanamycin resistant embryos were recovered which developed into morphologically normal plants. The putative transgenic plants were selected by PCR with *nptII* or *ndpk2*-specific primer. Southern blot analysis of PCR-positive regenerants confirmed that the foreign genes were inserted into genome of regenerated plants. The further characterization of SN sweetpotato plants is under study in terms of methyl viologen-mediated oxidative stress.