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Transformation of antioxidant genes in Rice

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Objectives

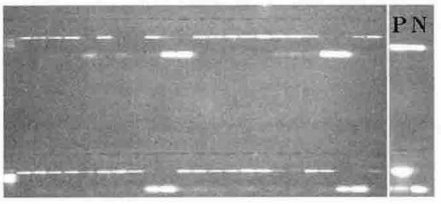
This study was performed to obtain the genetic modified plants having oxidative stress tolerance using NDPK2 gene and Cu/Zn superoxide dismutase and ascorbate peroxidase gene with oxidative stress-inducible peroxidase(SWPA2) promoter in rice cultivars.

Materials and Methods

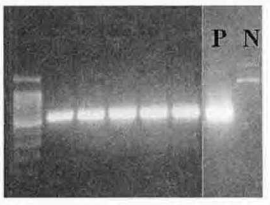
- Plant cultivars : Hwayoung-byo, Junam-byo, Ilpum-byo, Milyang175
- Vector pCAMBIA1300 (SWPA2::NDPK2, SWPA2::SOD+SWPA2::APX)
- Medium of callus induction : NB with 2mg 2,4-D
- Medium for regeneration : NB with 1mg NAA and 5mg kinetin

Results and Discussion

In order to confirm transformation of NDPK2 gene and Cu/Zn superoxide dismutase and ascorbate peroxidase gene, PCR analysis was perfored for the extracted DNA from the transgenic plants using the specific primer of the genes. As a results, the bands were appeared about 1,039 bp(APX) and 539 bp(NDPK2) on the electrophoresis. The seeds were obtained from the identified transgenic plant by the experiment.



a) SWPA2::APX(1,039 bp)



b) SWPA2::NDPK2(539 bp)

Fig 1. Confirmation of the presence of ascorbate peroxidase gene(a) and NDPK2 gene(b) in rice plants by PCR with APX and NDPK2 primmer.

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