(05-1-48)

Transformation of sweetpotato through bombardment

K Yang, Y-M Kim, G Choi, P-S Song and K-M Kim*

Kumho Life and Environmental Science Laboratory

Objective

Energy crisis is one of our concerns in 21st century. To overcome this problem, several alternative energy sources have been developed including bioenergy. Sweetpotato is a good target of bioenergy for its high starch content. However, its quality should be improved for the use as a bioenergy source. For this purpose, we have tried to develop efficient transformation systems of sweetpotato.

Materials and Methods

1. Material: Sweetpotato (*Ipomoea batatas* L.) cv. Yulmi

2. Methods

Calli induction and maintenance: N6 media (2mg/L 2,4-D)

Transformed calli selection: N6 media (2mg/L 2,4-D) with 100 mg/L km

Regeneration: MS media

Vector: pCAMBIA2301

Result and Discussion

In collaboration with Dr. Kwak in KRIBB, we could develop efficient tissue culture and regeneration systems using the meristem of sweetpotato (*Ipomoea batatas* L.) cv. Yulmi, and these methods are somewhat different from those of KRIBB. According to our methods, faster multiplication and long-term maintenance of embryogenic callus are possible, so we can get regenerated plant with less labor. The plants regenerated from the improved protocol are now grown in a greenhouse and they are developing normally. Thus our results are very promising, and now provide a firm basis for a range of genetic manipulations. With this efficient system, we are now introducing genes that can increase crop biomass. Embryogenic calli were transformed with one of our target genes, hyperactive oat mutant phytochrome A, *S598A*. And we already confirmed that the introduced gene was successfully incorporated and expressed in calli and regenerated plantlet by GUS histochemical assay. To confirm more, we are doing PCR and genomic DNA blot analysis.

**Corresponding author* : Kyoung-Moon Kim, Tel : 062-970-2645, E-mail : kmkim1@kkpc.com