

04-1-55

Isolation and Characterization of D-type Cyclin genes in potato (*Solanum tuberosum* L.)

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Objectives

To isolate three different kinds of D-type cyclin and to investigate expression patterns of D-type cyclin due to improve glucose contents in potato

Materials and Methods

1. Plant materials : potato(*Solanum tuberosum* L.)
2. Methods: RT-PCR, sequencing analysis, Semi Quantitative PCR, Real time PCR, agro bacterium mediated transformation

Results and Discussion

To study the function of D-type cyclins in potato, full-length cDNA clones were isolated from Potato. Three kinds of clones were classified as D3 cyclins by sequence similarities and a phylogenetic analysis (StCycD3;1, StCycD3;2 and StCycD3;3). The deduced amino acid sequences of StCycD3;1-3 contained a retinoblastoma-binding motif and a PEST-destruction motif. Moreover, due to the stimulation of early growth on potato, transgenic potato plants under control of a constitutive cauliflower mosaic virus (CaMV) 35S promoter were expressed AtCycD2 messenger RNA. These plants were elevated overall growth rates, especially the rate of leaf initiation and accelerated developments in all stages from seedlings to maturity. As a consequence, cell cycle control by D-type cyclin show effect on modulation of plant growth rates. In conclusion, we expect that D-type cyclin may play a major role on potato growth rate.

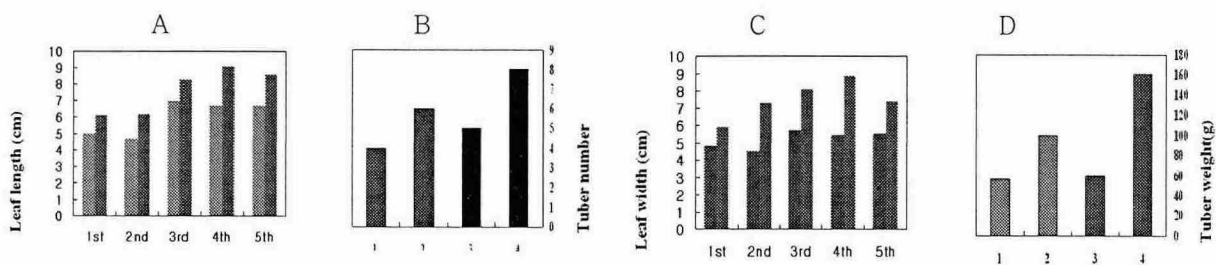


Fig.1 Phenotypic analysis of Potato transformant. (A),(C) Leaf growth parameters of 50-day-old *Solanum tuberosum* L., control(red) and transformant(blue). (B) Tuber number between control(red) and transformant(blue). (D) Tuber weight between control(red) and transformant(blue)