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Differential Expression Patterns of Cyclins under Cytokinin and Photo in Rice Seedling

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Objectives

To clone five different kinds of cyclin genes from rice and to demonstrate mRNA levels of cyclins regulated by light through the action of cytokinins in rice

Materials and Methods

1. Plant materials : rice (*Oryza sativa* L. cv. Il-Poum) callus and seedlings
2. Methods : rice callus culture, Semi-Quantitative RT-PCR

Results and Discussion

There are many studies about functions of cyclins and effects of light and cytokinin in plant, respectively. However, the involvement of cyclins in plant responses to cytokinins and light condition remains poorly documented. The observation that transcript levels of rice cyclin genes decrease within 2 hr of exposure of seedling to dark condition without cytokinin is in marked contrast to rice cyclin genes in which the transcript levels do not decrease after 2 hr of dark exposure within cytokinin. It may suggest that expression patterns of rice cyclin genes that was decreased by dark condition enhance the regulatory effects of cytokinin. Like previous suggestions, transcript levels of rice cyclin genes can be regulated not only by the light or cytokinin signal pathway but also by both of them. Though cytokinin and the light regulate transcriptional action of rice cyclin genes, we cannot exclude the possibility that the transcript level of rice cyclin genes are regulated by various environmental signals.

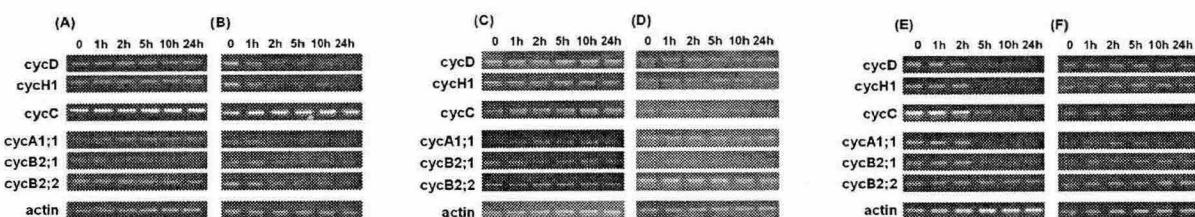


Fig. 1 Expression patterns of *Os:cyclins* in 15 day-old rice seedlings under different light condition for 1, 2, 5, 10, 24h. (A) seedlings treated into the light without kinetin (B) seedlings treated into the dark without kinetin. (C) seedlings treated into the light within kinetin (D) seedlings treated into the dark within kinetin. (E) dark-grown seedlings treated into the light without kinetin (F) dark-grown seedlings treated into the light within kinetin.