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Identification of cultivar specific gene expression by cDNA-AFLP and cloning of the genes in cucumber (*Cucumis sativus* L.)

Kyung-Mi Bae, Yong-Sham Kwon, IL-Ho Cho, Seung-In Yi*

Variety Testing Division, National Seed Management Office, Mangpo-dong 233-1, Suwon 443-400, Korea

Objectives

To isolate cDNA clones which expression were differentially regulated according to cultivars of Korean cucumber and to reveal relationship between differential gene expression and cultivar differentiation.

Materials and Methods

1. Materials

Plant - cucumber (*Cucumis sativus* L.)

2. Methods

The combined cDNA-AFLP and RT(reverse transcriptase)-PCR verified polymorphic gene expression patterns from cultivars. RACE(rapid amplification of cDNA ends) PCR approach was used for the isolation of 3′- and 5′-ends of the cDNAs.

Results and Discussion

Previously, our results showed that the classification by cDNA-AFLP was largely consistent with the phenotypic classification in market cultivars of Korean cucumber. Additionally, the combined gene expression patterns from cDNA-AFLP with RT(reverse transcriptase)-PCR suggested a certain role of the genes in cultivar differentiation. At this study, we report the isolation of three partial cDNA clones of F24, F37, and L23 in Korean cucumber, of which their expression were differentially regulated according to cultivars. RACE(rapid amplification of cDNA ends) PCR approach was used for the isolation of 3′- and 5′-ends of the cDNAs derived from the tissues of ovary(F24, F37) and leaf(L23). The partial sequence of F24 cDNA contained 664 bp with poly A tail and showed high similarity with the hypothetical protein from *Arabidopsis thaliana*. The cDNA sequence of F37 was in the size of 746 bp with poly A tail and was identified as a kind of remorin family protein. L23 partial cDNA clone from leaf tissue was isolated with relatively large size of 1032 bp, however, both ends of the clone could not be characterized. It was identified as a clone showing high homology with Ring-H2 zinc finger protein gene in sequence comparison. Now our current work concerning the application on large group of cultivars will figure out a part of relationship between differential gene expression and cultivar differentiation.

* *Corresponding author* : Seung-In Yi, TEL: 031-273-4147, E-mail: seedin@seed.go.kr