

# Plant Science

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## Influence of plant height on chrysanthemum transformed with SHI (Short Internodes related genes)

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In horticultural plant production, growth retardation is an important breeding trait in horticultural plant production. Generally, growth retardation with various chemical growth regulator is accomplished but these compounds are hazardous to environment and human. We isolated 4 types of SHI (Short Internodes) related genes from Brassica and confirmed their growth retardation in *Arabidopsis* and Brassica. We then isolated 1432 bp 5' UTR region of chrysanthemum actin gene and fused to 4 SHI genes as a substitute for 35S CaMV promoter. When four ChA-*BrSHI* constructs were introduced to the pot type chrysanthemum, the ChA promoter had higher activity than 35S CaMV promoter up to two-fold reduction. Especially, transgenic plants containing SRS 7 (Short related genes 7) and SRS-gene (same sequence of SRS7 including genomic region) showed growth retardation 50.0% and 54.1% under the control of ChA promoter. After acclimation of transgenic plants, we re-planted each cutting from grown-up chrysanthemum to eliminate the effect of tissue culture. Plant height was reduced approximately 14-25% in 4 SHI transformed plants. After 7 times re-cutting (about 3 year), we selected each 4 independent lines from SHI and SHI-genes introduced plants. These transgenic plants showed still high expression on plant height and RNA expression. This result suggest that *BrSHI* genes could be useful tools for growth retardation and modification of plant height, and this approach could substitute the use of chemical growth retardants in horticulture.

### Biography

Eun-Jung Suh currently working at NAAS (National Institute of Agricultural Science) of RDA (Rural Development Administration) in Republic of Korea. Her major research interests are discovering genes on Chrysanthemum and identify its function through plant transformation.

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