EuroSciCon

4th Edition of International Conference on

Plant Genomics

June 20-21, 2018
Rome, Italy

Hyun Young Song et al., J Plant Physiol Pathol 2018, Volume 6
DOI: 10.4172/2329-955X-C1-015

OPTIMIZATION OF VIRUS-INDUCED GENE SILENCING IN DIFFERENT *PETUNIA CULTIVARS* USING THE PEPPER PHYTOENE DESATURASE (*PDS*) GENE

Hyun Young Song, Si Hyun Kim, Aung Htay Naing and **Chang-Kil Kim**
Kyungpook National University, South Korea

Virus-Induced Gene Silencing (VIGS) is widely used for functional analysis of genes in plants. Because of the variation in its effectiveness among plant species, the VIGS system is normally optimized using the Phytoene Desaturase (PDS) gene as a visible indicator. In this study, we optimized an efficient VIGS system for petunias using the PDS gene isolated from pepper (*Capsicum annuum*) plants as a visible indicator. Application of the *CaPDS* gene effectively induced gene silencing in the *Petunia cultivars* Mirage Rose, Mirage Pink, and Picobella Blue. However, silencing effectiveness was observed to be limited by genotypes and inoculation methods; apical meristem application was the appropriate method, whereas the highest silencing effectiveness among the cultivars was found in Picobella Blue. In addition, it was found that higher silencing effectiveness was associated with higher degradation of the endogenous *PhPDS* mRNA. Moreover, in terms of plant age and temperatures, three-week-old plants grown at 20°C day/18°C night showed high silencing effectiveness for all cultivars. Taken together, infection of apical meristem of three-week-old plants grown at 20°C day/18°C night with pTRV2-*CaPDS* exhibited the highest silencing effectiveness of all cultivars. Therefore, this study indicated the effectiveness of the *CaPDS* in the VIGS experiment with petunias, as well as the involvement of different factors in the mechanism influencing silencing effectiveness in petunias. These results will enable high-throughput functional analysis of genes associated with commercially important traits in petunias.

Biography

Hyun Young Song is doing her M.Sc degree majoring in Horticultural Biotechnology in Kyungpook National University.

young3768@naver.com