

P5

Induction of Protocorm-like Body from Thin Sectioned-leaf of *Doritaenopsis* Hybrid: Role of Ethylene and Phenolics

So Young Park^{1*}, Kong Sik Shin², Eun A Jo³, Kee Yoeup Paek³

¹Plant Biotechnology Div., Forest Genetic Resources Dept., Korea Forest Research Institute, Suwon 441-350, Korea

²Plant Biotechnology Div., National Institute of Agricultural Biotechnology, Suwon 361-763, Korea

³Research Center for the Development of Advanced Horticultural Technology, Chungbuk National University, Cheongju 361-763, Korea

Objectives

Experiments have been conducted to investigate the role of ethylene and phenolics involved in protocorm-like body (PLB; an unique type of somatic embryo in Orchidaceae) formation.

Materials and Methods

1. Plant material: Flower stalks-derived *in vitro* plantlets of *Doritaenopsis* 'New Candy' × *Dtps.* ('Mary Anes' × 'Ever Spring').
2. Methods: i) Thick leaf segment culture (C), ii) thin leaf section culture (CS), iii) thin leaf section culture with ventilation (FS), iv) thin leaf section culture after washing explants (WS).

Results and Discussion

When explants were washed before inoculation and cultured in non-ventilated vessels (WS), PLB production was greatest, 1.7 times higher than thin section culture (CS) and 18.5 times higher than thick segment culture (C). The present results showed that PLB formation was stimulated by ethylene released from thin leaf sections while inhibited by ventilation. Phenolics content of explant exactly correlated with PLB production results, directly showing metabolic activity related with regeneration along with peroxidase activity. The results indicated correlations among ethylene concentration, polyphenolics content and PLB induction.

