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_Dendrobium ‘BomI7’ and Dendrobium ‘Earsakul’ were used for the transformation of ACO antisense via Agrobacterium tumefaciens._ The recombinant plasmids, pCAMBIA 1301aACO1 and pCAMBIA 13121aACO2 were constructed to contain reverse orientation of CPACO1 or CPACO2 cDNA from papaya and hygromycin phosphotransferase (hpt) as the plant selectable marker gene under the control of 35S CaMV promoter. Each plasmid was transferred to _A. tumefaciens_ strain AGL-1 by electroporation technique.

For the transformation experiment, 2 mm thick of PLBs derived transversely thin cell layers (tTCLs) were sonicated 6 seconds for wounding and were pre-cultured in VW liquid medium supplemented with 15 % coconut water and 1 % sucrose for three days. The tTCLs were then immersed in the suspension of _A. tumefaciens_ (5 x 10^8 cell/ml, OD_600≈1) in VW liquid medium, for 60 min. For co-cultivation, the tTCLs were transferred onto fresh VW solid medium supplemented with 200 μM acetosyringone for 2 days. The elimination of _Agrobacterium_ and the selection of transformants were performed in two steps, solid and liquid medium. Firstly, the infected tTCLs were selected on VW solid medium supplemented with 30 mg/l hygromycin and 250 mg/l cefotaxime for 1 month and then transferred into VW liquid medium supplemented with the same concentration of both antibiotics for 2 months. For plantlets regeneration, the PLBs derived from survived tTCLs were cultured on VW solid medium supplemented with 15 % homogenated potato 1 % sucrose and 0.2 % activated charcoal. The above procedures yielded 7 putative transformed lines of _Den. BomI7’ and 3 putative lines of Den. ‘Earsakul’ when transformed via antisense CPACO1 construct while in the antisense _CPACO2_ construct 4 and 3 putative lines were obtained from these 2 orchid cultivars, respectively.

All of putative transformants were subjected to PCR analysis of hpt gene and the result demonstrated the present of 800 bp of hpt gene in all transformants. The Southern blot analysis of hpt gene revealed the 2-4 copies of hpt gene incorporated into the _Dendrobium_ genome. ACC oxidase activities and ethylene production measurements were studies on young leave of the transgenic plants and the results indicated that five transgenic lines had lower level of both enzyme activity and ethylene production than that of untransformed line.