
Full length of Ethylene Response Sensor1 (Den-ERSI) was isolated from 2 Dendrobium cultivars ‘Khao Sanan’ and ‘Pompadour’. The Den-ERSI from ‘Khao Sanan’ and ‘Pompadour’ cDNA sequences were 2,299 and 2,307 nucleotides in length which encode 621 and 622 amino acid, respectively. Genome organization of Den-ERSI consists of 3 exons (exon I, II and III) and 2 introns (intron I and II). The presence of cis acting elements within putative promoter region and introns was determined using bioinformatics approach including PLACE and PlantCARE. Core promoter, TATA and CAT box was found at position -57 and -74 from transcription start site. Important ethylene related elements including ethylene response elements (ERE; ATTCAAA) in 5’ flanking region and wound-responsive element (WUN; AAATTTCCCT) in intron II were found. Southern analysis indicated a single copy of Den-ERSI in ‘Khao Sanan’ and ‘Pompadour’. The presence of Den-ERSI transcript in orchid organs as well as during flower development and flower senescence both natural and induced was investigated using Northern analysis. Den-ERSI was found differentially expressed in every orchid organ. Within flower parts, Den-ERSI transcripts were found highly accumulated in lip and column. The transcripts were accumulated in young bud (B3) and decreased as flower development progressed and increased again at full bloom (OF4). During flower senescence, the expression was high at early senescent stages and decreased towards the end of senescence. Pollination and emasculation induced flower senescence in both ‘Khao Sanan’ and ‘Pompadour’ and reduction in Den-ERSI expression.