Title Ethylene receptor transcript accumulation patterns during flower senescence in Oncidium 'Gower Ramsey' as affected by exogenous ethylene and pollinia cap dislodgment

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Abstract

The cDNA encoding a putative ethylene response sensor (ERS) type ethylene receptor OgERS1 of *Oncidium* was cloned and the deduced amino acid sequence of OgERS1 was structurally characterized. Phylogenetic analysis of amino acid sequences of ethylene receptor homologues indicated that OgERS1 was closely related to other members of ethylene receptors from monocotyledonous plants. *OgERS1* was expressed abundantly in roots and flower buds, and a lesser extent in pseudobulbs, leaves, and fully opened flowers. *OgERS1* mRNA levels in fully opened flowers during the natural senescence increased with days after cutting and reached the maximum in the fifth day of bloom. The accumulation of *OgERS1* mRNA began to decrease at the day when ethylene raised abruptly and the flowers started to wilt. The expression of *OgERS1* mRNA in pollinia de-capped *Oncidium* flowers showed an increasing and then decreasing trend toward the late stage of flower senescence as in un-dislodged fully opened flowers, and the overall expression level was decreased throughout the senescence period referred to un-dislodged flowers. Our results concluded that the expression of ethylene receptor *OgERS1* is differentially expressed in different organs and the pollinia cap dislodgment alleviated the mRNA levels of ethylene receptor initiated by exogenous ethylene treatments.