

Weeranat Saksing 2010: Effect of Ethylene on Petal Fading in Cut *Dendrobium* Flowers. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Mrs. Anchaya Mongkolchaiyaphruek, Ph.D. 91 pages.

Orchid is one of the most important cut flowers in Thailand. Senescence, especially the petal fading is one of the key issues affecting the quality and vase life of the orchid flowers. Since ethylene plays a role in the various plant senescence. Therefore, this study was focused on effect of ethylene on petal fading and anthocyanin degradation in 5 commercial cut *Dendrobium* flowers such as 'Sonia Bom#17', 'Lucky Duan', 'Princess', 'Jacky' and 'Sakura'. The result showed that detached *Dendrobium* flowers treated with 30 mg L<sup>-1</sup> ethephon was induced senescence and anthocyanin degradation, 'Sonia Bom#17' was the most sensitive to ethylene. The fading of ethephon treated flowers was preceded by an increase in membrane permeability. The increase in polyphenol oxidase (PPO), peroxidase (POD) and anthocyanase activities coincided with anthocyanin degradation. In addition, treatment of ethephon treated flowers with 500 nl L<sup>-1</sup> 1-methylcyclopropene (1-MCP) delayed senescence and reduced anthocyanin degradation, ion leakage, PPO, POD and anthocyanase activities. Treatment of detached flowers with 1 mM cycloheximide (CHI) and 30 mg L<sup>-1</sup> ethephon indicated that the synthesis of PPO, POD and anthocyanase were induced after treated with ethylene.

---

Student's signature

Thesis Advisor's signature