

CHAPTER 8

CONCLUSION

Fragrance is new character that breeder would like to incorporate into commercial dendrobium cultivars. In order to do that, fragrant *Dendrobium* species have to be employed in breeding program. However, there are some obstacles to overcome such as plant compatibility, fruit drop, pollinia viability and way to prove hybrids whether the hybrids are developed from two parents not parthenocarpy type. Four experiments were conducted in this study. The first one was the study on effects of temperature and storage period on pollinia viability percentage of four fragrant *Dendrobium* species, *Den. scabrilingue* Lindl., *Den. anosmum* Lindl., *Den. parishii* Rchb. f. and *Den. peguanum* Lindl.. It was found that the pollinia of *Den. scabrilingue* and *Den. peguanum* could be kept for 180 days whereas the pollinia of *Den. anosmum* and *Den. parishii* could be stored for 240 days, without decreasing viability percentage. Keeping pollinia at 4 °C gave the best result. The pollinia of *Den. scabrilingue*, *Den. peguanum*, *Den. anosmum* and *Den. parishii* still had viability percentage greater than 50% although they were stored at 8 °C for 450 days.

The second one, effect of NAA on fruit setting and delaying fruit drop after pollination were studied. It was found that application of 25 mg/l NAA could delay fruit drop for 3-4 days. However, it could not help fruit set. None of the crosses using *Den. Jaquelyn Thomas* as fruit parent and *Den. scabrilingue*, *Den. peguanum*, *Den. anosmum* and *Den. parishii* as pollen parents had fruit set.

The third one was a study on phenotypic distribution of progenies derived from the cross between *Den. Emma White* and *Den. parishii*. Some quantitative characters such as pseudobulb length, number of leaves, inflorescence length and number of flowers showed positive skew of their phenotypic distribution. However, phenotypic distribution of pseudobulb width, leaf length, leaf width and flower width were negative skew. All of the quantitative characters showed the frequency near means, leptokurtosis, and most of them had their means less than mid-parent

values, except flower width and flower longevity which had their means near mid-parent values. Sepals, petals and epichile of lip of all progenies had purplish white color whereas the central of lip had keels and presented purple blot color.

The fourth one was on using RAPD technique to detect the relationship of parental plants and their progenies. Twenty primers were tested for good polymorphic DNA banding pattern on four *Dendrobium* species, three commercial dendrobium cultivars and progenies derived from three crosses such as *Den. Emma White* × *Den. parishii*, *Den. Anna* × *Den. parishii* and *Den. Sonia 'Red'* × *Den. parishii*. It was found that four primers, OPF 01, OPF 04, OPF 07 and OPF 10, gave polymorphic DNA bands with high resolution and could be used to differentiate parental plants. In the cross between *Den. Emma White* and *Den. parishii*, OPF 07 and OPF 10 primers produced well defined polymorphic DNA bands of the parental lines and their progenies with clearly distinguishable polymorphisms. The used of RAPD technique did not success to find out scent marker from the parental lines and their progenies.