Thanita Boonsrangsom 2007: Development of Microsatellite Markers for *Dendrobium* Orchids. Master of Science (Genetics), Major Field: Genetics, Department of Genetics. Thesis Advisor: Associate Professor Surin Peyachoknagul, Dr.Agr. 89 pages.

Microsatellite markers for *Dendrobium* orchids were developed using SSR enrichment procedure. Two genomic libraries were constructed from the DNA digested with either *Mse*I or *Taq*I. They were screened for the presence of microsatellite sequences with 6 types of biotinylated oligonucleotide probes ($(CA)_{15}$, $(GA)_{15}$, $(ACC)_{10}$, $(CCT)_{10}$, $(GAT)_{10}$ and $(ATCT)_7$) for DNA digested with *Mse*I and with 4 types of biotinylated oligonucleotide probes ($(CA)_{15}$, $(GA)_{15}$, $(ACC)_{10}$ and $(CCT)_{10}$) for those digested with *Taq*I. The positive clones were reconfirmed by dot blot hybridization showing 26% and 90% of the respective two groups. The total of 195 positive clones were sequenced, of which 62.8% and 88.8% contained SSR motifs, respectively. Different types of repeat motif were found comprising of GA/TC (50.0%), CCT/AGG (22.8%), 15 types of compound repeat (20.4%), $GGGTTTA_n/TAAACCC_n$ (5.6%), CA/TG (0.6%) and GAT/ATC (0.6%). Seventy-three clones were chosen for primer design. Eight primer pairs could be used to amplify the products giving the expected sizes and detect genetic polymorphism in the population with the allele numbers ranging from 4 to 7 (average 5.25 alleles per locus), observed heterozygosity (H_o) of 0.0612 to 1.0000 (average 0.7398), expected heterozygosity (H_e) of 0.0788 to 0.7323 (average 0.5871) and effective number of allele (n_e) of 1.0855 to 3.7355 (average 2.7850). The genetic relationships of 49 *Dendrobium* hybrids were analyzed using NTSYS-pc version 2.1m program. The results showed that *Dendrobium* samples could be identified but they were not clearly separated into distinct clusters.

Thanita Boonsrangsom — Student's signature

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