Pitima Pumpuang 2014: Genetic Relationships of *Globba* in Thailand using AFLP Technique. Master of Science (Horticulture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Assistant Professor Shermarl Wongchaochant, Ph.D. 71 pages.

The genetic relationships among 45 taxa of *Globba* were collected from the Queen Sirikit Botanic Garden, the botanical garden organization, Chaingmai and greenhouse of Facuty of Agricultural Production, Maejo University, Chiangmai were investigated using AFLP (Amplified Fragment Length Polymorphism) markers. AFLP analysis was performed using *EcoR*I and *Mse*I primer combinations. The ten primer combinations of fifteen primer combinations were selected as the suitable primer pairs for successful DNA amplification. In total 624 putative loci were scored. The similarity index and cluster analysis (UPGMA) of the collected taxa were carried out using NTSYS-pc version 2.2 program. The results showed that dendrogram was clustered into five main groups 3 subgroups. The results of phylogenetic relationships based on DNA fragment data among *Globba* taxa in the present study almost all agreed with that inferred from previous classification based on morphological characteristics e.g. anther appendage number, anther appendage shape, and inflorescence bract shape. Moreover, the phylogenetic dendrogram could also use for clarifying genetic relationships among the collected unknown *Globba* sp. in this studies. Therefore, AFLP technique could be the good tool for grouping *Globba* taxa even unknown morphological characteristic taxon. The background genetic information will be really useful for *Globba* breeding program in the future.

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