

Savitree Ritchuay 2012: Development of EST-SSR Markers for Orchid in *Doritis* Family and Genetic Diversity Assessment of *Doritis* Species in Thailand. Master of Science (Genetics), Major Field: Genetics, Department of Genetics. Thesis Advisor: Assistant Professor Chatchawan Jantasuriyarat, Ph.D. 105 pages.

*Doritis* is a wild terrestrial orchid, originated in the Northeastern part of Thailand. With its good floral structure and very diverse color, it has high potential to develop into commercial ornamental plant or to use as a hybridizer with other orchid species. Unfortunately it has not been study in detail for its potential of development. In this study we developed SSR markers from EST database and examine the transferability of genomic SSR markers from other orchids in *Doritis*. 8,009 ESTs belong to family *Orchidaceae* were collected and analyzed for microsatellite. A total of 195 EST-SSR were identified. Twenty-three EST-SSR and seven genomic SSR primers (from *Dendrobium* and *Serapias*) were used for genetic diversity assessment of *Doritis* germplasm. 142 alleles were generated in which, 92 alleles (64.8%) show polymorphism among 30 *Doritis* accessions (*D. regnieriana*, *D. pulcherrima* and *D. pulcherrima* var. *buyssoniana*.). The polymorphic information content (PIC) average at 0.6076 and ranged from 0.1244 to 0.8439. The phylogenetic tree based on UPGMA showed three major clades based on their taxonomy indicating that SSR markers developed in this study can be used for identification, conservation and selection of appropriate parents for the *Doritis* hybrid production in future.

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