

Patcharin Taridno 2008: Genetic Diversity in the Southeast Asian *Solanum*.  
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Horticulture. Thesis Advisor: Associate Professor Sutevee Sukprakarn, Ph.D.  
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Eighty-nine accessions of *Solanum* spp. originally collected from Southeast Asia have been regenerated and characterized, using a standard set of IBPGR descriptors, at Genetic Resources and Seed Unit (GRSU), Asian Vegetable Research and Development Center (AVRDC), Shanhua, Tainan, Taiwan from October 2005 to May 2006. Eleven species were identified as follows: *Solanum melongena* L. (38 accessions), *S. aculeatissimum* (2 accessions), *S. aethiopicum* (1 accession), *S. ferox* (17 accessions), *S. indicum* (8 accessions), *S. mammosum* (1 accession), *S. sanitwongsei* (1 accession), *S. torvum* (11 accessions), *S. trilobatum* (3 accessions), *S. viarum* (1 accession) and *S. xanthocarpum* (6 accessions). The 69 accession of 89 accessions were grouped into ten clusters based on the quantitative traits and nine clusters based on qualitative traits. The quantitative traits however had more variation than qualitative traits and showed almost the same composition in each cluster. The variation among the eleven *Solanum* spp. can be also attributed to their inherent variation and geographic distribution.

The interspecific hybridization was also applied to determine the genetic relationships between cultivated *Solanum melongena* and other four species (*S. torvum*, *S. americanum*, *S. villosum* and *S. nigrum*). The crossability among the species was determined by percentage of fruit set and number of seeds per fruit. The results showed that *S. torvum* was more closely related to *S. melongena* than the other *Solanum* (*S. americanum*, *S. villosum* and *S. nigrum*). From the interspecific crossability among these three *Solanum*, the *S. americanum* is more closely related to *S. villosum* than *S. nigrum*. Furthermore, The pollen fertility of interspecific hybrids ( $F_1$  hybrids) was lower than their parents.  $F_1$  hybrids showed intermediate morphological characteristics and ploidy levels when compared to their parents.

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