

Anucha Wongpraneekul 2008: Pedigree Analysis of Thai Sugarcane Germplasm. Master of Science (Plant Breeding), Major Field: Plant Breeding, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Prasert Chatwachirawong, M.S. 135 pages.

Pedigree analysis of sugarcane allows understanding the relationship among each sugarcane germplasm with their ancestral parents and species which can help the breeder to select the right parents for more effective breeding programs. A study under the project on Evaluation of Sugarcane Germplasm of the National Center for Genetic Engineering and Biotechnology, information of sugarcane germplasm was collected from three organizations, viz., Office of the Cane and Sugar Board (OCSB), Department of Agriculture (DOA), and Kasetsart University (KU). Altogether 620 sugarcane clones were identified from pedigrees of 218 parental lines used in crossing. Analysis of relationship by coefficient of parentage showed that sugarcane germplasm from all breeding organizations have genetic base from *Saccharum officinarum* (28.33%), *S. spontaneum* (5.56%), *S. barberi* (9.31%), *S. sinense* (2.73%), *S. robustum* (0.00%), *Sorghum spp.* (0.01%) and *Saccharum* complex (54.07%). These ancestral parents included genetic base from the cultivars Black Cheribon (17.60%), Chuneo (11.24%), Bandjermasin Hitam (11.06%), Loethers (11.03%), Kansar (9.32%), Uba Marot (5.88%), Lahaina (5.83%), Glagah (5.73%) and Red Fiji (5.36%). Results from this analysis indicated Thai sugarcane germplasm comprised mostly genetic base from *S. officinarum*. The *Saccharum* complex cannot be identified by their origins, because a part of sugarcane parents were developed from open pollination while some exotic clones were collected without knowing their.

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Thesis Advisor's signature