

leucaena species needs to be classified on the basis of their utilization potential and suitability for specific regions at different resources levels.

References

Brewbaker JL and CT Sorensson (1993) Demonstration of lesser-known species in the genus *Leucaena*. In: Leakey R and A Newton (Eds) *Tropical Trees-the Potential for Domestication*. Institute of Terrestrial Ecology, Edinburgh, UK

Faruqui SA, SK Gupta and PS Pathak (2002) Identification of *Leucaena* germplasm for utilization in relation to psyllid, (*Heteropsylla cubana*) infestation and damage. Paper presented

at "National Seminar on Resources Management in Plant Protection during Twentieth Century Nat. Seminar on Resources Management in Plant Protection during Twentieth Century held at ISPP, Hyderabad November 14-15, 2002, 67p.

Hughes CE (1993) *Leucaena Genetic Resources. The OFI Leucaena Seed Collection and a Synopsis of Species Characteristics*. Oxford Forestry Institute, Oxford, 117 p.

Shelton MH, CM Piggan and JL Brewbaker (1995) *Leucaena-Opportunities and Limitations*. Proceedings of Workshop held in Bogor, Indonesia, 24-29 Jan 1994. ACIAR Proceedings No. 57, 241 p.

Wheeler, RA (1988) *Leucaena psyllid trial at Waimanalo, Hawaii. Leucaena Research Reports 25-29.*

Introduction and Evaluation of *Saccharum* Germplasm from Thailand

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Key Words: *Saccharum spontaneum*, Germplasm, Evaluation

Saccharum spontaneum L, a wild relative of sugarcane has contributed significantly to the evolution of modern sugarcane varieties, which are complex interspecific hybrids involving two or more species of *Saccharum*. This species is characterized by profuse tillering with underground stolons. It contains very low sugar and high fibre. The species is resistant to diseases and pests and shows tolerance to abiotic stresses like salinity, water logging and drought. It exhibits the widest geographical distribution also. In view of the importance of this species in the breeding programmes, adequate attention has been given for its collection, conservation and characterisation. Within the country, organized attempts have been made to collect the available rich diversity of the species and to conserve it in the germplasm collection. The world collection of germplasm includes *Saccharum spontaneum* from its distributional areas in the country. Besides, accessions from other countries were also imported to augment the genetic diversity of the species. *Saccharum spontaneum* germplasm maintained in India is represented by the accessions from the Indian sub continent, South East Asia, China, Polynesian islands and Africa. Most of the *Saccharum spontaneum* collections available in the germplasm have been characterized and documented in two germplasm catalogues (Kandasami *et al.*, 1983 and Sreenivasan *et al.*, 2001).

The present study was an attempt to evaluate thirty-nine recent introductions of *Saccharum spontaneum* from

Thailand with respect to agronomically important characters. The thirty-nine clones of *Saccharum spontaneum* were imported from Thailand during 1999 and 2001 in two batches through the National Bureau of Plant Genetic Resources, New Delhi. The first batch of materials was quarantined in 1999 at Central Plantation Crop Research Institute, Kasargod for one year. The second batch was received in 2001 and was quarantined at Sugarcane Breeding Institute Research Centre, Agali for one year. Healthy seed materials were brought to Sugarcane Breeding Institute, Coimbatore during 2003 and were planted as two clumps per genotype in 2m long plots. Data on number of stalks per clump, stalk height, stalk diameter and internode length were recorded after 12 months. Intensity of flowering, pollen fertility and Hand refractometer Brix were also recorded. Mean, range and variation for different attributes are presented in Table 1.

Table 1. Mean, range and variation of 6 traits for 39 clones of *Saccharum spontaneum* imported from Thailand

Variable	Range	Mean	CV %
Stalks per clump	30 to 120	74.89	26.979
Stalk height (cm)	140 to 270	207.60	16.009
Stalk diameter (mm)	8.02 to 15.37	10.80	19.5213
Internode length (cm)	8.1 to 20.2	13.84	34.507
Pollen fertility %	62.7 to 99.9	94.38	23.888
HR Brix %	2 to 13.4	6.26	43.009

The clones studied exhibited moderate variability for different characters. Number of stalks per clump ranged from 30 to 120 with a mean of 75 stalks per clump. Stalk length ranged from 140 cm to 270 cm with a mean of 208 cm. Stalk diameter ranged from 6.02 mm to 15.37 mm with a range of 10.8 mm. The internode length ranged from 8.1 cm to 20.2 cm with a mean of 13.84 cm. The pollen fertility ranged from 62.7 to 99.9%. The mean pollen fertility was 94.38%. Hand refractometer brix ranged from 2.0 to 13.4% with a mean of 6.28%. Out of the thirty-nine clones evaluated thirteen clones did not flower. Of the twenty-six clones that flowered, all except one (MPTh 97-113 with 62.7% pollen fertility) had a high pollen fertility of above 80%. Six clones recorded HR Brix of 10% and above at 12th month and the highest recorded was 13.4% in MPTh 99-458. The lowest Brix of 2.5% was recorded in MPTh 97-208.

The variability observed for the six characters was low to moderate. Variability for stalk diameter and stalk

height was low while that for internode length and H.R.Brix was moderate. MPTh 97-228 with stalk height of 275 cm and internode length of 13.77 cm is one of the superior clones, with moderate flowering intensity and 90.2 percent of pollen fertility. This clone could be useful in the breeding programmes. Another clone, MPTh 97-208 with stalk height of 250 cm and Internode length of 13.3 cm is also superior, but it did not flower. All these materials are being maintained at Sugarcane Breeding Institute, Research Centre, Agali.

References

- Kandasami PA, TV Sreenivasan, TC Ramana Rao, K Palanichamy, BV Natarajan, KC Alexander, M Madhusudana Rao and D Mohanraj (1983) Catalogue on Sugarcane Genetic Resources 1. *Saccharum spontaneum* L. Sugarcane Breeding Institute, Coimbatore 641 007
- Sreenivasan TV, VA Amalraj and A William Jebadhas (2001) Sugarcane Genetic resources V *Saccharum spontaneum* Vol.II 125 p. Sugarcane Breeding Institute, Coimbatore 641 007
- Naidu KM, and TV Sreenivasan (1987) Conservation of sugarcane germplasm in: Copersucar international sugarcane Breeding Workshop. Copersucar p 33-54.

Introduced Germplasm and Varieties of Sugarcane

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Sugarcane (*Saccharum hybrids*) is a major cash crop of the tropical and sub-tropical regions of India. In the world, India ranks second in area and production of sugarcane. Sugarcane Breeding Institute, Coimbatore is the pioneering research center for developing improved sugarcane varieties. It is designated as one of the two repositories of world collection of sugarcane genetic resources. It is also identified as the National Active Germplasm Site by NBPGR. Sugarcane improvement programme throughout the world is closely linked with the exploration, collection, introduction and utilisation of both cultivated and wild genetic resources. The interspecific hybridisation involving cultivated and wild species forms the basis of varietal improvement programmes.

The two major centers of diversity for the cultivated species *S. officinarum* and the wild species *S. robustum*

are New Guinea and the adjoining island chains of Indonesian Archipelago. *S. officinarum* also known as 'noble cane', have soft, thick, juicy stems with high sucrose content. One introduced variety 'Poovan' has been under cultivation since long as chewing cane used during Pongal harvest festival. This species is generally used as female parent in all the basic hybridisation programmes and around 35 clones figure in the pedigree of commercial varieties. Number of clones of sugarcane germplasm introduced from different countries are given in Table 1.

Under an Exploration and Collection programme titled '*Spontaneum Expedition Scheme*' sponsored by the Indian Sugarcane Committee, over 500 clones of wild sugarcane germplasm mainly representing *S. spontaneum*, and *Erianthus* were collected by SBI from India and adjoining countries (listed in Table 1) from