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Dendrolobium spp. — a source of tropical multipurpose legumes

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Key words : *Dendrolobium*, tropics, shrub legumes, DM production, forage quality

Introduction Drought-tolerant legume shrubs can enhance the sustainability of smallholder production systems in the tropics by providing year-round high-quality feed and fuel wood, and services such as soil fertility conservation. The genus *Dendrolobium* hosts such potential multipurpose legumes but has so far been neglected by non-botanical research. There are some 12 species, all perennial shrubs or small trees native to tropical Asia (Lock & Heald, 1994). CIAT holds a *Dendrolobium* collection of 70 accessions collected in the 1980s in tropical China, Thailand, Malaysia, Indonesia, and Papua New Guinea. It is indicated to conduct a first assessment of the potential of this collection, describe its genetic, agronomic and nutritive-value diversity, and identify promising accessions. For this, molecular-marker studies and germplasm description and evaluation are currently carried out with those *Dendrolobium* accessions which in 2006 had seed available. Here the first-year results from a field experiment on forage yield and quality are presented.

Materials & methods The experiment is carried out at the CIAT-Quilichao station near Cali, Colombia. Eight-week old seedlings of *D. lanceolatum* (14 accessions), *D. triangulare* (34 accessions representing three distinct types, probably different botanical varieties), and *D. rugosum* (4 accessions), were planted into single-row plots with 5 plants each (1 m between plants, 1.5 m between rows). The experimental design is a Randomized Complete Block with 3 replications.

Results & discussion There is a considerable range in DM production and nutritive value (Table 1). Comparing with 8-week old regrowth of *Desmodium velutinum* (Schultze-Kraft et al., 2005), overall DM yields and IVDMD are low while CP content is similar. It is noteworthy that *D. lanceolatum* has higher yields in the dry than in the wet season; its nutritive value, however, is quite low. *D. triangulare* variety 3 stands out because of high yields in both seasons.

Table 1 Herbage (edible ≤ 5 mm stem diameter) DM yield of 8-wk old regrowth in the wet and dry season (1 cut each), and foliage CP content and IVDMD (wet season) in a 52-accession collection of *Dendrolobium* spp.

Species (No. of accessions)	Season	DM (g/plant)		CP (% Nx6.25)		IVDMD (%)
		Wet	Dry	Wet		
<i>D. lanceolatum</i> (14)	Range	5-44	15-84	12-17		29-50
	Mean (SD)	27.2 (16.8)	43.3 (28.0)	15.5 (1.1)		37.8 (4.4)
<i>D. triangulare</i> var. 1 (25)	Range	47-121	14-94	16-23		35-56
	Mean (SD)	82.4 (31.8)	52.0 (29.7)	20.0 (1.5)		45.2 (3.8)
<i>D. triangulare</i> var. 2 (5)	Range	16-242	20-116	16-22		41-65
	Mean (SD)	91.1 (102.4)	44.3 (42.1)	19.9 (1.7)		49.5 (6.8)
<i>D. triangulare</i> var. 3 (4)	Range	134-189	74-106	18-24		38-56
	Mean (SD)	153.8 (43.1)	86.3 (36.7)	21.2 (2.0)		46.4 (6.8)
<i>D. rugosum</i> (4)	Range	24-30	18-29	16-19		38-56
	Mean (SD)	26.7 (6.2)	25.3 (10.5)	17.2 (1.0)		45.6 (5.9)

Conclusions On the basis of these initial results, the highest potential of the species is in *D. triangulare*. Particularly its variety No. 3 seems to deserve further attention.

References

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