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Flemingia macrophylla — A Tropical Shrub Legume for Dry Season Supplementation — Forage Quality and Dry Matter Production

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Abstract

Flemingia macrophylla is a drought-tolerant shrub legume well adapted to low-fertility, acid soils of the sub-humid and humid tropics. It is especially suited to low-input smallholder production systems. The species enhances soil fertility and can be used for a number of purposes such as dry season forage supplementation, live soil cover or mulch, erosion barrier hedges, shade-providing shrubs in young coffee and cocoa plantations, firewood, and others. Its particular advantages are: vigor, leafiness, wide range of soil adaptation including very acid, low-fertility soils, drought resistance, excellent coppicing capacity and regrowth after cutting, and slow leaf decomposition. Few genotypes are currently utilized. Their main limitation is low nutritive value in terms of digestibility because of high tannin content combined with very low palatability to cattle. The aim of the study was to assess the genetic diversity within the available germplasm collection, and to identify materials with superior quality. Evaluations on plant characteristics related to forage quality (digestibility, palatability, nitrogen, fiber and tannin content) were carried out. Results of the morphological and agronomic evaluations indicate considerable variation in the collection. *In vitro*-dry matter digestibility of 8-week old foliage varied from 33 to 53 % and crude protein content from 15 to 24 %. Several accessions with superior DM yield and better digestibility than the control variety CIAT 17403 were identified. More detailed analysis of two subsets showed that accessions with higher feed quality in terms of digestibility and DM production had lower tannin and fiber contents than low-quality accessions. Morphological studies clearly revealed four different growth types. Agronomically promising accessions were either of the erect or semi-erect type. Based on the results of this study, the five agronomically most promising accessions were identified. Further research is needed to optimize propagation, as seed production of these accessions is very low.

Keywords: Digestibility, *Flemingia macrophylla*, forage legumes, forage quality, tropics

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