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## Diversification in the Use of the Seeds of Five Soil Nitrogen Enriching Tropical Plants Used on Marginal Lands for Livestock Production

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### Abstract

The seeds of five plants (*Enterolobium cyclocarpum*, *Mucuna pruriens*, *Centrosema pubescens*, *Lablab purpureus* and *Gliricidia sepium*) which are normally used for nitrogen enrichment in marginal soils were harvested. Their chemical, antinutritional factor (ANFs) and amino acid compositions were determined. The aim is to promote the use of the seeds for livestock production. Samples of the seeds were sun-dried and milled. A portion of the milled samples was subjected to wet heating by autoclaving. The proximate, mineral, total phenols, tannin, phytic acid, L-dopa, cyanide and amino acid compositions were analysed. The highest crude protein was in *G. sepium* (498 g kg<sup>-1</sup>) followed by *M. pruriens* (278 g kg<sup>-1</sup>). The lowest crude protein was in *M. esculenta* with 209 g kg<sup>-1</sup>. The crude fibre in *E. cyclocarpum* was the highest with 131 g kg<sup>-1</sup> while *G. sepium* and *C. pubescens* had the lowest crude fibre with 92 g kg<sup>-1</sup> each. Total phenols, tannin and L-dopa were significantly higher in *M. pruriens* with levels of 30.4, 7.1 and 13.2 g kg<sup>-1</sup>, respectively. The highest levels of phytic acid and cyanide were present in *G. sepium* with 14.8 and 7.6 g kg<sup>-1</sup>, respectively. There were remarkable reductions in the levels of the ANFs in the seeds after autoclaving. Of the total phenols 71, 62, 73 and 80% of the total phenols in the *M. pruriens*, *L. purpureus*, *C. pubescens* and *G. sepium*, respectively was eliminated. Of the essential AAs, the levels of methionine, threonine and lysine in the seeds were lower than reported levels in soy bean meal. The levels of valine, leucine, isoleucine and histidine were comparable to those in soy bean meal. The level of histidine in *G. sepium* was much higher than in soy bean meal. Based on the FAO/WHO scoring pattern, methionine was the first limiting amino acid in all the seeds.

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