Nutritive evaluation of three Acacia species

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O.C. Moreira, J.R. Ribeiro, M.T.P. Dentinho

Unit of Animal Production - L INIA Fonte Boa-INRB, 2005-048 Vale de Santarém, Portugal.

OBJECTIVES:

Acacia species are of special significance as source of feed for ruminant livestock, mainly in arid and semiarid regions. The objective of this study was the nutritive evaluation of *Acacia cyanophylla, Acacia dealbata, Acacia karroo* in May and November.

METHODOLOGY:

•Leaves of *A. cyanophylla, A. dealbata, A. karroo,* randomly chosen in the Centre of Portugal, were sampled in May and November.

•Chemical analysis: crude protein (CP), cell wall constituents (NDF, ADF, ADL) total phenols (TP) , total tannins (TT) and macrominerals.

•Nutritive parameters: organic matter (OMD) digestibility and mineral (Ca, P, K, Mg) disappearances evaluated in a *Daisy® Rumen Incubator,* following the *ANKOM* Technology:

- •0.5 g of sample per bag (50x55 mm, heat sealed),
- •25 bags per incubation jar: duplicates of 7 test samples and 5 standards and 1 blank,
- •incubation for 48h (rumen juice and buffer solution), washing and treatment with neutral detergent, drying to constant weight and analytical

•Statistical analysis - Data were analysed for the effect of species, period and their interactions using the GLM procedures of SAS.

RESULTS:

Table 1 - Organic constituents and in vitro digestibility of leaves of Acacia species (n=5)

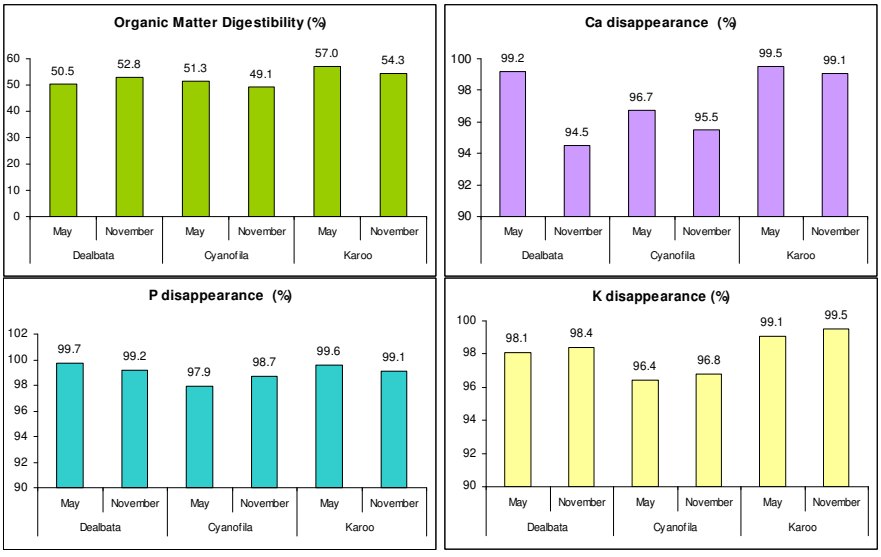
Species	Dealbata		Cyanofila		Karoo	
Period	May	November	May	November	May	November
CP [1]	15.9	18.4	16.9	16.6	14.1	18.9
NDF[1]	44.6	45.1	44.0	38.9	37.5	35.5
ADF[1]	33.1	29.4	31.7	26.5	29.6	19.7
ADL[1]	21.2	19.1	17.5	13.7	17.2	10.0
TP [2]	5.85	6.36	2.79	3.85	1.39	2.51
TT [2]	2.03	3.47	0.67	1.69	0.33	0.96

[1] % of DM; [2] Tannic acid equivalent in % of DM

Table 2 - Mineral composition (% DM) of leaves of Acacia species (n=5)

Species	Dealbata		Cyanofila		Karoo	
Period	May	November	May	November	May	November
Ash	5.46	5.6	10.6	12.8	12.1	9.1
Ca	1.23	1.32	2.58	3.5	3.5	1.86
P	0.11	0.14	0.13	0.15	0.13	0.22
Na	0.049	0.042	0.068	0.065	0.17	0.14
K	0.3	0.31	0.68	0.42	1.46	1.54
Mg	0.35	0.44	0.39	0.4	0.55	0.35

In vitro Digestibility and Ca, P and K Disappearances of Acacia species evaluated in the Daisy® System



CONCLUSIONS:

• Crude protein content is higher in November than in May (18.0 vs 15.6 %DM).

• Ca, P, Na, K, total phenols and tannins, varied among species. *A. Karroo* presented the higher mineral concentration and A. *dealbata* the higher phenolic and tannin contents.

• A. *Karroo* presented the lower cell wall contents (NDF, ADF and ADL) (P<0.001). The period only affected ADF and ADL with the lower levels observed in November.

•With exception for Mg, differences of *in vitro* parameters (P<0.05), were observed for the species. *A. dealbata* presented the lowest percentages of OMD (50.2),Ca (96.1) and K (96.6) disappearances.

Ministério da Agricultura, do Desenvolvimento Rural e das Pescas
INRB, I.P. Instituto Nacional dos Recursos Biológicos, I.P.