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Ruminal N degradation of browse and temperate forages, and partition of N into carbohydrates

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The lower N digestibility of browse forages can be explained by the presence of polyphenol compounds (tanins) (Ho Ahn et al., 1989) or by the partitioning herbage N into structural carbohydrates. Van Soest and Sniffen (1984) suggested that partitioning herbage N into neutral and acid-detergent-soluble and -insoluble portions may explain ruminal N degradability. Our objective was to examine this last hypothesis. We measured in the rumen the *in situ* N and cell wall N (NDFN, ADFN) degradability of 2 forages harvested in a semi-arid zone of Senegal (Acacia albida and Balanites aegyptiaca leaves) and 2 temperate forages (Cocksfoot and Alfalfa hays).

The forages ground through a .8 mm screen, and previously the browses were dried at 60°C. *In situ* measurements of degradation (10 incubation times spread between 1 and 96 h) were carried out on using 3 non lactating cows receiving 7 kg DM /animal/day of a diet of hay and concentrate (70/30). After incubation, the bags were washed, beaten for 7 min in a "stomacher" and washed again, to decrease the bacterial contamination of the bag residues. Ruminal degradability of different components was calculated by fixing particle turnover rate at .06/h⁻¹.

The N distribution is more homogenous in the temperate forages than in the studied browses. Consequently, the variations in N degradability is more important for the browses (from 26.7 to 82.6%) than for the temperate forages (from 62.6 to 75.8%). The lowest N degradability of Acacia albida is due to high ADFN content (35.1%) and to undegradability of NDFN -ADFN fraction. In our study, the lower N degradability of browses could be explained by N content in cell wall.

REFERENCES

HO AHN J., ROBERTSON B.M., ELLIOTT R., GUTTERIDGE R.C., FORD C.W. (1989). Anim. Feed Sci. Technol. 27, 147-156
 VAN SOEST P.J., SNIFFEN C.J. (1984). Proc. Distillers Feed Conf. 39, 73-81.
 Table 1: Chemical composition and degradability of N and detergent-soluble and insoluble N of forages

Forages	N %DM	NDFN	ADFN	Degradability (%)		
				N	NDFN	NDFN-ADFN
Acacia	2.43	64.0	35.1	26.7	0	0
Balanites	5.19	17.2	5.5	82.6	17.7	20.7
Cocksfoot	2.40	48.2	7.2	62.6	26.1	26.8
Alfalfa	2.85	36.7	8.0	75.8	43.4	51.7

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