

Comparative study of the muralytic activity of rumen microbes measured *in situ* in llamas and sheep

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Recent studies have shown that microbial activity against plant cell walls is greater in the first forestomach of the dromedary than in that of the ruminant (Kayouli *et al*, 1991).

The aim of the present work was to compare the *in situ* degradation of a wheat straw in 3 llamas and 3 sheep fed on a mixed diet (grass hay / barley = 88/12) at 90% *ad libitum* level. The wheat straw was ground and selected by retention on a 100-micron sieve. Nine nylon bags containing the wheat straw were incubated for 72 h in the rumen of each sheep or each llama, after which 3 bags were distributed between the 3 sheep, 3 others being distributed between the 3 llamas for a further 48 h. The 3 remaining bags were removed,

washed, dried and weighed. The extent of dry matter (DM) loss was measured. One llama was not used during one trial because its rumen cannula had become accidentally detached.

The degradation of the DM of wheat straw after 72 h (fig 1) was significantly lower in the sheep than in the llamas (29.0 as against 45.2%, respectively). Likewise, after 120 h of digestion, degradation was higher in the llamas (53.3 as against 36.5%). There was no significant improvement in the digestion of the wheat straw that had been incubated for 72 h in the llamas when it was placed for a further 48 h in the sheep rumen (47.7 as against 45.2%). In contrast, the degradation of the DM of wheat straw from the sheep rumen was greatly increased when the nylon bags were then placed in the first compartment of the llama (47.7 vs 29.0%). The extent of degradation was exactly the same (47.7%) in samples inoculated successively in both animals, and in no matter which order (sheep + llama or llama + sheep).

In conclusion, the muralytic activity of the microbial population of the forestomachs of llamas against a straw with low digestibility is therefore much higher than that of the sheep rumen.

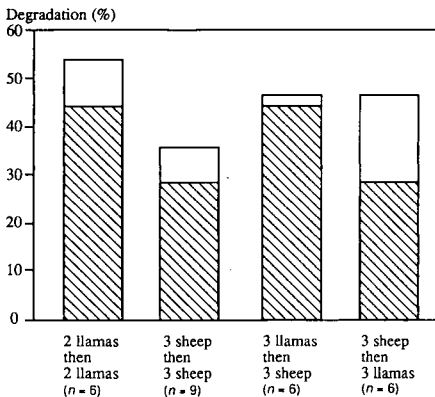




Fig 1. *In sacco* degradation of the DM of wheat straw in the rumen of llamas and sheep (first incubation of 72 h , followed by the second  of 48 h).

Kayouli C, Jouany JP, Ben Amor J (1991) *Anim Feed Sci Technol* 33, 237-245