Effect of method of preparation of fresh tropical browse on *in sacco* estimates of rumen degradability

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Fresh rather than dried samples are normally preferred when determining *in vitro* or *in sacco* degradability of tropical browses because drying can depress degradability (Papachristou and Nastis 1994). However, using strictly fresh samples may be difficult under field conditions because the preparation of fresh leaves of, say, 12 browse plants for nylon bag incubation may take up to six hours (Balogun 1995). During this time, fresh samples may have wilted enough to cause a significant decrease in degradability (Palmer and Schlink 1992). This paper reports the effect of variation in the preparation of fresh *Calliandra calothyrsus* (calliandra) and *Lysiloma watsonii* (lysiloma) leaves on nylon bag dry matter degradability (NBDMD) in the rumen.

Leaves of calliandra and lysiloma were harvested (one species at a time) and a portion was chopped coarse (~ 15mm, T1) or fine (~ 3mm, T2) and incubated immediately. Other portions were chopped fine and held for 6 h in a forced draught oven at 65ºC (T3), in a refrigerator (~ 4ºC, T4), under room temperature (~ 23ºC, T5), or held as unchopped fresh leaves in a refrigerator for 6 h before being finely chopped and incubated (T6). As a result, there were two insertion times into the rumen for each of the two species. Because of the different insertion times, calliandra samples (previously freeze–dried and ground) were incubated as standards at each time of insertion to check variation in rumen conditions. All samples were incubated in duplicate for 48 h in each of five Droughtmaster steers fitted with a permanent cannula.

Degradability of ground calliandra did not vary between insertion times, indicating stable rumen conditions. Dry matter degradability was significantly ($P<0.05$) higher for calliandra than lysiloma, irrespective of the preparation method (Table 1). Coarsely chopped samples (T1) had significantly ($P<0.05$) lower NBDMD than finely–chopped (T2) samples for both species. Holding fresh samples for 6 h before incubation (T3–T6) significantly ($P<0.05$) depressed NBDMD for both species, the decreases being greater for oven–dried (T3) than for refrigerated (T4 and T6) samples. It was therefore concluded that fresh samples should be used for nylon bag degradability studies of tropical browses. However, when a range of species is tested, samples can be harvested and kept under low temperature conditions; though degradability values will be lower than obtained with fresh material they may be acceptable for practical purposes.

Balogun, R.O. (1995). Effect of tannins on the nutritive value of tropical shrubs. M.Sc. Thesis, University of Melbourne.

Palmer, B. and Schlink, A.C. (1992). The effect of drying on the intake and rate of digestion of the shrub legume *Calliandra calothyrsus. Tropical Grassland* **26,** 89–93.

Papachristou, T.G. and Nastis, A.S. (1994). Changes in chemical composition and *in vitro* digestibility of oesophageal fistula and hand plucked forage samples due to drying method and stage of maturity. *Animal Feed Science and Technology* **46**, 87–95.

Table 1 Effect of method of preparation on percent dry matter degradability of calliandra and lysiloma.

Treatment	calliandra	lysiloma
T1	52.7^{e*}	31.9^{d*}
T2	68.5^{a}	36.4^{a}
T3	39.7^{d}	28.2^{c}
T4	63.5^{b}	33.0^{b}
T5	55.7^{c}	31.2^{b}
T6	64.4^{b}	35.1^{ab}

Means within column with same superscript are significantly different ($P<0.05$)
*T1 vs. T2 only
T1 Chopped coarse (15 mm) before incubation. **T2** Chopped fine (3 mm) before incubation. **T3** Chopped fine and oven–dried for 6 h before incubation. **T4** Chopped fine and refrigerated for 6 h before incubation. **T5** Chopped fine and dried at room temperature for 6 h before incubation. **T6** Refrigerated for 6 h before chopping (fine) and incubation.