227. Rumen degradability of Mongolian pastures: a comparison of in situ and in vitro gas production techniques

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In Mongolia, animal performance is very much dependent on the quality and quantity of the native grassland available. There have been few studies to date on the degradation of native Mongolian pastures. Four samples were collected from two pastures in Mongolia, high mountain (HM) and forest steppe (FS), during various months of the year and pooled. The principal pasture species on HM were Festuca leniuscula and Koeleria bieberi and on FS were Stipa krylovii and Agropyron cristatum. The in situ degradation of pasture samples was assessed for up to 96 h using duplicate bags for each incubation time. Samples were also fermented using the Theodorou gas pressure transducer technique up to 70 h and dry matter (DM) disappearance was measured after 70 h. Samples were run in duplicate in two separate runs. Measured values of the extent of degradation were in situ DM disappearance at 96 h, in vitro cumulative gas production at 70 h and dry DM disappearance at 70 h. In situ DM degradation and gas production kinetics (from 12 h incubation) were described, fitting the exponential equation $\nu = \alpha \times (1 - e^{-\beta t})$. Indicators of the extent of degradation obtained from the two techniques were generally highly correlated (for example in situ DM disappearance at 96 h and in vitro DM disappearance at 70 h $R^2 = 0.72$), but the correlation between DM disappearance at 96 h in situ and gas pool size (constant $b$ for gas production) was particularly poor ($R^2 = 0.12$). Rate constants were poorly correlated ($R^2 = 0.27$). Trends in the degradability of pastures with time were equivalent for cumulative gas production at 70 h and in situ DM disappearance at 96 h. It was concluded that the correlations in the extent of degradation were generally good between both techniques, over what was a limited range of degradabilities.