Comparative study of the cellulolytic activity of caecum microbes in ponies and donkeys

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In the context of comparative research on the digestive physiology of donkeys and ponies we have compared the in sacco degradation of fodder in the caeca of donkeys and ponies.

Three adult ponies and 3 adult donkeys with permanent caecum cannulas (225 and 248 kg live weight, respectively) were given a pelleted feed made up of wheat straw, maize grain and soya cake (crude protein CP in dry matter DM = 12.1%; NDF = 64.2%; ADF = 33.4%) at the maintenance level. After a 15 d adaptation period, the straw degradation in the caecum (CP = 3.5% DM; NDF = 77.1%; ADF = 46.5%; CF = 42.4%) was assessed by the nylon-bag technique (Miraglia et al, 1988) as follows: 1) degradation after 24 h; 2) degradation after 48 h; 3) degradation after 24 h in one species and 24 h in the other; with 3 replications per animal, ie 9 results per treatment.

Determination of the cell-wall content was according to Van Soest (1963).

Figure 1 shows that after 24 and 48 h the straw NDF and ADF DM degradation is higher in the donkeys than in the ponies. These results are statistically significant for a 48 h degradation period. The increase in DM, NDF and ADF degradation is higher in donkeys after a period of 24 h in ponies than in ponies after a 24 h period in donkeys.

These results show that the capacity of the caecum to degrade cell walls is higher in donkeys than in ponies.


Fig 1. In sacco degradation in the caecum of ponies (■) and donkeys (□ , 48 h top, 24 h bottom).